

# The Impact of Remittances As A Source of Economic Growth In Ldcs: Case of Zimbabwe Since Independence

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**ABSTRACT:** The study has emphasized on the impact of remittances as a source of economic growth in LDCs. Findings of the study go hand in hand with empirical findings, that remittances as a source of economic growth in LDCs is a fallacy. The objective of finding other factors that affect growth in LDCs in particular Zimbabwe were met with domestic capital investment affecting economic growth positively. The research covers the period from 1980 to 2023 utilizing the IRFs and variance decomposition under VAR model. It takes into consideration all the economic crisis periods that Zimbabwe went through just after attaining independence, thus when Zimbabwe experienced a huge number of its citizens leaving the country to abroad in search of greener pastures. The IRFs showed a positive response from economic growth in the short and long run. The variance decomposition revealed that in the 10<sup>th</sup> period remittances contributed about 11% to economic growth. Some of the theories like the developmentalist theory and empirics revealed and supported the results of this study that remittance has a significant positive impact on economic growth. GDP was utilized as a measure for economic growth. In addition to migrant remittance, other variables that particularly relate to economic growth were included. Domestic capital investment (INV), interest rate (IR) and government expenditure (GEX) which showed a positive long run impact on growth with investment contributing 15% more than any other variable. The level of openness (TOP) measured as a ratio of exports to imports contributes showed a positive impact in the short run under IRFs and contributing the least using variance decomposition around 5%.

**KeyWords:** Remittance, LDCs, IRFs, GDP, GEX, TOP

## I. Introduction

In developing countries, it has become paramount that low incomes and savings have created a huge resource gap, hence calling for foreign finances to compliment the gap (Ghosh 2006). The reliability of relying on foreign finances or aid to enable growth is usually an issue of concern since these foreign finances usually have conditions and policies that might conflict with national policies of many developing states in Africa (Akonji and Wakali 2013). In this era of globalisation and continued falling incomes in most parts of Africa, the rate of migration to middle- and higher-income nations has rapidly grown. With regard to this, Kiiru (2010) noted that economic growth in most emerging economies has been dominated by transmittals of incomes accruing to their citizens working abroad. Therefore, the issue of considering migrant remittances as source of economic growth has become critical in today's development studies. This study focuses on the direction of migrant remittances as a veritable avenue for the mobilisation of capital needed for developing the economies of Africa, Zimbabwe in particular.

According to Adams (1991), any financial flows associated with migration or the monetary transfers that migrants send to the country of origin are called remittances. Remittance can take two forms which are capital or consumer goods and they can be in terms of money. It is important to broaden the definition by taking into account both funds and goods. Ratha (2002), noted that the definition of remittances has been limited by other

researchers to personal flows of money from migrants to the country of origin. However this research is mainly grounded to the definition put forward by Ratha (2002).

Over the past decade, Zimbabwe experienced a substantial exodus of human capital both professionals and non-professionals to different countries through migration due to extensive economic and political instability that incapacitated the government to deliver services to its citizens (Maphosa 2005). Remittances increases during the periods of crisis for example drought. Thousands of professionals, engineers, scientists and scholars have emigrated to surrounding countries like South Africa, Botswana and Namibia and also to European countries mainly to the United Kingdom and United States of America. At the same time even the unskilled Zimbabweans have gone abroad to work as general hand, security guards and taxi drivers.

Zimbabwe encountered the most exceedingly awful economic crisis in its late history, which saw an expected 4 million Zimbabweans moving to different nations (Pasura, 2008). The massive out-migration amid the crisis left the nation enduring the outcomes of brain drain through remittances. However due to the absence of the diaspora policy that can enable the country to give incentives to the diaspora country which can result in increased investment inflows has been a problem that forced people to choose informal channels of remitting. If the majority of migrants remit money through informal channels then remittances inflows and balance of payment (BOP) particularly the current account will be underestimated. In spite of the perpetually increasing exodus of human capital accompanied by inflows of remittances there has been little push by the authorities to examine its exact impact on economic improvement and to some extent to try and lure or attract such external funds to the mother country to invest in productive sectors in the economy. Actually, despite that remittances have been viewed as a fundamental source of income and assurance to ways of life, but in Zimbabwe its significance is not known. On account of the poor comprehension of the effect of remittances in Zimbabwe's financial and human improvement, remittances have remained to some degree inadequately oversaw.

Zimbabwe experienced the highest exodus of its citizens in its history of migration during the land reform period. Due to gradual deterioration of economic and political conditions from 2000 which climaxed to around 2009 the country was toping the charts of human capital exportation (Tambama, 2011). However, the outflow of human capital is associated with an increase in the amount of remittances into the country through informal channels. Due to the absence of the policies that support the diaspora very few people are benefiting from the remittances. Poverty eradication policies such as the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) can be achieved through recognition of the importance of migrants' remittances.

In 1991 the Economic Structural Adjustment Programme (ESAP) was introduced with the aim of enhancing the role of market to attain development, thus to make the economy more stable and also to suite to the global market environment. However according to UNDP (2010), the government failed to adhere to the internal logic of the reforms and instead of attaining the 5% growth rate as per target under ESAP, the actual growth rate was 0.8 %. Chetsanga and Muchenje (2003) noted that ESAP brought economic hardships that pushed out many professionals such as teachers, nurses and doctors to other countries in search of greener pastures. This situation was fuelled by the 1992/93 drought in the country.

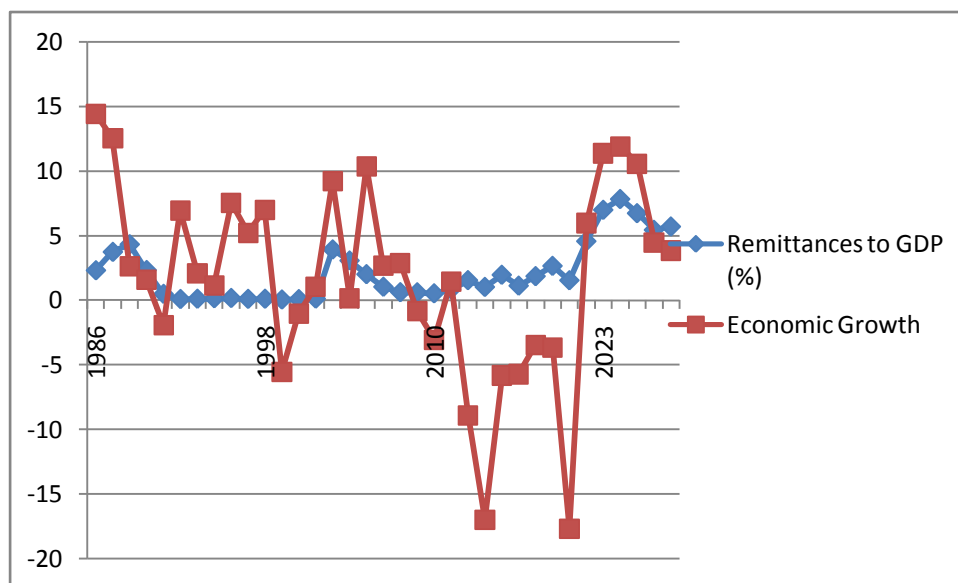
In 1996 to 2000, according to Tambama (2011) Zimbabwe came up with another package to curb the damages that the ESAP left behind, the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST). It aimed at addressing the agenda of land reform, black empowerment and poverty reduction, however the programme faded. The 1997 to 2007 crisis which comprises of the so called Black Friday, the 14 November 1997 crash of the Zimbabwean dollar which was a result of government's unbudgeted payment of gratuities to the war vets. Furthermore this crisis was followed by Land reform programme which was meant for empowering blacks and land was taken from the whites to blacks and this contributed to the imposition of sanctions on Zimbabwe by the West. Zimbabwe's political and economic situation deteriorated resulting to hyperinflation, currency depreciation and high unemployment. This crisis saw Zimbabwe experiencing a number of people

estimated at 3-4 million leaving the country. The vast majority migrated to South Africa, Botswana and United Kingdom (Pasura 2008).

**Trends for Economic Growth and Remittances in Zimbabwe (1980 – 2014)**

Official remittances flows in Zimbabwe were estimated at US\$ 17 million in 1980 by the World Bank and experienced an increase just two years after independence, US\$ 28 million in 1981 and US\$ 33 million in 1982. They however decreased until 1994, when they were estimated at US\$44 million (Labour and Economic Development Research Institute of Zimbabwe, 2009). According to Tevera (2008) both official and informal remittances flows to Zimbabwe amount to between US\$ 360 million and US\$ 490 million every year. An estimated 50% of Zimbabweans receive money from friends and families living out of the country through official channels like Money Gram, Home link, mukuru.com, Western Union, EcoCash, and through Telegraphics Transfers (TTs) via banks (Bracking and Sachikonye 2006). The only recorded remittances inflows are those that are sent through formal channels only.

The relationship between economic growth as annual percentage Gross Domestic Product (GDP) at current price based on local constant currency and remittances expressed as a percentage of GDP is shown diagrammatically below in figure 1.1.



**Figure 1.1: Remittances and Economic Growth for Zimbabwe (1980 – 2023)**

*Source: Reserve Bank of Zimbabwe (RBZ, 2023) and World Bank (2023)*

As shown in the diagram above Figure 1.1, just after attaining independence Zimbabwe experienced a sudden rise in remittances to GDP. Remittances were 2.3% of GDP in 1980 which rose to 4.32 % in 1982, they then gradually decreased as from 1983 to as low as 0.07% in 1985 which continued up to 1993 and remained low at an average rate of 0.09%. They then suddenly increased in 1994 to 3.92% though it fell in next period which prevailed up to 2004. There was a continuous fluctuation in trend which saw remittances contributing 4.8% and 3.6% to GDP in 2006 and 2007 respectively. After the introduction of multicurrency the remittances flows were increasing at an increasing rate due to an increase in the number of formal channels of remitting.

From the diagram above it can be seen that in 1980 Zimbabwe’s economic growth was around 14.42% which decreased to -1.91% in 1984. The period of ESAP economic growth was negative, recorded at -5.53% this is also

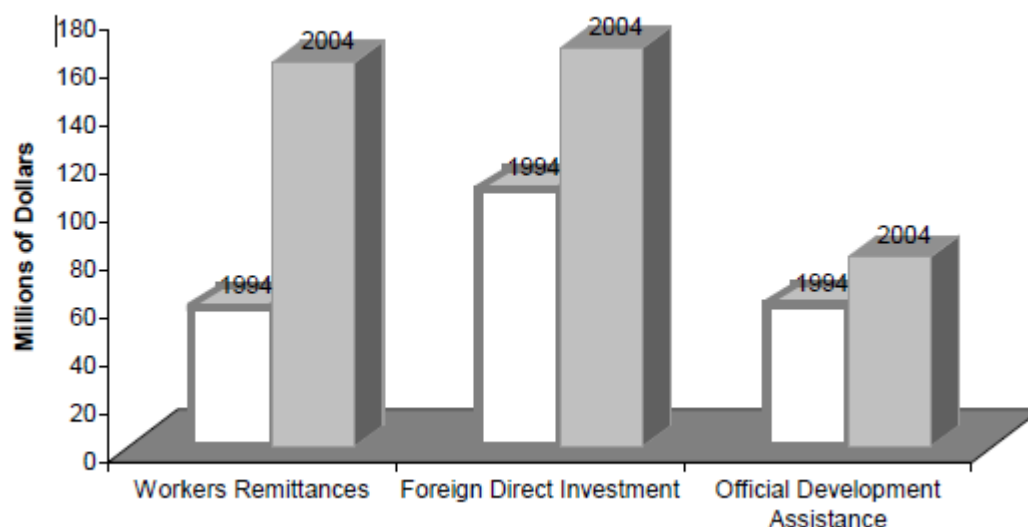
attributed to droughts during the early 1990s. The diagram depicts that economic growth of Zimbabwe continued to decline from the period of 1998 to 2008 which was due to the crises that includes the Black Friday, unbudgeted war vets pay-outs, Zimbabwe's partaking in DRC conflict that led to a further inflating of fiscal deficit and the hyperinflation period that is 2007 to 2008. It can be deduced from the graph that the economy of Zimbabwe's growth rate improved during the multicurrency regime, though the trends show the ups and downs with 2011 experiencing 11.38%. However the postulated relationship between Remittances and economic growth cannot be solely deduced from the graph above (Figure 1.1). Therefore to establish the relationship regression is required.

Remittances emerged as an important external source of finance and have been growing in absolute volumes relative to other sources of external finances. They can represent a relevant percentage of GDP in countries of origin and also can constitute a very important source of foreign exchange. Also remittances have a positive impact on the balance of payments.

It is vital to note the difference between the actual figures and recorded inflows of remittances because part of remittances enters through informal channels hence making it difficult to record such funds in current accounts. This usually is associated with a problem of having different data on same variables for example data for remittance from Reserve Bank of Zimbabwe (RBZ), World Bank and International Fund for Agriculture Development (IFAD) is different. A comparative estimate on Southern Africa Development Committee (SADC) Member State by IFAD in 2007, Zimbabwe was ranked fourth in terms of volumes of remittances received with US\$ 361 million after South Africa with the highest remittances followed by Angola and Mozambique whilst according to RBZ remittance inflows amounted to US\$ 5.2 million. It was ranked third in terms of share of the GDP with 7.2%. Lesotho was leading the charts with 24.1% followed by Mozambique with 7.4%. During the periods of natural disasters and economic depression remittances tend to increase.

### **1.1.3 Remittances and Other External Sources of Capital**

To overcome the high destitution levels and enhance the way of life in developing nations there is need for a significant inflow of external funds with a specific end goal to fill the investments and outside trade crevices. This will expand the rate of capital amassing and growth. Remittances are among these external sources of funds. According to World Bank (2006), remittances are a wellspring of remote trade as well as have turned into the second biggest wellspring of external source of finance for developing nations after Foreign Direct Investment (FDI), as shown by Figure 1.2 below. Remittances have been found to improve development through human capital aggregation and can alleviate neediness by expanding the beneficiary family's income and improving the standards of living (Mim and Ali, 2012). The graph below illustrates the inflow of remittances and other sources of capital like FDI and Official Development Assistance (ODA) to developing countries in Africa, and Zimbabwe is one of the developing countries.



**Figure 1.2: International Capital Flows to Africa**

Source: World Bank (2006)

Remittances are increasingly being considered as a tool of development. This is not surprising considering that remittances constitute a huge international capital flow. World Bank (2006), remittances accounted for an estimated US\$ 232 billion across the world in 2005, of which US\$167 billion was sent to developing countries. In 2008 the amount of official recorded remittances flowing to developing countries were estimated at US\$ 328 billion. Taking into account other funds sent through informal channels the figure would have been 50% higher. However, Makochekanwa (2009), said that in the short run remittance inflows could be injurious to the economy since they can cause real interest rate to appreciate which to some extent it can weaken the Zimbabwe's export competence.

## II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1 Theoretical Literature Review

There are emerging schools of thought in giving clarification on the effect of remittances on economic growth in unindustrialized nations. The policy and scholarly debate on remittances and economic growth tendered to swing back like a pendulum from optimistic views to early 1970s till pessimistic views and until recent years. The different roots of theories will be explored in this chapter.

Migration is perceived by neo-classical migration theorist as a form of optimal efficient allocation of factors of production among countries and between sending and receiving countries. Todaro (1969), the neo classical approach on international migration is based on the notion of wage differentials between sending and receiving countries, as well as on the migrant's expectations for higher earnings in host country. The developmental role of migration in a strictly neo-classical world is entirely realised through the Hechscher- Olin model (HO) thus through factor price equalization. The neo-classicalist saw that remittances assume a positive impact to the community, individual families and the nation as a whole. Migrant remittances are viewed as an instrument that stimulate savings and investment and also as an instrument for restoring balance of payment at the country of origin. Ratha (2007) supported the neo-classicalist, by emphasising that remittances assume an important role in raising the capital market sector activities and help in giving profitable foundation and also in raising the viable interest for products and administration. Neo-classical theory views migrants as utility maximising individuals.

The developmental theory emanated in earlier studies, on rural to urban migration within the United States and Europe and basing mostly on the historical experience of migration between Europe to North America. Returns from migrants according to some dominant views from 1950s and 1960s, were perceived as important agent of innovation and change. It was likely that migrants not only send money home but also new entrepreneurial attitudes, new ideas and knowledge and in this way migrants were viewed as key factors for development hence economic growth. In addition remittances have been credited a vital role in stimulating growth. The developmentalist model argued that developing countries can be in the trend of rapid economic development and industrialisation through large scale capital transfers like remittances, loans and aid. Remittances were reflected as an important source of hard currency, at macro level whereas at micro level migrant remittances are expected to lead to economic improvement. This theory states that remittances transfer to poor countries would move their economies towards rapid economic development. Migrant remittances lead to transfer of investment capital and accelerate the exposure of traditional communities to liberal, rational and democratic ideas, modern knowledge and education. These remittances are seen as agent of change, innovation and investment. The developmental theory was supported by authors like Keely and Tran (1989), who viewed remittances as one of the factors that improve income distribution and quality of life beyond what can be delivered by other development approaches. In addition Beijer (1970) said that migrant workers were seen as representing a hope for the industrial development of their native land and large scale emigration can contribute to rapid growth in both the country of immigration and origin.

The cumulative causation theory postulates that migration remittances deepen underdevelopment in the migrant sending societies through various negative feedback mechanisms also known as backwash effects which intern fuels further out migration thereby spreading the malicious circle of the migrant syndrome. Thus, this theory can well be applied to historical structuralist or dependency views on migrant remittance and growth. The cumulative causation theory views migration of human capital to other nations as a constraint to development and growth especially for developing countries because they are deprived of their valuable assets.

Pessimists believed that migration increase the inequality within the migrant sending economies because migrants tends to be already employed, open minded and relatively educational thus benefits of migration for example remittances would disproportionately accrue to the already better-off individuals. In other words migrant benefits will not contribute to poverty alleviation at economic level. A widespread assumption pertaining to migration and growth literature is that migrants and recipients of remittances do not invest such funds productively but rather they use it on conspicuous consumption such as imported consumer goods and non-productive enterprise like housing. Lipton (1980) concluded that recipients of remittances use them firstly to pay debts incurred in migration and 90 percent is spent on everyday consumption. According to the optimistic views remittances are also used to finance migration of other family members.

The historical-structuralism viewed remittances as responsible for making dependant connection or relation between the sending and the beneficiary nations (Portes and Borocz, 1989). Remittances are regarded as element that made genuine imbalance in family unit and large scale financial mutilations particularly in nations with low GDP. Lipton (1980) noted that migrant remittances lowers the demand for locally produced goods while increasing the imported foreign produced goods there by harming the productivity, economic growth and standards of living to country of origin. The dependency theorists believed that migration provoke consumerism and remittance dependency attitudes in migrant sending nations. Migrant remittances result in dependency on the global political-economic systems dominated by the powerful states. Migration was seen as having ruined traditional peasant societies by undermining their economies and uprooting their populations. Remittances were seen as detrimental to the economies of underdeveloped countries, but also as the very cause of the “development of underdevelopment.” Neo-Marxist theory states that remittances produce and reinforce the capitalist system based on inequalities. Migrant remittances were seen as detrimental to wealth of migrant families, causes a change in local taste that increases the demand for foreign goods

The New Economics of Labour Migration (NELM) assumes that people, household and families aim not at maximising income but to minimise and spread risk. It places the household in imperfect capital and risk insurance markets that prevail in most developing markets and migration is viewed as a way to overwhelm various market constraints. Precise through remittances, migration can be a household or country's strategy to overcome market constraint by enabling investment in productive activities to increase output thus increasing GDP of the country which is used as a measure of economic growth. NELM perceived remittance as one of the essential motives for migration. Conceptually, still abroad migrants, permanent settlers and their descendants contribute to development which can also lead to growth through remitting money.

## 2.2 Empirical Literature Review

Extensive variety of information accessibility over entirely more periods and for some nations of late, made it conceivable to lead empirical investigation of remittances streams on economic growth. Gyan *et al* (2008) discovered beneficial outcome of workers remittances on economic growth by applying fixed impact and irregular impact approaches for the panel data of a sample of 39 developing nations for the time of 1980-2004. Their finding is that the effect of remittances on development is substantial in size and the coefficient of the remittances in clarifying the financial development is significant just in two regressions out of four.

Utilizing neoclassical growth structure with an unequal panel data for 37 African nations for the period from 1980 to 2004, Fayissa and Nsiah (2008) contend that remittances streams have constructive outcome on economic development in nations, where the financial systems are less created, by giving an option approach to back speculation and conquering liquidity requirements. They find that 10% expansion in remittances would prompt 0.3% expansion in GDP per capita, which can be considered as a little effect. The same authors (Fayissa and Nsiah, 2010) locate the comparable results utilizing uneven panel data for 18 Latin American nations for the period from 1980 to 2005 by applying a convectional neoclassical development system. In both papers the writers applied Arellano-Bond GMM technique to evaluate the impacts of settlements on financial development. In both case remittances had a positive impact on growth.

A three staged least squares estimation technique was used by Tambama to see the impact of remittances on poverty alleviation in Zimbabwe from 1980 to 2007. The study provided evidence that a unit increase in the share of remittances on GDP reduces poverty by 52% and increases human capital accumulation by 11.5% in Zimbabwe. Therefore she concluded that remittances contribute significantly to development objectives such as Millennium Development Goals (MDGs).

Kiiru (2010) researched the effect of remittances on neediness and the determinants of remittances at the family level in Kenya. The writer utilized Family Spending Study information 2005/2006 and found that remittances have positively affected household consumption. Kiiru's study measured remittances as comprising of domestic and worldwide remittances. This study considers global settlements also, its effect on the economic growth.

Utilizing a subjective methodology, Maphosa (2004) concentrated on remittances and neediness lessening in Mangwe locale which is 200 kilometres from Bulawayo for Zimbabweans working in South Africa. 150 questionnaires were administered with gatherings (group discussion) and focus groups. The study discovered that out of 150 families examined, 68.7 per cent had no less than one part that had relocated to South Africa. The researcher discovered that non-cash remittances constituted the greater part of remittances yet the aggregate estimation of settlements was not evaluated since some respondents were unwilling to uncover such data. The study concluded that remittances are basic for destitution decrease in the region.

In their work, Siddique *et al.* (2012) explored the relationship amongst remittances and economic growth for Bangladesh, India and Sri Lanka, for the period 1975-2006. The researchers utilized a Granger Causality test under the Vector Auto Relapse (VAR) structure. They found that there was no causal relationship between

economic growth and remittances in India and that in Sri Lanka there was a two-way relationship between remittances and economic growth and that remittance did not prompt growth in Bangladesh.

Akonji and Wakoli(2013) conducted research on impact of net migrant remittances on economic growth of Nigeria, which used the Seemingly Unrelated Regression (SUR) analysis and Error Correction Model (ECM). Their finds established a significant relationship between net migrant remittances on Nigerian economic growth. However they also concluded that impact of migrant remittances can be more meaningful and contribute to economic growth only if financial institutions are well organised and be made more competitive to provide remittances services at low cost so that remittances flow into the country through official channels.

According to Ocharo (2015), who investigated the effects of remittances on economic growth of Kenya from the period of 1970 to 2010, who used secondary data sourced from World Bank's African Development Indicators and various Surveys and Statistical Abstracts. The methods of ordinary least squares in conjunction with the VAR impulse response function and variance decomposition were used to determine the impact of remittances on economic growth. The author discovered that the impulse response and variance decomposition showed a positive impact of remittances on growth and the OLS coefficient of remittances as a ratio of GDP was positive and significant.

A study on the effect of remittances on economic growth in Sub-Saharan Africa nations by IKechi and Anayochukwu (2013) focused on three nations of Nigeria, Ghana and South Africa. The study utilized time series data for the period 1980-2010 to decide the impact of remittances on economic growth. They likewise led a Granger Causality test to determine the causality between the two variables. The study found that workers remittances had affected economic growth of the three nations positively, with the best effect felt in South Africa followed by Ghana and after that Nigeria. Remittances were found to granger cause financial development in South Africa and Ghana, though economic growth was found to granger cause remittances in Nigeria.

In contrast of the findings by other researchers above, Ang (2007) explored whether remittances have stimulated growth in Philippines. The study utilized information for the period 1988-2004 and with ordinary least squares (OLS) estimation found that remittances has a negative on growth. (Barajas et al.,2009) researched the relationship between remittances and economic growth for a sample of 84 beneficiary nations for the period 1970-2004. The study employed a panel data estimation regression for the full specimen and for rising economies. This study found that remittances have no effect on economic growth.

The theory and empirical studies show that migrant remittances can have either a positive or negative impact on economic growth. The optimistic views on the relationship between remittance inflows and economic were supported by empirical studies by (Ocharo, 2015) whilst authors like (Ang, 2007) supported the pessimistic views. Basically theory and empirical studies worker hand in glove, they backup each other. Most studies on remittances and economic growth are cross country. This study is distinctive in that it is nation particular and spotlights on the impacts of remittances on economic growth including different segments of private capital inflows as independent variables. The next chapter presents a framework on the methodology used.

### **2.3 Research Hypothesis**

The study aims to ascertain the impact of remittances as a source of economic growth in LDCs: Case of Zimbabwe since Independence. This study will address the following study hypothesis to achieve this goal. These are as follows:

H<sub>1</sub>: there is no relationship between migrant remittances and economic growth



H<sub>2</sub>: There is a positive relationship between remittances and economic growth

### III. Research Design

This study used entirely secondary data in the analysis of the impact of migrant remittances on economic growth of Zimbabwe. Data used in this study was obtained from the World Bank mostly and the Reserve Bank of Zimbabwe publications from 1980-2023. The study will use E-VIEWS 7 and Excel Worksheet to process the data.

#### 3.1. Dependent and Independent variables

**Fig 3.1.2 the variables used in the study**

| Variables                   | Description   | The Expected Sign |
|-----------------------------|---|-------------------|
| INV (Capital Investment)    | Formerly known as gross capital formation (GDI). Any expenditure to additions in fixed assets in the economy and net changes in the level of inventories is referred to as capital investment.                                  | +                 |
| (IR)Real Interest Rates     | Real interest rate measures the effect of cost of borrowing on investment which is one of the tools of growth.  | +                 |
| (REM)Migrant Remittances    | Remittances are personal transfers that consist of all current transfers in cash and in kind made or received by households.  | +/-               |
| (TOP)Trade Openness         | The volumes of trade between Zimbabwe and the rest of the world measured as the ratio of exports to imports are represented by TOP in this research. A country's openness to international trade is measured by trade openness. | +/-               |
| (GEX)Government Expenditure | The government expenditure measures the government's participation in development of Zimbabwean economy through provision of both public and private goods  | +                 |

#### 3.2. Model Construction

In this study a different to the traditionally used OLS regression model called the Vector Auto Regression technique (VAR) which is the same as the one that was used by Ocharo (2015) will be used. It report results from Impulse Response Functions (IRFs) and Variance Decomposition (together known as innovation accounting) and granger causality. Due to complicated dynamics associated with the VAR model, the impulse response function, variance decompositions are more informative compared to the estimated VAR coefficients which go unreported (Stock and Watson, 2001). It is rare to report the VAR coefficients because they do not give explanatory results and thus IRFs and variance decomposition are preferred. The use of VAR was justified because of the possibility to simulate the response over time of any variable in a set to either own disturbances or a disturbance to any other variable in a system of equations (Stock and Watson, 2001).

The writer was guided by the theoretical and empirical research relating to impact of migrant remittances on economic growth. In this research a double log- linear Cobb Douglass production function used by Fayissa (2008) was adopted with minor modification. The explanatory variable political freedom index (PRI), was dropped due to unavailability of data. Also, FDI was dropped due to the problem of multicollinearity. The VAR model to test the impact of migrant remittance on economic growth with variables in the relation is specified below. All variables are treated as a priori endogenous and no variable is excluded from the auto regression equation for any of the variables in the system. For the purpose of this research much emphasis is on the equation stated below:

$$LNGDP_t = \alpha_0 + \beta_1 LNINV_{t-j} + \beta_2 LNIR_{t-j} + \beta_3 LNREM_{t-j} + \beta_4 LNTOP_{t-j} + \beta_5 LNGEX_{t-j} + \varepsilon_t$$

Where:

LNGDP- log of GDP as a measure of economic growth

LNINV- log of gross domestic capital investment

LNIR- log of real interest rate

LNREM - log of Migrant Remittances

LNTOP- log of trade openness

LNGEX- log of government expenditure

$\alpha$ - Intercept which is constant overtime

$\beta_1 - \beta_4$  -coefficient of the independent variable

$t-j$  -lag length

$\varepsilon_t$  – Error term

#### IV. ANALYSIS AND DATA FINDINGS

##### 4.1. Unit Root Test Results

The ADF test was employed to test all the included variables in the model for stationarity at 5% level of significance and the subsequent results were obtained:

**Table 4.1: Unit Root Test Results**

| Variable | ADF Statistic | Critic Value |           | P-values | Integration |
|----------|---------------|--------------|-----------|----------|-------------|
| LNGDP    | -5.114723***  | 1%           | -3.639407 | 0.0002   | I(1)        |
|          |               | 5%           | -2.951125 |          |             |
|          |               | 10%          | -2.614300 |          |             |
| LNINV    | -6.020498***  | 1%           | -3.661661 | 0.0000   | I(1)        |
|          |               | 5%           | -2.960411 |          |             |
|          |               | 10%          | -2.619168 |          |             |
| LNIR     | -4.921010***  | 1%           | -3.639407 | 0.0003   | I(1)        |
|          |               | 5%           | -2.951125 |          |             |
|          |               | 10%          | -2.614300 |          |             |
| LNREM    | -8.198672***  | 1%           | -3.639407 | 0.0000   | I(1)        |

|       |              |     |           |        |      |
|-------|--------------|-----|-----------|--------|------|
|       |              | 5%  | -2.951125 |        |      |
|       |              | 10% | -2.614300 |        |      |
| LNTOP | -7.446229*** | 1%  | -3.639407 | 0.0000 | I(1) |
|       |              | 5%  | -2.951125 |        |      |
|       |              | 10% | -2.614300 |        |      |
| LNGEX | -3.091111**  | 1%  | -3.632900 | 0.0365 | I(0) |
|       |              | 5%  | -2.948404 |        |      |
|       |              | 10% | -2.612874 |        |      |

\*\*shows significant at 5% and 10% and \*\*\* means significant at all levels.

As shown in the table 4.1 above, only LNGEX is stationary at level that is at I(0) whilst LNGDP, LNINV, LNIR, LNREM and LNTOP are stationary after first difference and are integrated of order one that is I(1). This implies that the regression will produce results that are not spurious.

#### 4.1.2. Normality Test Results

**Table 4.2: Summary for Normality Test.**

|           | Chi-square | Joint Probability |
|-----------|------------|-------------------|
| JaqueBera | 14.88100   | 0.6862            |
| Skewness  | 5.144990   | 0.5254            |
| Kurtosis  | 4.049661   | 0.6700            |

VAR Residual Normality Test was used in to test that residual values are normally distributed. From the table above the probabilities for JaqueBera, skewness and kurtosis are above 0.05, and the decision is to not reject the null hypothesis and conclude that the residuals are multivariate normally distributed.

#### 4.1.3. Lag Selection Test Results

**Table 4.3 Results of the VAR Lag Selection**

The study employed the lag selection criterion namely the AIC. The results are reported in the table below.

| Lag length | Alkaike Information Criteria (AIC) |
|------------|------------------------------------|
| 0          | 5.893260                           |
| 1          | 4.953246                           |
| 2          | 4.585852                           |
| 3          | 3.372403                           |
| 4          | -6.557602*                         |

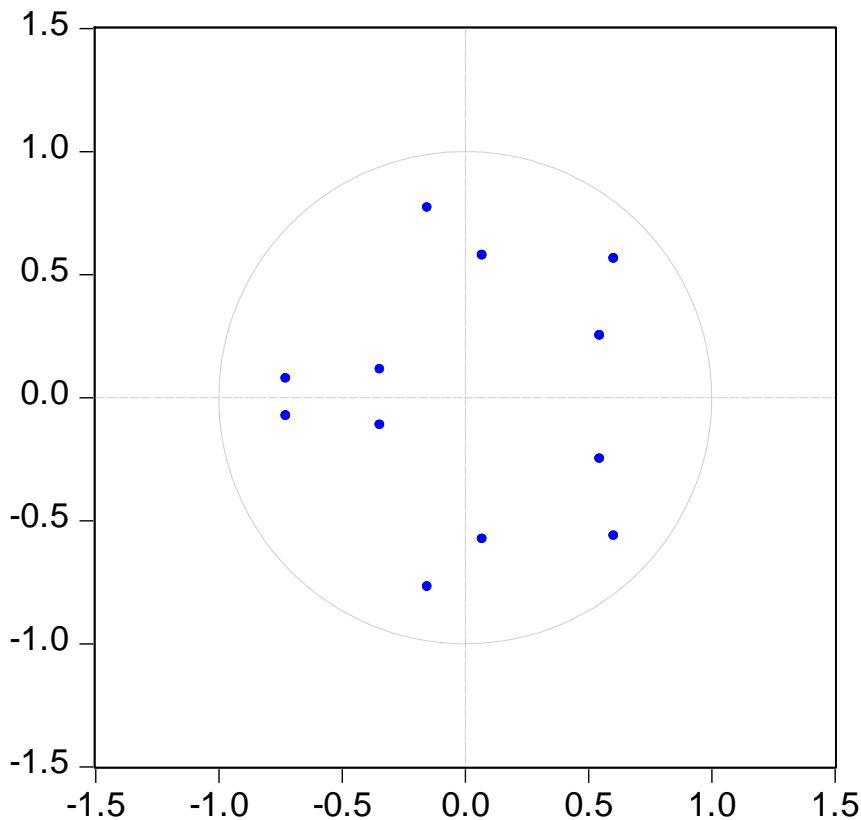
\*indicates lag order selected by the criterion

Based on the results from the table 4.3 above; AIC points to the use of the 4 lag as the most appropriate lag length that would ensure that the error term is not misspecified. To get meaningful results the researcher used the 4<sup>th</sup> lag.

#### 4.1.4. Stability Test Results (Stationarity for VAR Model)

**Figure 3: Inverse Roots of AR Characteristics Polynomial**

### Inverse Roots of AR Characteristic Polynomial



The inverse roots of AR characteristics polynomial was used by the researcher to test for the stationarity of the VAR model. Figure 3 above illustrates the inverse roots of AR characteristic polynomial. All the six variables lay within the range -1.5 to 1.5 are in the circle; this indicates that the VAR model is stable. The results seem to be coherent because all the variables in the VAR model are stationary

#### 4.1.5. Results for Heteroscedasticity

**Table 4.5 Summary of VAR Residual Heteroscedasticity Test**

Joint Test:

| Chi-square | Degrees of Freedom | Probability |
|------------|--------------------|-------------|
| 521.7574   | 504                | 0.2830      |

The VAR heteroscedasticity test with no cross terms was used to detect the econometric problem of heteroscedasticity. The results from the table indicate that probability for Chi-square is more than 0.05 therefore do not reject the null hypothesis and conclude that there is homoscedasticity. This implies that the variance of the error term is uniform.

#### 4.1.6. Multicollinearity Results

The correlation matrix was used to test for multicollinearity. The result obtained highlights the absence of multicollinearity. The researcher did not reject the null hypothesis that there is no severe multicollinearity amongst explanatory variables since the coefficients in the correlation matrix are less than 0.8. Thus the

explanatory variables do not move together in a symmetric manner so their individual effects on the dependent variable can be isolated. The table below illustrates the results for multicollinearity.

**Table 4.6 Multicollinearity Results**

|        | DLNINV    | DLNINV   | DLNREM   | DLNTOP    | LNGEX    |
|--------|-----------|----------|----------|-----------|----------|
| DLNINV | 1.000000  |          |          |           |          |
| DLNIR  | -0.326139 | 1.000000 |          |           |          |
| DLNREM | 0.046726  | 0.107409 | 1.000000 |           |          |
| DLNTOP | -0.243624 | 0.360429 | 0.136422 | 1.000000  |          |
| LNGEX  | -0.118947 | 0.134224 | 0.041948 | -0.199453 | 1.000000 |

#### 4.1.7. Autocorrelation Test Results

**Table 4.7 Summary of Autocorrelation Results**

| Lags | LM-Statistic | Probability |
|------|--------------|-------------|
| 1    | 35.44627     | 0.4947      |
| 2    | 38.88216     | 0.3412      |
| 3    | 47.77110     | 0.0907      |
| 4    | 40.18646     | 0.2900      |

The study used the VAR Residual Serial Correlation LM Test to detect autocorrelation. Basing on Table 4.7 above the decision is: do not reject the null hypothesis that there is serial autocorrelation because the probabilities for the LM Statistic is greater than 5% at lag 4 that was chosen by the lag selection criteria as the ideal lag for this study. This means the error terms are not interdependent.

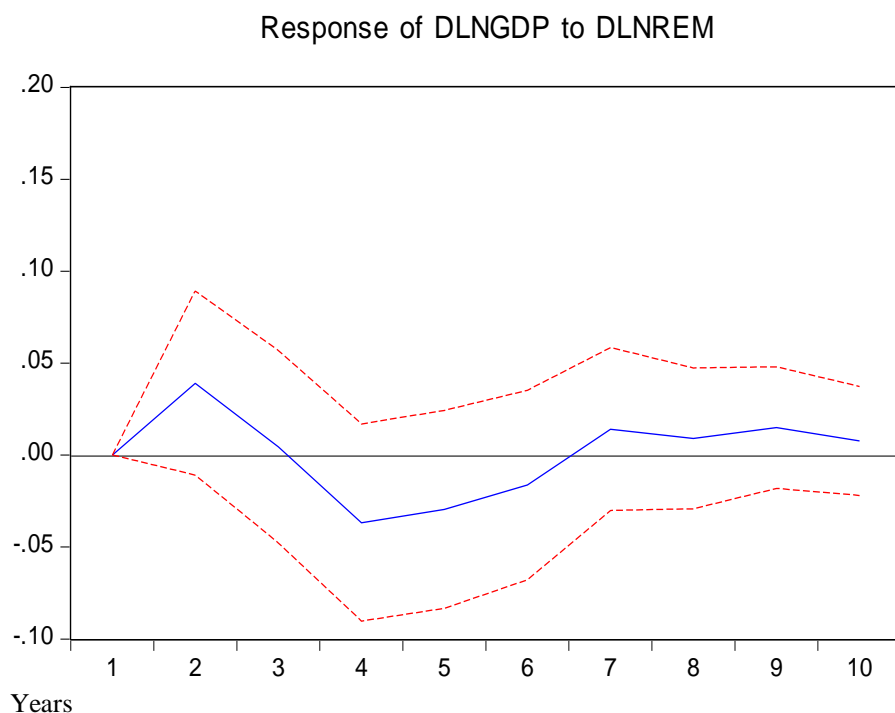
### 4.2 Estimation of the VAR Model

The estimation of the impact of migrant remittance on economic growth of Zimbabwe using the VAR model based results of impulse response functions and forecast error decomposition are examined in detail below. VAR results are not interpreted like OLS because they are not derived from structural equations (Enders, 1995). The objectives of this study is to determine the response of the economic growth due to shocks in migrant remittance and to determine the elasticity of economic growth to shocks in other explanatory variables like capital domestic investment, government expenditure, interest rate and trade openness that were included in the model. This was achieved by the use of impulse response function and the variance decomposition analysis.

#### 4.2.1 Impulse Response Analysis Results

Impulse response functions are used to trace the impact of a one standard deviation to the innovations on current and future values of all the endogenous variables of the system. Plotting the impulse response was a better way of tracing the time path of the system as they respond to various shocks over time. A shock to the  $i^{th}$  variable directly affects the  $i^{th}$  variable and is also transmitted to the entire endogenous variable through the dynamic structure of the VAR. This research will start by analysing the impact of the variable of interest that is; remittance on growth followed by the other four explanatory variables that are in the model.

Figure 4: Response of LNGDP to LNREM



The impulse response and plots on Figure 4 summaries the results of the shock evaluation indicating the response GDP over the ten years horizon to one standard deviation positive shock to remittance. The response to one standard deviation to migrant remittance resulted in a 3.9% increase in GDP for the first two year and experienced a sudden 3.6% decrease to negative territory in the 4<sup>th</sup> year. This was due to increased inflows of migrant remittance to the country through informal sector and the absence of the diaspora policy that can attract more remittance flows via formal channels. GDP then increased by 2.6% from the negative in the 4<sup>th</sup> year to a positive territory in the 7<sup>th</sup> year and it remained in the positive territory in the long run and this was due to economic and political instability and the hyperinflation in 2008 which saw the country experiencing exodus of its citizen to other countries, because remittances increases during periods of crisis. From the graph in Figure 4 above it can be concluded that there is a positive relationship between migrant remittance and economic growth and development which is evidenced by a positive response of GDP both in the short and long run.

The response of GDP to shock on other included explanatory variable is also examined in this chapter using impulse response function. Using the results generated from impulse response functions, a one shock on domestic capital investment in the short run it led to an increase in GDP which fell due to industrial sector melt down. In the 10<sup>th</sup> year it had a positive impact on growth which can be evidenced by a rise a positive response of GDP in the graph. A standard deviation shock applied on interest rate shows a fall in GDP in the first 5 years which however increased in the 6<sup>th</sup> period which shows a positive long run impact on growth. Furthermore, a shock on trade openness has a positive impact on economic growth which is supported by a positive response from GDP. However in the 10<sup>th</sup> period it had a negative impact due to increase in imports inflows to the country. Lastly a government expenditure one standard deviation shock is insignificant from the 1<sup>st</sup> to the 8<sup>th</sup> period. It is only significant in the long run. Basically the impulse response functions show that shocks on migrant remittance, domestic capital investment, interest rate and government expenditure to GDP are significant in the long run.

#### 4.2.2 Variance Decomposition Results Analysis

The variance decomposition delivers a different method of depicting the system dynamics. IRFs trace the effects of a shock on an endogenous variable in the VAR whereas variance decomposition decomposes variation in an endogenous variable into the shock to the endogenous variable in the VAR. It gives information about the relative importance of each random innovation to the variable in the VAR. The variance decomposition analysis was used to analyse the dynamic behaviour of the VAR model.

**Table 4.8 Results of Variance Decomposition of GDP growth (%)**

| Periods (years) | Standard Error | GDP   | INV   | IR   | REM   | TOP  | GEX   |
|-----------------|----------------|-------|-------|------|-------|------|-------|
| 1               | 0.13           | 100   | 0.00  | 0.00 | 0.00  | 0.00 | 0.00  |
| 4               | 0.17           | 59.58 | 15.17 | 6.89 | 9.85  | 1.95 | 6.57  |
| 10              | 0.2            | 45.13 | 15.79 | 9.29 | 11.54 | 5.78 | 12.46 |

From the Table 4.8 above the results of variance decomposition analysis shows that in the first year all the variation in the economic growth rate was due to own shocks at 100% meaning there was no contribution from the other explanatory variables. In the fourth period results reveal that own shock in economic growth dropped to 59.58% meaning the remaining 40.42% was contributed by the other five explanatory variables. Remittances contributed 9.85% second of domestic capital investment with 15.17%. Own shock further dropped to 45.13% in the long run that is the 10<sup>th</sup> period. Which saw the explanatory variables contributing more than own shock with remittances contributing 11.54% third from investment and government expenditure. The variance decomposition analysis shows that own shock decreases as time increases, thus all explanatory variables domestic capital investment, interest rate, remittances trade openness and government expenditure are significant in the long run.

The evidence of this relationship is supported by the literature both empirics and theoretical studies. Ocharo (2014), using the OLS regression model and VAR to complement the results found a positive relationship between remittance and economic growth of Kenya. Using Granger causality test under VAR framework Siddique *et al.*, (2010) establish that there is two way directional causality between remittances and economic growth in Sri Lanka. More so the result from both IRFs and variance decomposition above is supported by the developmentalist theory. The theory states that transfer of remittances to poor countries is the key driver to economic development and growth

#### V. Conclusions and Recommendations

With regards to Zimbabwe, the econometric regression results indicated that migrant remittance, capital investment, interest rate, trade openness and government expenditure are catalyst of economic development and growth. The major thrust of the study was to disclose the impact migrant remittance on economic growth and positive results were yielded. This simple indicates that a shock on remittances positively affects growth. Basing on the results of this study a careful planned diaspora policy like the one in Kenya and Ethiopia should be implemented. The objectives of the diaspora policy should include developing mechanisms for dialogue and partnership with Zimbabweans abroad and should develop trust between community diaspora and government and then focus on availing incentives to those who wish to invest back home. The country should make uses embassies as points of broadcasting vital information that disclose potential investment opportunities available in the country as well as conducting Diaspora summits that encourages natives to send money back home.

The diaspora policy should encompass mechanisms of reducing high cost of remitting. The regression proven that increased benefits of remittance to the nation occur when remittances are sent through formal channels therefore incentives should be provided to those that use formal channels. The government in association with financial institution must come up with policies that make it safe, easy and cheaper to receive remittances as well as establishing effective formal channels for remitting.

Migrants might have the propensity to remit but due to the absence of certainty and policies that are conducive for remitting they tend to use informal channels. Therefore, the authorities should come up with incentives frame-work and tailor made investment packages to encourage diaspora involvement in national development. Introducing new savings instrument and recommending migrants where they can channel their funds into productive activities in their country of origin, this can create employment and growth opportunities. For this to transpire government intervention through tax incentives is required.

The researcher recommends that future studies can use other macroeconomic variables such as exchange rate, human capita and inflation in the model. Future research in this field can use a different econometric model like OLS. The research on the impact of outflows of remittances to economic development needs to be investigated.

## REFERENCES

- [1] Adams Jr, R. H. (1991). The economic uses and impact of international remittances in rural Egypt. *Economic development and cultural change*, 39(4), 695-722.
- [2] Akonji, D. R., Olateju, A. O., & Abba, M. W. (2013). Nexus between public expenditure and economic growth by testing Wagner's law time series: Evidence from Nigeria. *International Journal of Development and Sustainability*, 2(4), 2383-2395.
- [3] Ang, A., Bekaert, G., & Wei, M. (2007). Do macro variables, asset markets, or surveys forecast inflation better?. *Journal of monetary Economics*, 54(4), 1163-1212.
- [4] Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., & Montiel, P. J. (2009). Do workers' remittances promote economic growth?.
- [5] Beijer, G. (1970). International and national migratory movements. *International Migration*, 8(3), 93-109.
- [6] Ben Mim, S., & Ben Ali, M. S. (2012). Through which channels can remittances spur economic growth in MENA countries?. *Economics*, 6(1), 20120033.
- [7] Bracking, S., & Sachikonye, L. (2006). Remittances, poverty reduction and the informalisation of household wellbeing in Zimbabwe.
- [8] Chetsanga, C. J., & Muchenje, T. B. (2003). An analysis of the cause and effect of the brain drain in Zimbabwe. *Harare: Scientific and Industrial Research and Development Centre (SIRDC)*, 1(1).
- [9] Chinaemerem, O. C., & Anayochukwu, O. B. (2013). Impact of external debt financing on economic development in Nigeria. *Research Journal of Finance and Accounting*, 4(4), 92-98.
- [10] Fayissa, B., Nsiah, C., & Tadesse, B. (2011). Research note: Tourism and economic growth in Latin American countries—further empirical evidence. *Tourism Economics*, 17(6), 1365-1373.
- [11] Fayissa, B., Nsiah, C., & Tadasse, B. (2008). Impact of tourism on economic growth and development in Africa. *Tourism Economics*, 14(4), 807-818.
- [12] Fayissa, B., & Nsiah, C. (2010). The impact of remittances on economic growth and development in Africa. *The American Economist*, 55(2), 92-103.
- [13] Ghosh, S. R. (2006). *East Asian finance: The road to robust markets*. World Bank Publications.
- [14] Gyan P., Mukti U., and Kamal U., (2008). Remittances and economic growth in developing Countries. *The European Journal of Development Research* Vol. 20, No.3 September 2008, pp. 497-506.
- [15] Ikechi, K. S. & Anayochukwu, O. B. (2013). Migrant's remittances and economic growth in Sub Saharan Africa: Evidence from Nigeria, Ghana and South Africa. *Interdisciplinary Journal of Contemporary Research in Business*, 4(10), 534-550.



- [16] Keely, C. B., & Tran, B. N. (1989). Remittances from labor migration: evaluations, performance and implications. *International Migration Review*, 23(3), 500-525.
- [17] Kiiru, Joy M. "Remittances and Poverty in Kenya." OIDA International Journal of Sustainable
- [18] Development 1, no. 8 (2010): 33-41.
- [19] Lipton, M. (1980). Migration from rural areas of poor countries: the impact on rural productivity and income distribution. *World development*, 8(1), 1-24.
- [20] Maimbo, S. M., & Ratha, D. (Eds.). (2005). *Remittances: Development impact and future prospects*. World Bank Publications.
- [21] Makochekanwa, A. (2009). Clothed in rags by hyperinflation: The case of Zimbabwe.
- [22] Maphosa, F. (2004). The Impact of Remittances from Zimbabweans Working in South Africa on Rural Livelihoods in the Southern Districts of Zimbabwe, The Council for the Development of Social Science Research in Africa (CODESRIA).
- [23] Maphosa F. 2005. The Impact of Remittances from Zimbabweans Working in South Africa on Rural Livelihoods in the Southern Districts of Zimbabwe. Johannesburg: Wits University. (Wits University Forced Migration Working Paper Series No. 14.)
- [24] Maphosa, F. 2007. Remittances and Development:
- [25] Ocharo, K. N. (2014). Remittances and economic growth in Kenya (1970-2010).
- [26] Ocharo, K.N. 2015. Remittances and economic growth in Kenya (1970-2010) – Merit research. *Journal of Accounting, Auditing, Economics and Finance*, 3(1): 1-16.
- [27] Pasura, D. (2008). Gendering the Diaspora: Zimbabwean Migrants in Britain La question du genre dans la diaspora: les migrants zimbabweéens Grande-Bretagne. *African Diaspora*, 1(1-2), 86-109.
- [28] Portes, A., & Böröcz, J. (1989). Contemporary immigration: Theoretical perspectives on its determinants and modes of incorporation. *International migration review*, 23(3), 606-630.
- [29] Ratha, D., & Mohapatra, S. (2007). Increasing the macroeconomic impact of remittances on development. *World Bank*, 3(1), 178-192.
- [30] Siddique, A., Selvanathan, E. A., & Selvanathan, S. (2012). Remittances and economic growth: empirical evidence from Bangladesh, India and Sri Lanka. *Journal of development studies*, 48(8), 1045-1062.
- [31] Soytas, U., & Sari, R. (2003). Energy consumption and GDP: causality relationship in G-7 countries and emerging markets. *Energy economics*, 25(1), 33-37.
- [32] Stock, J. H., & Watson, M. W. (2001). Vector autoregressions. *Journal of Economic perspectives*, 15(4), 101-115.
- [33] Tambama, J. (2011). *The impact of remittances on Zimbabwean economic development* (Doctoral dissertation, University of Zimbabwe).
- [34] Tevera, D., & Chikanda, A. (2008). *Migrant remittances and household survival in Zimbabwe* (No. 51). African Books Collective.
- [35] Todaro, M. P. (1969). A model of labor migration and urban unemployment in less developed countries. *The American economic review*, 59(1), 138-148.
- [36] Reserve Bank of Zimbabwe [www.rbz.co.zw](http://www.rbz.co.zw)
- [37] World Bank [www.worldbank.org](http://www.worldbank.org)