THE EFFECT OF DIASPORA REMITTANCES ON MACROECONOMIC VARIABLES IN EAST AFRICA COMMUNITY

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DECLARATION

This research Project is my original work and has not been presented for a degree in any other university.

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This Research Project has been submitted for examination with my approval as the University of Nairobi supervisor.

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LIST OF ABBREVIATIONS

ANOVA-	Analysis of Variance
BOP-	Balance of payments
CBK-	Central Bank of Kenya
EAC-	East Africa Community
EAP-	East Asia & Pacific
FDI-	Foreign Direct Investments
GDP-	Gross Domestic Product
GSMA-	Global Association of Mobile Network Operators
HDI-	Human Development Index
IMF-	International Monetary Fund
KNBS-	Kenya National Bureau of Statistics
MPC-	Multiple Point Constraints
ODA-	Official Development Assistance
OLS-	Ordinary Least Square
SPSS-	Statistical Package for Social Sciences
UNDP-	United Nations Development Program
UNCTAD-	United Nations Conference on Trade and Development

ABSTRACT

Diaspora remittances are defined as cash transmitted by an individual in a foreign land to their country of origin. Macroeconomic variables are variables that are a pointer of the existing trends on the economy. Remittances sent from people in diaspora have become one of the biggest ways of external financing for developing republics. The rising attention to diaspora remittances originates from the realization of the vital role they play in alleviating poverty and promoting economic development. This study sought to establish whether diaspora remittances affect macroeconomic variables in East Africa Community (EAC). EAC is currently comprised of six (6) countries: Kenya, Tanzania, South Sudan, Uganda, Burundi and Rwanda. Kenya ranked first in EAC as the leading recipient of remittances and in the next position was Uganda after it was South Sudan then Tanzania, behind it Rwanda and Burundi between 2013 and 2018. However, South Sudan was not included in the data collection and analysis as it joined EAC in 2016 and thus its data was not available for the whole study period. The study used descriptive research design. Secondary data was used for the period 2011-2020 and it was obtained from the respective National Bureaus of Statistics of the countries in EAC, respective Central Banks and World Bank development indicators. The data was evaluated using Statistical Package for Social Sciences (SPSS) version 25 software. The study established that diaspora remittances positively affect GDP growth rate, negatively affect inflation rate, positively affect exchange rate and negatively affect unemployment rate. However the study concluded that at 5% level of significance, diaspora remittances is not statistically significant in affecting in, GDP growth rate, inflation rate, exchange rate and unemployment in EAC. This study will make a contribution to the literature on effect of remittances on macro-economic factors in EAC which will be part of articles that will be useful to researchers willing to further these studies. The study shall also assist the governments in EAC in establishing structures to administer and ways to gain directly into the funds from foreign lands as a strength for ventures and progress of the nations. This study suggested further studies to focus on other macroeconomic variables in the EAC that were not covered in this study such as interest rate. Further, researchers can cover a different and a longer time period to research and do a similar study. Other studies on effects of diaspora remittances can focus more on unemployment and exchange rate in EAC. Studies can also incorporate remittances received through informal channels if data is availed and combine with the formal channels of remittances.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Development as well as interconnectivity worldwide has seen increased emigration with people migrating either as migrants or migrant workers. A migrant is a person who leaves his country of origin to settle in another country while a migrant worker is a migrant who moves to a different country with a view of being in gainful employment. When migrants are considered together as a group, they are referred to as diaspora. The term diaspora however has its origin to the involuntary immigration that occurred during the trans-Atlantic slave trade. It has however metamorphosed to gain acceptance as being reference to a group of migrants. Remittances have broad definition to mean the transmissions of funds, merchandises and different traits by workers in foreign lands to their respective motherlands (Odipo G. et. al, 2015). A remittance can also have a limited or narrower definition to mean the funds transmitted by a foreigner their relations back in their countries of origin with data showing that remittances have become significant in terms of the huge amounts involved leading to them being acknowledged as a vital contributor to a country's development and growth Central Bank Kenya (CBK) website, (www.centralbank.go.ke/diaspora-remittances). These definitions of migrant workers funds are therefore the definition of diaspora remittances.

The effect of migrant remittances on the macroeconomic remains a subject of contrast as some academics show a positive viewpoint while others present a negative point. (Iqbal& Abdus, 2005). When there are remittance inflows they come in as foreign exchange causing an agreeing growth in the need for resident money which could lead to a burden on the foreign exchange rate.

Remittances inflows also cause an increase in the household income which causes increase in collective demand which subsequently leads to rise in inflation (demand-pull) which affects the economy negatively. Remittances could also lead to reduced labour force participation in that recipients could divert the funds from use like investments to making merry and consumption of leisure thus reducing the growth of the economy and its development.

Theories underpinning this study which capture the concept of immigration, remittances and macroeconomic variables include: Pure Altruism theory, Pure Self-Interest theory, as well as the Tempered Altruism theory. In the Pure Altruism theory, Lopez – Cordova and Olmedo, (2006) suggests that remittances do not involve any present or future reimbursement or represent payments of debts but recognizes that one of the vital motives of migrants' remittance is mainly because of concern with the happiness of others and thus unselfish remittances can act counter to an economic cycle of GDP forms since workers in the foreign countries tend to send more in times of economic disturbances.

Vargas-Silva,2008; Chami et al.,2003 observed that recompensing transfers are " recompensing transfers" because they rise when the migrants' home country is faced with fiscal challenges like financial crisis and that for a person in diaspora to send more money, the fiscal challenges must be generating a deficit for the family remaining at home and as such the compensatory nature of remittances under this theory suggests that remittances act counter to an economic cycle, in that they rise when the economic conditions are declining . Pure self-interest theory is the opposite of the pure altruism theory and recognizes that migrants send money home for their own self-interest i.e for their own investment, or insurance or investment, inheritance or for a strategic

reason. Stark and Lucas (1985) aver that migrant's self-centeredness may be a reason for diaspora transfers in that people in the diaspora send funds in order to put in or inherit assets back in their countries of origin and to be able to go back with self-worth. Brown (2006), suggests that the relationship of the economic performance of the migrants' home countries and transfers is not inverse since there are times when the volume of the transfers decline due to poor economic conditions in their receiving countries. The tempered altruism theory was advanced by Lucas and Stark, (1985) and it alludes that remittances are part of an agreed upon plan (contractual) formulated between the migrant and their family which is jointly advantageous to both parties.

East African Community is currently comprised of six (6) countries: Kenya, Tanzania, South Sudan, Uganda, Burundi and Rwanda. Kenya ranked first in EAC as the leading recipient of remittances and in the next position was Uganda after it was South Sudan then Tanzania, behind it Rwanda and Burundi between 2013 and 2018. However, South Sudan joined EAC in 2016. The above economies got $17.38 billion from their people living abroad as foreign remittances in the same period of 2013 and 2018. (www.theeastafrican.co.ke, 2019). The cost of sending the remittances to households has been high despite remittances being an important source of external financing as reported by the EAC trace report (2017). Remittances costs across many African countries have been consistently above 10 percent of the worth of the amount transmitted. Kenya's Mpesa has succeeded partly due to it easing and causing one to spend less while receiving funds from diaspora.

The Global Association of Mobile network operators (GSMA) established that it is less costly to transfer remittances using mobile money applications instead of using money transfer operatives by up to 50%. Sending money via mobile money is progressively coming out as an attractive channel to send remittances because of being convenient its latitude and confidentiality. Diaspora transfers have become a vital backing to the shilling which is under stress due to little earnings from exports and also as a portion of GDP which steadied at 2.3 per cent over the period of 12 months to March 2018. Remittances are a more reliable source of income more than other principal inflows to third world countries, e.g FDI's and development assistance as they have demonstrated to be less unstable, less pro cyclical (Gammeltoft,2002: Ratha,2003). Remittances could have positive changing influence on living conditions and people with funds invested well motivating jobs and income-earning openings. It is against this backdrop that this research investigates the influence of diaspora remittances on the macroeconomic variables in East African Community.

1.1.1 Diaspora Remittances

Diaspora remittances are defined as cash transmitted by an individual in a foreign land to their country of origin (CBK website). Owing to the substantial amounts involved, diaspora transfers are currently being acknowledged as being imperative contributors to the country's progress and growth. Mohamoud and Fréchaut (2006) define diaspora remittances as the practices, notions, mindsets, world views, morals & approaches, customs of behavior and social capital the diaspora transfer from host countries to home countries.

Remittances can negatively affect a countries economic growth if highly depended on especially when there is disturbance in the global economy. According to Brown and Poirine (2005), remittances may be of various methods, of which some are never included in the official balance of payments remittance inflows approximations in both the receiving and sending country. They take the following forms of money transfers by the migrants to their families or other persons across seas: a) the worth of all products transmitted back home; b) money transmitted through informal means as cash or through informal agents to households; c) funds transferred through the official banking system to households); and d) payments made to bank accounts held by migrants in their home countries.

In 2019 data by the CBK depicted that the one (1) year collective inflows rose to KSh274.84 billion in the month of March 2019 from KSh217.7 billion in 2018 same month thus showing a 26% growth. Remittances from North America have been a main source in the region form 53 percent of the sum of remittances in the month of March 2019. North America was the main source of remittances in the region which was 53 percent of the total remittances in March 2019. Transfers from diaspora in the Sub-Saharan Africa have been found to be steadier than equity flows, foreign direct investment (FDI) and private debt. Mohapatra, et, al (2009) observed that slight oscillations in migrants funds could cause macroeconomic difficulties to receiving nations, more so those whose funds coming in are large.

Funds from Kenyans in Diaspora in 2014 are the 4th main givers of overseas exchange after earnings received from tourism, horticulture and tea. A substantial amount of funds were received from Europe, North America and the rest from other parts of the continent. Remittances

in Kenya have influenced much savings, consumption and investments. The transformed energy by the government and institutions dealing with finance have led to a positive improvement in remittances in Kenya. (Kinuthia, 2013).

The CBK diaspora remittances data has revealed that Kenyans abroad sent home Ksh30.5 billion ($278.4 million) in the month of January 2021 alone. The Kenyan diaspora makes up for about three percent of the economy's GDP; this number is greater than what is earned in Kenya earns from mining. The migrants' transfers are gradually increasing. In 2013, the amount was at $1,290.6 million but increased by $137 million dollars in 2014 to $1,428.5 million dollars; translating to an increase of 11%.

1.1.2 Macroeconomic Variables

Macro-economic variables are elements of significance to the situation of countries economics jointly at regional or national face (Otambo, 2016). Governments normally closely monitor and check macroeconomic variables as they are a major guide of economic activity performance (Khalid et al., 2012). Macroeconomics is the study of the economy in its entirety and it looks into the conduct of an economy as a whole which can be international, regional, or nationally (Aghionet, 2011). This study will reflect on five macroeconomic variables: Exchange rates inflation, Gross Domestic Product, interest rates, as well as Unemployment rate. These factors are main pointers of the economy which are normally closely monitored by all stake holders (Khalid et al., 2012). Kwon and Shin (1999) argue that interest rates, inflation, GDP and exchange rates are the most impactful macroeconomic variable. GDP is the largest quantifiable measure of all economic occurrences in a nation. Mishkin (2004) consents that economic growth areas are majorly influenced by individual macroeconomic variables.

Measuring of the total income of people in the country's economy adjusted for the level of prices is done by GDP. It entails the wholesome market worth of all the products and services manufactured in a particular locality over a certain period. Callen, (2008). It consists of all goods available in the market in addition to some items like educational services paid for by the government which are not market oriented.

Inflation is a sustained increase of general costs of services and goods in the long run (McMahon, 2010). This arises mainly due to the rise in earnings that is not balanced with the rise in the creation of products and services. As a result of extra cash pursuing less goods value of products and services are guaranteed to rise causing a substantial decrease in usable income and the ability to purchase by the low income earners bracket of population. Inflation is also affected by consumer price index, fiscal policies and commercial banking and accessibility of credit.

Schiller, (2008) indicated that exchange rates are caused by the need and availability of the foreign currency. Exchange Rates is basically the worth of a republic's currency compared to that of another nation. Remittances contribute to countrywide earnings by availing foreign exchange as well as increasing a country's savings and investment and by availing solid currency to fund important imports therefore limiting any crisis of the BOP (Taylor and Adelman, 1990, Claudia M. Buch et al, 2002, Durand et al., 1996a and 1996b).

Conventionally, most people will define unemployment as lack of jobs for the working population (people able and willing to work) hence ignoring the other factors of production that are also critical to the economy. Rather unemployment should be defined as not "lack-of" but

“under-utilization” of factors of production. Unemployment rises with less growth in the economy and declines when there is more to growth in the economy, hence lack of employment is deemed to be countercyclical and thus economic growth and unemployment are dependent.

Unemployment evaluates the sum of people who are not at the time employed but are actively seeking employment. Other tabulations of unemployment consider people under-employed. Underemployed people are the employees who have agreed to do or hold part-time positions or positions for which they are very overqualified. When the rates of unemployment are high then they definitely impact on consumer spending and also act as a pointer to poor job growth in both the public and private sectors.

According to Financial Sector Deepening Kenya, interest rates refer to how much interest is charged during a definite period and is usually conveyed as a percentage. Index Mundi, December 2019. Real interest rate on the other hand refers to the loaning rate of interest adjusted for inflation as assessed by the G.D.P deflator https://www.indexmundi.com/facts/kenya/indicator/FR.INR.RINR,2019.

1.1.3 Diaspora Remittances and Macroeconomic variables

Remittances have turned out to be a key basis of exchange of currency from foreign sources as well as a main contributor of economic progress as featured in the 2030 vision of Kenya. A straight forward link amongst rates of interest and rates of exchange, and migrants transfers has been established, and also an indirect link between rate of inflation and migrants transfers. Real G.D.P rates got no substantial link. Guidelines for deterring exchange market interference would

let capital flows to steady by the exchange rate activities from average to long-term, hence removing impacts on the structure of interest rate. (Odunga, 2016). When transfers from migrants increase, they positively affect GDP growth through its burgeoning effect on local demand. Inherently, funds received from migrants when spent by any household individual normally create multiplier effects for a country's' economy in that for every shilling consumed or used up in the domestic markets, generates need for products and services and also the employments needed to give them hence improving the economy (Andrew,2015).

Foreign exchange rates and interest rates rise, expands needs to invest back home thus raising the provision of dollars in the economy. When interest rates go up they attract capital inflows thus leading to a rise in the need for domestic money in order to exchange and therefore causing a decline in the demand for foreign currency (Odunga, 2016). In instances where the need for foreign currency lessens, the rates of exchange normally decrease against the home currency, which subsequently causes interest rate to decrease and eventually decreases remittances. The changes in the two variables can clarify the seasonal changes in diaspora remittances in Kenya. (Odunga, 2016) observed that an adverse association between diaspora remittances and inflation rates and a slight rise in inflation rate causes a decline in remittances pointing an adverse connectedness of rate of inflation on remittances. He also established that an immaterial link between the real GDP rate of growth and remittances as a percentage rise in real GDP growth rate causes a decline in foreign remittances. The inverse link between inflation rates, real GDP rates and remittances indicates that, a rise in inflation would affect the purchasing power of people to decline and therefore more funds are transmitted home to provide for relatives. Inflation could also indicate a weakening economy, leading to withholding of the investment

portion of the remittances and the withheld amounts could be a greater portion in comparison to the consumption portion hence leading to an adverse overall effect on the remittances. Need for monetary aid from people in the diaspora reduces as real GDP rate of the economy increase since additional people domestically earn incomes.

Ratha (2003) concludes that migrants' transfers increase the utilising level of families, which could be considerable multiplier effects, since they are mostly expected to be spent on locally manufactured products. Commercial banks of Kenya cited that the stability of the Kenyan Shilling exchange rate in 2014 had been supported by resilient remittances, better foreign investor participation in the NSE, and enhanced confidence following issuance of the Sovereign Bond. (CBK data, 2014).

1.1.4 The East African Community Economy

The EAC is currently a Regional Integration Agreement (RIA) with six (6) countries that is; Uganda, Tanzania, Kenya, Rwanda, Burundi and South Sudan. South Sudan joined EAC in April 2016 and became a full member in August, 2016. The main importance of EAC is economic cooperation and expected to lead to governmental (political) cooperation in the long term. Remittances to the EAC have significantly risen in the last twenty years resulting to them being the largest sources of foreign currency earnings (Ondieng'a et al., 2017). Back in 2015 these nations got more than $3.5 billion dollars of remittances, with a big portion of the amounts being transferred to Kenya and Uganda. In Uganda remittances arose that year regardless of a half year forecast by the Bank of Uganda of a $233 million decline because of the challenging fiscal environment the nation was facing at the time. Remittances gotten from international migrants

have been a more maintainable source of foreign currency for third world nations than other capital inflows like foreign direct investment, public debt or assistance for official development.

There are empirical studies suggesting that migrant remittances possess the ability to certainly influence a country's economic progress and development of financial systems in developing countries. (Taseen, 2012, Ratha, 2013, fromentin, 2018, Adeoye et al., 2020, Aziz, 2020, donou Adonson et al., 2020). Migrants' remittances to EAC region represented 2.0 percent, in 2014 and 2010 and 2.5 percent and 1.6 percent of the GDP in 2000 and 2005 respectively. In 2014 remittances in single economies represented 1.6 percent in Rwanda and Burundi and 1.0 percent, 3.3 percent and 2.3 percent in Tannzania, Uganda and Kenya respectively. IOM (2015). In the EAC economies, remittances have impacted significantly in decreasing dearth via improving consumption even in times of predicaments. Studies have alluded that remittances may as well result to adverse macroeconomic effects by snowballing inequality of income and decreasing supply of labour among the people receiving and also encourages use of imports and causes dependency between the countries sending and receiving remittances.

1.2 Research Problem

Remittances in the East African Community (EAC) have grown tremendously becoming the second largest capital flow after Official Development Assistance (ODA) (Ratha, 2005) and (World Bank, 2006). Remittances in developing countries have extraordinarily grown to US$ 2.9 Billion in 2014 from US $ 790 million in 2000 (World Bank, 2015). In Kenya, Uganda, Tanzania, Rwanda and Burundi remittances rose from US$ 538 million, US$ 238 million, US$ 8 million, US$ 6 million and US$1 million in the year 2000 to US$ 1,441 million, US $ 887

million, US$ 389 million, US$128 million and US$ 49 million in the year 2014 respectively. The influx of foreign exchange and subsequent upsurge in need for domestic currency can lead to pressure on the foreign exchange rate towards its increase thus increasing inflation which can lead to negative growth effect of tradable goods (Acosta et al.,2009), Stratan et al,2013).

Remittance inflows as well determine a rise in the families' disposable income which causes an increase of demand which means a rise of inflation which influences the economy adversely and since a great fraction of remittances are used in consumption, the rise in consumption changes the needs which generates an inflationary stress in the economy (Baldera & Nath, 2008). Adela & Dietmar (2013), established positive influence of transfers on the growing of GDP per capita. According to the Migration Policy Institute, remittances brought in excess of 10 percent of GDP in twenty four countries, and more than 20percent in nine countries. Migrant transfers give vital aid to the dollar when traditional sources of foreign currency like horticulture, coffee and tourism are on the decrease. CBK data, 2016. Remittances also cause increase in liquidity which consequently causes downward stress on interest rates, and interest rates can certainly be of benefit to businesses locally and encourage start-ups of businesses.

Remittances are key to the performance of economies particularly in the developing countries (World Bank, 2005). Regardless of the tremendous development of remittances in EAC, not much has been researched on its impact on macroeconomic variables. The EAC remittances have been steadier than private debt, FDI's and equity flows. Further, variations in transfers' inflows could cause challenges of macroeconomic nature to receiving countries, more so the ones with material inflows (Mohapatra et al., 2009). The consistent rise in volume of remittances through

the EAC region, needs understanding about their influence on macroeconomic variables even as the region looks forward to form a trading block with a unifying single currency by 2024 (IMF, 2016). Majority of the studies available are not EAC specific. Numerous studies have been done to establish the many elements that influence migrant transfers to their home republics. These studies have indicated that since remittances are normally sent directly to the households receiving them, they are more effective as compared to development aid thus causing them to be exposed to corruption and administrative challenges.

Swamy (1981) analyzed remittances at the macroeconomic level and concluded that the number of diaspora migrants and per- capita income of diaspora people were both numerically substantial factors in defining quantity of remittances gotten by the recipient country and they both had an affirmative link. Nyamongo et al (2012) in their literature on the role of diaspora transfers and fiscal development on the growing of the economy in thirty six nations in Saharan Africa found out that foreign transfers seem to be a significant basis of development for those republics in Africa. Jawaid et al (2012) in their literature to scrutinize the relationship between workers' remittances and economic progress indicated an affirmative and substantial correlation between migrant workers' transfers and economic growth.

Ondieng'a et al (2017) in their study to establish the influence of foreign remittances on a selection of macroeconomic variables in the EAC discovered that remittances have an affirmative impact on macroeconomic variables in the EAC region. Fayissa & Nsiah (2010) in their research on the influence of transfers on the growth of the economic and its development in Africa, concluded that remittances could enhance progress in countries with not so developed

monetary systems as it provided another way to finance investment and reduce fluidity constraints.

Amugune (2018) in her study trying to discover the outcome of remittances on the economic progress in Kenya, established that remittances positively affect growth. Odunga (2016), in his study on the influence of economic factors on changes in remittances in Kenya, found out that there was a straight link between foreign rates of exchange, rates of interest & remittances and an incidental relationship between inflation rate and remittances. Kiio et al. (2014) in their literature on the impact of workers' remittances on the economy established that there is a progressive and greatly noteworthy link between workers' remittances and real GDP per capita. Bett, (2013) in his study on the influence of remittances on the development of the economy in Kenya established that efficient remittances in the overall economic growth are the ones that endeavor to: expand their capital bases, diminish operating costs, advance assets quality and keep the right amount of liquid assets.

It is notable from the above studies done globally, regionally and locally all seem to agree that transfers got an affirmative impact on the fiscal growth in countries. Only one study from Ondieng'a (2017) was done to establish the outcome of remittances on certain macroeconomic variables in EAC. As evidenced in studies, the effect of diaspora remittances on macroeconomic variables in EAC remains scarce with majority of them concentrating on diaspora remittances and economic growth. Based on statistics, diaspora remittances have been gradually changing positively over the years and especially in the recent past. It is imperative to establish their link in order to capture the promising capability of foreign remittances and their effect on the

different macroeconomic variables which influence the growth and development of an economy. The purpose of this study is to basically respond to the question: What is the influence of diaspora transfers on macroeconomic variables in EAC.

1.3 Objectives of the Study

a) To determine the effect of diaspora remittances on macroeconomic variables in East Africa Community.
b) To determine the effect of Diaspora remittances on foreign exchange rates in East Africa Community.
c) To determine the effect of Diaspora remittances on inflation in East Africa Community.
d) To determine the effects of Diaspora remittances on Gross Domestic Product in East Africa Community
e) To determine the effects of Diaspora remittances on Unemployment in East Africa Community

1.4 Value of the Study

This study shall be beneficial to the East African governments. Remittances have remained a vital basis of external resource flows for countries especially developing ones surpassing official development assistance and more constant than private debt and portfolio equity flows.

Remittances have become a main component of the BOP of states. Migrants in East and Horn of Africa are almost eight million thus representing 30 percent of Africa's migrant population. They act as a remedy to poverty and encourage prosperity. As a result of matching the demand of labor with supply, migration is contributing majorly to the economies of both the migrant's home

country and the country that they have migrated to and thus improving lives by increasing productivity and facilitating trade and investment.

This study shall add to the variety of studies that are already present in evaluating impact of diaspora remittances which will be beneficial to other scholars. It shall also provide a basis for further studies in this field. The study will also make a contribution to the literature on effect of remittances on macro-economic factors in EAC which will be part of articles that will be useful to researchers willing to further these studies. The study shall also assist the government in establishing structures to administer and ways to gain directly into the funds from foreign lands as a strength for ventures and progress of the nation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter encompasses an evaluation of the studies done on the topic proposed for study and structured under the following sub-headings, theoretical studies review, determinants of macroeconomic variables, empirical studies review, conceptual framework, and the summary of gaps that need to be filled by the study.

2.2 Theoretical framework

Theoretical framework presents and defines the theories which explain the reason the research question under study exists. Writings on transfers have brought up a number of models to describe the drives behind migrant's decisions to send funds as either cash or products to their relatives in their countries of origin. This study was directed by interpretations on different theories of diaspora remittances and macroeconomic variables.

2.2.1 Pure Altruism Theory

Altruism was coined by Augute Comte a French Philosopher in the 19th Century and suggested by Chami et al, (2003). This theory states that people in foreign lands send funds back home due to concern of the wellbeing of the people they left behind at home (Siegel & Hagen-Zanker, 2007:5: OECD, 2006:145). Altruism is the attitude and ethical way concern with the happiness of others. One of the vital motives of migrants' remittance is based on the altruism drive. Lopez – Cordova and Olmedo (2006) suggest that remittance do not involve any present or future reimbursement or represents payment of debt. Lucas et al (1985) state that the remitter derives

convenience from the well –being of relative-recipients at home. As a result, negatively violate the amount remitted. Chipeta and Kachaka (2004) supported this motive and suggest altruistic motive is behind remittance in Malawi. This brings to common reasoning that altruistic behaviour of remitter may be to militate against those factors that affect the wellbeing of the family such as poverty.

The Bank of Uganda, (2007) observed that self-sacrificing remittances tend to move in the opposite direction as the overall state of an economy mainly because more remittances tend to be sent in the periods of economic distress so as to protect their families back home and to ease their lives this means that remittances are mainly for consumption. For this theory, when the conditions of the economy are looking up in the countries of origin, then it would result to a decrease in the bulk of remittance coming in.

2.2.2 Pure Self Interest Theory

This theory was coined from the discussion that migrant transfers are not all the time countercyclical. The opposite of altruism is Self-interest (selfishness) which is also selflessness. Brown (2006), postulated that there are occasions where remittance volumes decrease due to poor economic conditions in the home countries and that in such instance the link between the bulk of remittances and the performance of the economy is not inverse. Stark and Lucas, (1985) aver that self-interest can be a reason for remittances and such motives can be: exchange, insurance, investment, inheritance and strategic. Migrants send money in order to render a service in exchange of their children, property, house etc being taken care of, or to invest or inherit assets home or for legacy purposes. In cases where the economic performance in the

home countries is declining, Diasporas are likely to send a reduced amount of money since the situation may have an adverse effect in their investments. In this theory remittances are more likely to increase if the economic conditions are good.

2.2.3 Tempered Altruism Theory

This theory was advanced by Lucas and Stark (1985) because of the failure of the pure altruism and the pure self-interest theories to adequately expound the nature of remittances. This model argues that remittances are part of a mutually helpful, inter-temporal pledged plan that is agreed upon by the migrant and the household at home with the view of doing investments and taking some risks. The family back home considers educating the migrant as an investment and so expect rewards inform of remittances from the migrants (Lucas and Stark, 1985). When the recipient country is facing challenging times the migrant tends to remit relatively more while when the person in diaspora is in trouble such as being unemployed the family back home transfers some amounts to them. Remittances are viewed as part of the past present and future, reciprocally advantageous pledged provisions by the migrant and the family and therefore the pledged arrangements could be co-insurance, repayment of loans and service exchange.

2.3 Determinants of Macroeconomic variables

Macroeconomic variables are variables that are a pointer of the existing trends on the economy. In developing countries key elements of fiscal development include investment, foreign direct investment, foreign aid, fiscal policy, trade, human capital development, monetary policy. Changes in any of these variables have widespread effect on the economy thus getting them

right is useful not only in formulating policies to manage the economy but also for growth purposes.

2.3.1 Foreign Direct Investment

This refers to an acquisition of an interest in a Company by an investor situated outside its borders. They are sizeable investments made by a Company into overseas concern. Investopedia team, 2021. Another definition of FDI is that it is an investment meant to obtain long-lasting managing interest in an enterprise functioning in a country other than that of the person investing. Major forms of FDI, include efficiency seeking FDI, market pursuing, pursuing resources FDI. The importance of FDI in East Africa economies is that it brings principal assets, provides recent technology and improves existing technologies (Otieno, et al. 2013).

Mwega and Ngugi, (2007), argued that the outcome of FDI in EAC can never be underrated in that the United Nations Conference on Trade and Development (UNCTAD) (2007) discovered that FDI was key to the economies of EAC because since it brought in new technologies, investable financial resources and improved the efficiency of prevailing technologies. FDI boosted the export capabilities of local economies having eased exports to markets. It also assisted in improving skills and management methods and provided better technologies and modern environment management systems.

2.3.2 Foreign Aid

Foreign Aid directly encourages or influence expansion of the economy of the receiving nation. Some of the Scholars have done studies to evaluate the influence of foreign aid in promoting the

progress of the economy of recipient countries. Literatures available have varied widely across approaches and generate mixed results. Ahmadi- Esfahani and Burke (2006), & Carden, (2009) found proof for immaterial and adverse influence of foreign aid on fiscal progress. Tap and Hansen, (2001), Minoiu and Reddy, (2010) Karas, (2006), Astreriou, (2009), give proof that foreign help has an affirmative impact on fiscal growth. Foreign Aid helps in supplementing domestic resources thereby relieving domestic savings and foreign exchange constraints. Foreign Aid beneficiaries are mainly in Africa. Some countries in Africa heavily depend on aid. The influence of aid to their GDP is of such magnitude that the republics would be in difficult situations or even collapse if the foreign aid stops. Chung et al, (2012) study concluded that for EAC countries, foreign aid had a substantial negative influence on economic growth.

2.3.3 Trade

All the countries in EAC have accepted regional trade strategies which inspire trade in order to generate jobs, investment and relocate creative ability in their particular local economies. The significant acknowledgement of trade as an important contributor of the growth of the economy is manifested via the guidelines embraced following liberation and through the time and up to now. The first trade strategies in the region inclined on mercantilist theory of trade which advocated for an export oriented strategy of economic growth then went to an important substitution and industrialization era followed by liberalization and then the regionalization and globalisation which is in existence up to date (Ambetsa, et al, 2019).

From the beginning, trade was intended to advance the pecuniary wellbeing of the people in East Africa via its input to GDP of the partners trading and improvement of infrastructure, mainly road networks, railway lines, sea routes and air travel. Most important, it was destined to be an integrative tool to bring together the EAC republics into unified fiscal growth and development allies. Remittances seem to boost progression of both regional exports and imports in the EAC region (Ambetsa, et al, 2019).

2.3.4 Monetary Policy

Investopedia (www.investopedia.com) defines monetary policy as a set of tools used by a country or nation's top bank (Central Bank) to regulate the overall money supply which is accessible and available to banks of that nation, its people and its businesses for it to guarantee sustainable improvement of the economy.

The way monetary policy has been steered in EAC has largely been successful this far. Main indicators for measuring such success have been: The success of the fundamental obligations of the central banks that is inflation for local prices, price stability, and rates of exchange for price of goods and services, the capacity to survive through big shocks to empower the economies carry on a track of constant growth after small disturbances and also letting Central Banks pursue their mandates unencumbered. The rates of inflation have remained controlled and within the EAC convergence band since 2013, except for Burundi in the recent past, largely because of the fruitful behavior of monetary policy assisted by stability of oil prices, and better supply of food. Nominal rate of exchange index has been sensibly stable with rectification for shocks; real effective exchange rates stable; and bigger amendment in republics chasing more flexible exchange rate administrations.

The economic progression in the EAC has been strongly and robustly aided by public investment in infrastructure, favorable prices of commodities, restrained worldwide prices of oils and favorable conditions of weather. Sustaining the success of the monetary policy shall partly depend on: Shielding the impartiality of central banks to carry out their directive; enhanced culpability of central banks for its actions, as well as more effective communication of its activity and resilient capacity and flexibility to control response to shocks.

2.3.5 Human Capital Development

This is a model which recognizes the features that can be obtained and which improve income. It includes peoples' understanding and abilities, gotten partly via education, they can also include their strong points and vitality, which are reliant on their healthiness and nourishment Simon and Teal, (1998).

Human Capital development is the process by an organization of developing its employee performance, capabilities and resources. The United Nations Development Program (UNDP) established a combined pointer, the human development index (HDI), which shows equal load to three indicators i.e real GDP per capita which is measured at purchasing power parity in constant prices, life expectancy at birth; and educational accomplishment, measured by literacy of adults (two thirds weight) and collective primary, secondary and tertiary enrolment ratios (one third weight). A lot more learned people earn more than less educated ones though it does not mean that there is a simple link between investing in people and countries becoming richer.

Human Capital directly impacts on the productive capacity of an economy. Simon and Teal, (1998) in their study concluded that underprivileged countries tend to catch up with the rich countries if the poor countries have a high human capital per person (in relation to their level of per capita GDP), but not otherwise and that as a related matter, republics with high human capital have low fertility rate and high ratios of physical investment to GDP (Barro, 1991).

2.4 Empirical Studies

Empirical studies deliberate the literature written in the recent globally, regionally as well as locally on effects of foreign remittances on macroeconomic variables.

2.4.1 Global Studies

Olivia (2018), studied on contributing factors of remittances gotten in four regions: East Asia and Pacific (EAP), Latin America and Caribbean, Sub –Saharan Africa and South Asia (SA). He used annual remittance data found from the IMF balance of payments to quantify transfers in. The statistics for the four regions was changed into actual transfers received and then into logarithmic values to linearize non-linear conduct. A regression analysis was used to evaluate the statistically momentous factors in each region. The study deduced that region specific methodology should be engaged when implementing strategies that relate to migrant remittances, since diverse autonomous variables are identified in each region. In South Asia strategies should concentrate on evening out inflation rates to discourage remittance flows from being condensed since variations in the inflation rate over time reflect an unstable economy, and thus deter migrants from remitting to their home countries. Increase in income per capita in East Asia & Pacific and Sub-Saharan Africa should be implemented in order to increase the amount of

remittances being received in the two regions. Analyzing the determinants of remittances can assist countries detect methods of raising remittances from workers in diaspora and help in understanding which sections of the populace profit most from remittances being sent back home.

Swamy (1981) analyzed remittances at the macroeconomic level. His study used yearly data from 1960-1979 which was gotten from the BOP data given by the IMF to complete a multi regression analysis. His research concluded that the number of people in the diaspora and per-capita income of migrants were both statistically substantial variables in knowing the amount of remittances received by the countries of origin and both had an affirmative correlation.

Nyamongo et al, (2012) studied on the topic of transfers and fiscal development on the growth of the economy in 36 nation states in Saharan Africa between 1980 and 2009 established that remittances seem to be a vital cause of growth for the African states during that time. They additionally discovered that unpredictability of remittances seem to have an adverse influence on the development of nations in Africa and that remittances seem to work in a complimentary manner to financial expansion.

Jawaid et al (2012) in their study to examine the link between workers' remittances and economic growth by using seven years average yearly data of 113 countries from 2003 to 2009 show the positive and significant link between workers' remittances and economic growth. This study indicate that the remittances are more contributing in high income countries (developed countries) as compared to low and middle income countries (developing countries).

2.4.2 Regional Studies

Ondieng'a et al in their study on the influence of migrants' remittances on certain macroeconomic variables in EAC showed that remittances have an affirmative effect on macroeconomic variables in EAC region. The study used the Keynesian model of economic growth and was guided by correlational research design. The study revealed that, increase in remittances by one shilling measure in dollars would raise household use, investment, import & output through dynamic multiplier effects in four out of the five countries and wears out in the second year. This is not good for the economy, hence for maintainable development, it is important to decrease Multiple Point constraints (MPC) in a short period perhaps by encouraging savings.

Fayissa & Nsiah (2010) in their study concluded that remittances could enhance progress in economies with fewer advanced monetary systems as it provided another way to finance investment and reduce fluidity limitations. The study utilised uneven data for 37 African economies in different countries from 1980 to 2004. The researchers concluded that a 10% rise in diaspora transfers causes a 0.3 percent increase in the GDP per capita income. Chami et al., (2003) on the contrary averred there was an adverse effect on growth from remittances since when families receive transfers, their productivity declines thus causing a reduction in the supply of labour in the third world countries.

2.4.3 Local Studies

Amugune (2018), study wanted to discover the influence of migrants' remittances on growth of the economy in Kenya. She used data for the period 2008-2017 from the CBK website, KNBS

website and the World Economic Development indicators. This study used Ordinary Least Squares regression model, Normal plots and frequency histograms were used to test for normality. Correlation investigation was employed to define the nature of connection between variables. Multiple linear regression analysis model was then employed to establish the effects of diaspora remittances and interest rates positively impact the growth of the economy in Kenya although the influence is not statistically weighty at confidence level of 90%, 95% or 99%, whereas Inflation rates had a significant negative effect on GDP growth rate in Kenya at 99% confidence level.

Odunga (2016), study investigated how macroeconomic variables would be affected by variations in remittances in Kenya. His analysis used OLS Model and discovered that, rates of foreign exchange, interest rates, inflation rates and real GDP conjointly were accountable for the disparity in the worth of remittances at R^2 of 63.36%. He found out that a direct correlation between exchange rates, remittances and interest rates existed and an indirect link between diaspora remittances and inflation rate. His study also concluded that real GDP rates have no significant relationship. He further concluded that guidelines to control external exchange market interventions can let capital flows to steady by the exchange rate movements from medium to long term times and thus eradicating the changes on the interest rate structure and governments have to adopt policies that would maintain the macroeconomic variables at sensibly controllable limits by decreasing the extent of variations in the exchange rates and domestic rates and continuous reduction in inflation rates.

Kiio et al. (2014) determined that there is affirmative and highly significant link between remittances and real GDP per capita. Kiio and his peers utilized data from 1970 to 2010. Similar results were obtained by Mwenda & Mwangi (2015). They concluded that diaspora transfers pointers were important factors changing the economy in Kenya. World Bank's Development pointers data between 1993 and 2013 was used, but the studies did not cover specific variables that have a bearing on growth: namely; consumption, investment and imports.

Bett (2013), sought to determine the influence of remittances on economic progress in Kenya. She used data from 2003 to 2012 which was also analyzed using multiple linear regressions method. She added evolution of real per Capita GDP to measure for economic growth and other variables, given that they specifically relate to a country's economic growth e.g inflation. In her study she concluded that remittances signs are the most substantial factors affecting the growth of the Kenyan economy. This study also showed that resourceful transfers in the overall economic growth are the ones that endeavor: to change positively their capital bases, lessen operating costs, advance assets quality by decreasing the rate of non-performing loans, apply income broadening plans instead of fixated strategies and retain the right volume of liquid assets.

2.5 Conceptual Framework

It is anticipated that diaspora remittances will affect macroeconomic variables. Progress of remittances is anticipated to establish the direction the macroeconomic variables will take whether negatively or positively. This study is founded on the conceptual framework as illustrated in the figure 2.1 below.

Figure 2.1: Conceptual Framework

Source: Own Computation based on the existing literature review

2.6 Summary of the Literature Review

This chapter focused on the theoretical framework and empirical studies on remittances and macroeconomic variables. As evidenced by data from the CBK website remittances helped the EAC economy tide over the devastating impact of the Covid-19 pandemic. From the literature reviewed in this Chapter, different scholars locally focussed on the influence of remittances on the economy growth. Odunga, (2016) found out that there was the link between interest rates, exchange rates and remittances was a direct one. Ondieng'a et al (2017) in their study revealed that diaspora remittances have a good influence on macroeconomic variables in the region. Bett, (2013) discovered that migrant remittances pointers are the most noteworthy aspects impelling economic growth in Kenya. Olivia, 2018, Nyamogo et al, (2012) and Jawaid et al., (2012) all seem to conclude that remittances directly disturb the economic growth of a country and any instability of remittances seems to have an adverse influence on the progress of republics in Africa and that remittances seem to be functioning and complimenting monetary development. Therefore from the literature reviewed only Ondieng'a et al 2017 attempted to study on the effects of selected macroeconomic variables in EAC. As further evidenced in this chapter there is a scarcity of studies done in East Africa region on the outcome of diaspora remittances on

macroeconomic variables as the local scholars concentrated on Kenya alone and the global/ regional studies concentrated on their continents and countries. Further empirical studies need to be carried out to establish how remittances and macroeconomic variables impact on each other if at all they do.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research approach that was used in this study. It gives background information on the research design, population and sample size, data collection method and analysis of data that was carried out.

3.2 Research Design

A Descriptive study tries to accurately and systematically describe the relationship between variables. A descriptive study is a method of data collection for one to examine assumptions or to respond to queries regarding the present position of the matters in the study. A descriptive study concludes and shows how things are. (Mugenda and Mugenda, 2003). The selection of a descriptive research design is centered on the fact that the research was concerned with the situation already prevailing on the ground and no variable was influenced. This study attempted to describe what happens to macroeconomic variables as diaspora remittances vary. This study being a statistical study, the results derived from the sample period generally informed what happened to the macroeconomic variables when diaspora remittances changed. Quantitative research method was used as volume of remittances is measured in US dollars as a percentage of GDP. Remittances formed the independent variables whereas the macroeconomic variables formed the dependent variables. Secondary data was obtained from the central banks websites of the respective countries in EAC, the World Bank development indicators and National Bureaus of Statistics of the respective countries in EAC which were quantitative in nature.

3.3 Population

This study focused on the East Africa Community (EAC) economy. Remittances received in EAC were measured against their GDP, Inflation rate, Exchange rate and Unemployment rate. Data on EAC diaspora remittances was available on the National Bureau Statistics websites as well as World Bank's development indicators and the CBKs website of the economies in EAC.

3.4 Data Collection

The sample of this study constituted ten (10) year period between January 2011 and December 2020 time series data which was analyzed per annum making a sample size of 10. A 10 year sample period was selected due to availability of data. The secondary data for the constant variable i.e Diaspora remittances as well as the dependent variables i.e GDP, inflation, exchange rate, and unemployment were gotten from the World Bank's growth indicators, the National Bureaus of Statistics and the Central Banks' websites. The Central Banks' surveys on remittances entries every month via official channels which are commercial banks and any other authorized foreign remittances providers of service in EAC and were analyzed on annual basis. Data for the macroeconomic variables was assessed from the National Bureau of Statistics' websites. Data was analyzed on annual basis thus: a cross-sectional study was used.

3.5 Data Analysis

The study investigated the effect of diaspora remittances on macroeconomic variables using OLS technique of regression analysis. Time series data was obtained from the World Bank's development pointers, the National Bureau of Statistics and the Central Banks for the period 2011 to 2020.Time series modelling and analysis gave an indication of possible relationship

between remittances and macroeconomic variables given that statistics indicators collected over time may have had an internal structure such as autocorrelation, trend or seasonal disparity. Time series data assisted in establishing whether there exists any statistical association or co variation between remittances and macroeconomic variables. It helped to obtain an also enabled to fit a model and proceed to forecasting, monitoring or even feedback and feed-forward control. The data was analyzed using SPSS version 25. Tables were used to interpret the data in order to make meaning out of the various variables. Regression analysis was carried out to estimate the link between diaspora remittances & macroeconomic variables.

3.5.1 Analytical Method

This study used regression model which had one independent variable and four dependent variables. Diaspora remittances was the independent variable and macroeconomic variables were the dependent variables.

The model was as below:

$Y=b_0+b_1$ rem+ e

Where y: depicts the dependent variable, macroeconomic variables.

Rem: is the independent variable, diaspora remittances

e is the error term, the regression residual which addressed the several factors of bias that could happen in the research point towards evaluating the accuracy of diagnostic tests

b_0: is the constant.

b_1: are regression coefficients which determine the contribution of independent variables.

3.5.2 Test of Significance

This study was founded on regression model, Tests of significance used p-values and f-statistics at five (5) % level of significance. This study tried the level of statistical significance of the results at 95% confidence levels to establish if the model was a good predictor using the Analysis of variance method (ANOVA) that tested for the significance of each parameter. If the p-value was less than 0.05, it meant there was statistical significance.

CHAPTER FOUR

DATA ANALYSIS, EMPIRICAL RESULTS AND INTERPRETATION

4.1 Introduction

This chapter shall present results from the analysis and interpretation of secondary data obtained from the respective National Bureaus of Statistics, World Bank and Central Banks of the respective countries in EAC for the period 2011 to 2020. Analysis was conducted with the assistance of SPSS version 25. Descriptive statistics such as standard deviations and means were used to analyze the effect of diaspora remittances and macroeconomic variables. Statistics on diaspora remittances to EAC as obtained from National Bureau of Statistics, World Bank and Central Banks was used to explore if there exists any relationship between remittances and macroeconomic variables and to answer the research question, "what is the effect of diaspora remittances on macroeconomic variables in East Africa Community?''

4.2 Descriptive Statistics

Data was evaluated and the findings of the distribution of the variables are as shown in Table 4.1 below. The table demonstrated the mean, minimum value, maximum value and the standard deviation of diaspora remittances, annual GDP growth rate, annual inflation rate, average annual exchange rate and unemployment rate.

Table 4.1: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Remittances as a % of GDP	50	.66	4.07	2.1502	.93918

Annual GDP % growth rate	50	-3.90	9.46	4.7154	2.88988
Annual Inflation rate %	50	-5.50	18.93	6.5888	4.49504
Average annual exchange rate	50	85.07	3727.79	1538.8908	1100.78632
Unemployment % of total labour force	50	1.02	10.99	3.2362	1.94710
Valid N (listwise)	50				

Source: Research findings

Remittances as a percentage of GDP had a mean of 2.1502% with a standard deviation of 0.93918 and a maximum and minimum values of 4.07% and 0.66% respectively. Annual GDP growth rate registered a mean of 4.7154% with a standard deviation of 2.88988 and a minimum and maximum of -3.90% and 9.46% respectively. Annual inflation rate had a mean value of 6.5888%, a standard deviation of 4.49504 a minimum and maximum of -5.50% and 18.93%. Average exchange rate recorded a mean of Sh1538.89, a standard deviation of 1100.79 a minimum maximum of Sh 85.07 and Sh 3727.79 respectively. Unemployment rate has a mean of 3.2362% a standard deviation of 1.94710 and a minimum and maximum of 1.02 and 10.99 respectively.

4.3 Diagnostic Statistics

Diagnostic statistics examines correlation and normality of variables. Parametric statistical tests like Analysis of Variance (ANOVA test), Pearson correlation, f-test, -test among others, require that the population of study be approximately normally distributed for each category of the independent variables. Tests have to be done on the data to give assurance that the data is fit for linear regression procedure. A multiple linear regression analysis was utilized to establish the significance of the coefficients of the descriptive variables in explaining the disparity in dependent variables. Correlation analysis showed the course of the link among the dependent and

independent variables. Model summary was utilized to explain the proportion of the dependent variable described by the independent variables while ANOVA was used to determine the fitness of the model used in the analysis.

4.3.1 Normality

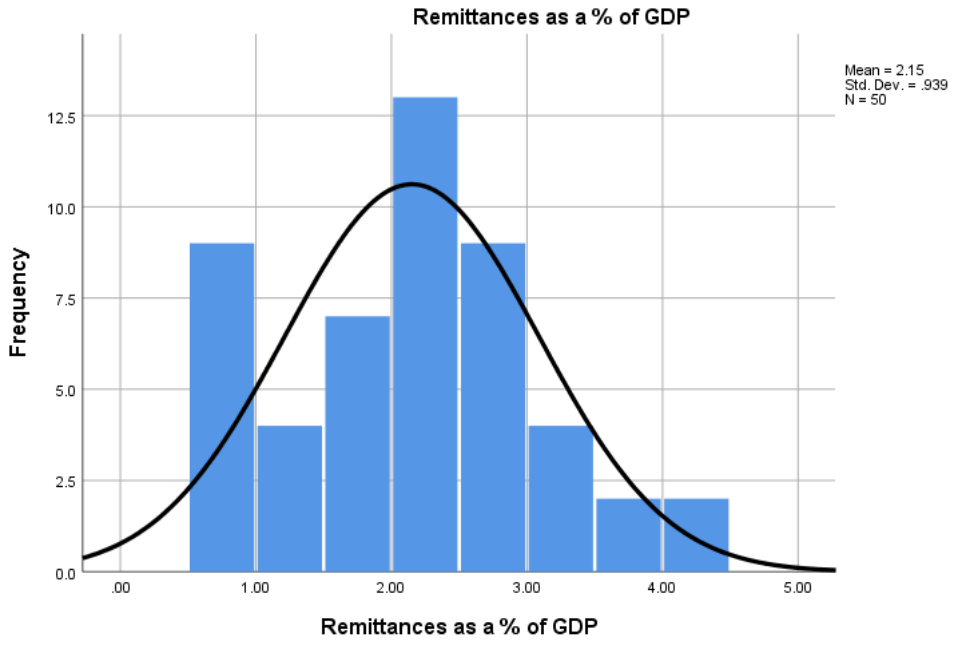
Normality test on the data sampled will help assure that the population is normally distributed and the findings can be used to conclude on the population. Normal plots and histograms were used to check for normality and the results were that the sampled data was normally distributed implying that the population is normally distributed

Table 4.2: Descriptive analysis for the normal distribution curves

Statistics						
		Remittances as a % of GDP	Annual GDP % growth rate	Annual Inflation rate %	Average annual exchange rate	Unemployment as a % of total labour force
N	Valid	50	50	50	50	50
	Missing	0	0	0	0	0
Skewness		.097	-.997	.700	.371	1.569
Std. Error of Skewness		.337	.337	.337	.337	.337
Kurtosis		-.606	1.488	1.661	-.680	3.633
Std. Error of Kurtosis		.662	.662	.662	.662	.662

Histograms

Figure 4.1: Remittances as a percentage of GDP



The above histogram shows that Remittances as a % of GDP are normally distributed with a skewness 0.097 (SE 0.337), and kurtosis of -0.606 (SE 0.662).

Figure 4.2: Annual GDP growth rate %

The histogram below shows that Annual GDP growth rate is normally distributed with a skewness -0.997 (SE 0. 337), and kurtosis of 1.488 (SE 0.662)

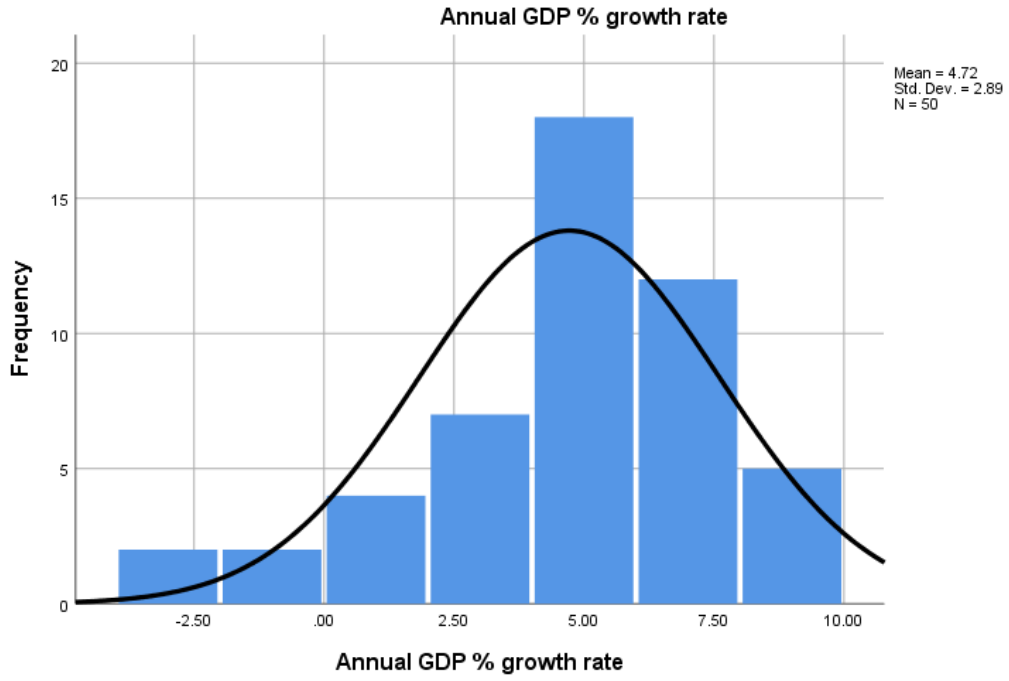


Figure 4.3: Annual inflation rate %

The histogram below shows that Annual inflation rate is normally distributed with a skewness -0.700 (SE 0. 337), and kurtosis of 1.661 (SE 0.662)

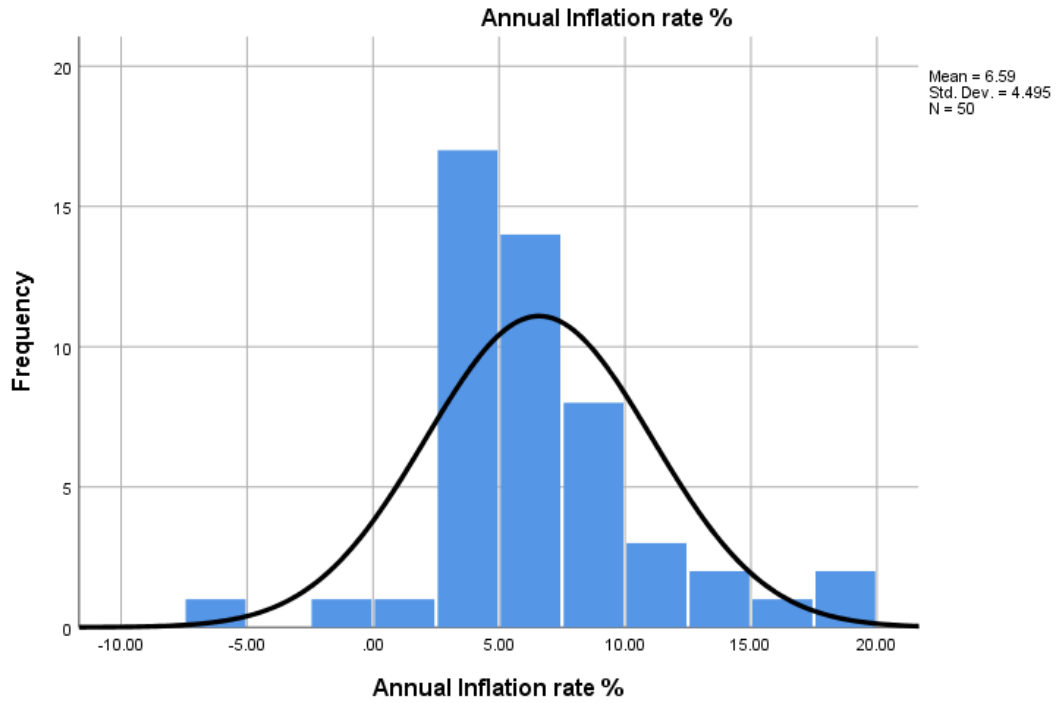
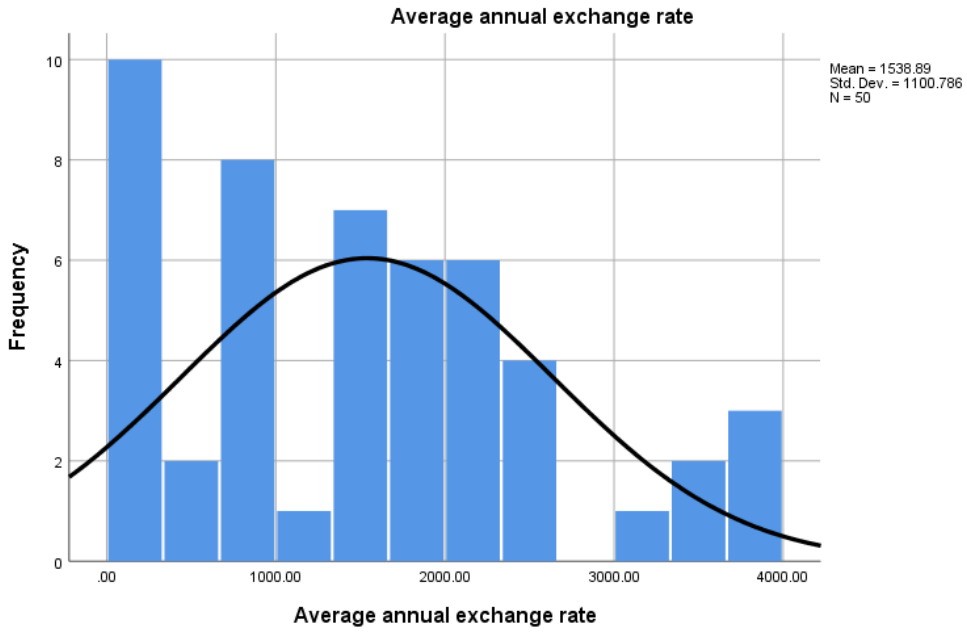


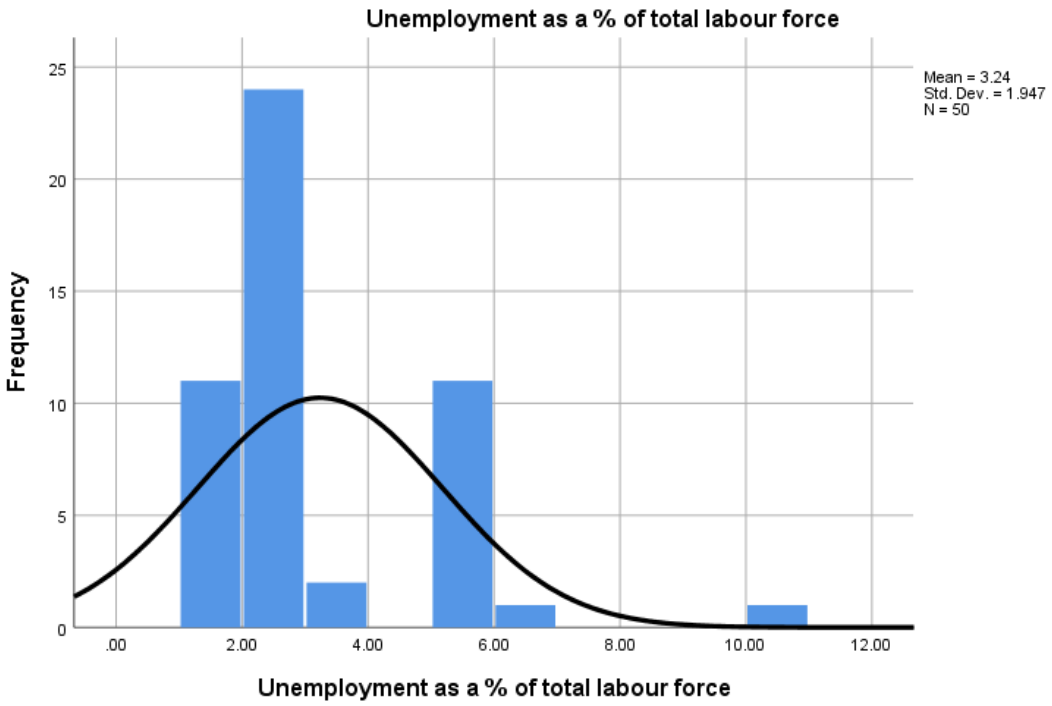
Figure 4.4: Average Exchange rate in Sh/USD



The histogram above shows that Average Annual exchange rate is normally distributed with a skewness 0.371 (SE 0. 337), and kurtosis of -0.680 (SE 0.662)

Figure 4.5: Unemployment rate as a % of total labour force

The histogram above shows that Average Annual exchange rate is normally distributed with a skewness 1.569 (SE 0. 337), and kurtosis of 3.633 (SE 0.662).



Source: Own plots using SPSS

The histograms show bars approximately take the shape of a normal distribution curves. All variables are symmetrically distributed for remittances with a skewness 0.097 (SE 0.337), GDP growth rate -0.997 (SE 0. 337), inflation 0.700 (SE 0.337), Exchange rate 0.371 (SE 0.337) and Unemployment rate 1.569 (SE 0.337) and kurtosis of -0.606 (SE 0.662) for remittances, 1.488 (SE 0.662) for GDP growth rate, 1.661 (SE 0.662) for inflation, -0.680 (SE 0.662) and 3.633 (SE 0.662) for unemployment rate. (See Table 4.2 above). It can therefore be concluded that the dependent variables are approximately normally distributed for the independent variable under study.

4.3.2 Correlation Analysis

Correlation analysis explains the track of the link between the independent variables and dependent variables. Pearson correlation coefficient is an evaluator of the strength of a linear

relationship among two variables and is symbolized by r. Pearson correlation coefficient, r can take an array of values from +1 to -1. A value of 0 shows that there is no link, in that as the value of one variable increases, the value of the variable increases too. A value of less than 0 shows a negative relationship in that as the value of one variable increases the value of the other variable decreases.

Table 4.3: Correlation Analysis

	Remittances as a % of GDP	Annual GDP % growth rate	Annual inflation rate %	Average annual exchange rate	Unemployment as a % of total labour force
Remittances as a % of GDP	1				
Annual GDP % growth rate	.025	1			
Annual Inflation rate %	-.085	-.103	1		
Average annual exchange rate	.124	.022	-.127	1	
Unemployment as a % of total labour force	-.055	-.228	.211	.082	1

The table 4.2 above shows findings of the connection between the independent variables and the dependent variables. The association between diaspora remittances as a percentage of GDP and GDP is a weak positive (R= 0.025). Annual inflation rate has a relatively weak negative link with remittances (R=-0.085). Average annual exchange rate has a positive relationship (R=0.124) while unemployment rate has a negative link (R=-0.055).

4.3.3 Regression Analysis

Regression analysis considered the model summary, analysis of variance and regression coefficients.

4.3.3.1 Model Summary

Examination of coefficient (R^2) was conducted to establish the share of the entire variations in dependent variables that is connected to the variations in the independent variable. This research established R^2 of 0.001 which shows that 0.1% of the total disparity in changes in annual GDP growth is caused by diaspora remittances, 0.7% of the total variations in changes in annual inflation is caused by diaspora remittances, 1.5% of the total disparity in changes in annual average exchange rate is caused by diaspora remittances and 0.3% of the total difference in unemployment is caused by diaspora remittances.

Table 4.4: Model Summary for Annual GDP growth rate

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.025[a]	.001	-.020	2.91889
a. Predictors: (Constant), Remittances as a % of GDP				

Own model using SPSS.

The above model summary showed R square coefficients of annual GDP of 0.001 and a standard error of the estimate at 2.91889.Which shows that a 0.1% change in changes in annual GDP is caused by diaspora remittances.

Table 4.5: Model summary for Annual Inflation rate

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.085[a]	.007	-.013	4.52522
a. Predictors: (Constant), Remittances as a % of GDP				

Own model using SPSS.

The above model summary showed R square coefficients of annual inflation rate of 0.007 and a standard error of the estimate at 4.52522. The above results show that a 0.7% change in changes in annual inflation rate is caused by diaspora remittances.

Table 4.6: Model Summary for Annual Average exchange rate

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.124[a]	.015	-.005	1103.59787
a. Predictors: (Constant), Remittances as a % of GDP				

Own model using SPSS.

The above model summary showed R square coefficients of annual inflation rate of 0.015 and a standard error of the estimate at 1103.59787. The above results show that a 1.5% change in changes in annual average exchange rate is caused by diaspora remittances.

Table 4.7: Model Summary for Unemployment as a percentage of total labour force

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.055[a]	.003	-.018	1.96434
a. Predictors: (Constant), Remittances as a % of GDP				

Own model using SPSS.

The above model summary showed R square coefficients of annual inflation rate of 0.003 and a standard error of the estimate at 1.96434. The above results show that a 0.3% change in changes in unemployment rate is caused by diaspora remittances.

4.3.3.2 Analysis of Variance

The study used ANOVA statistics to establish the goodness of fit of the regression model. The regression model is not significant given a level of significance of 0.862, 0.558, 0.391, 0.707 for GDP growth rate, inflation rate, exchange rate, unemployment rate which are all more than 0.05; meaning the model is not fit to predict the relationship between diaspora remittances and all the macroeconomic variables.

Table 4.8: Analysis of Variance -Annual GDP growth rate

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.262	1	.262	.031	.862[b]
	Residual	408.957	48	8.520		
	Total	409.219	49			
a. Dependent Variable: Annual GDP % growth rate						
b. Predictors: (Constant), Remittances as a % of GDP						

Own model using SPSS

The ANOVA model above gave the findings that the regression model was not fit to predict the link between GDP and diaspora remittances as it had a level of significance of 0.862 which is greater than 0.05.

Table 4.9: ANOVA -Annual Inflation Rate

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.141	1	7.141	.349	.558[b]
	Residual	982.923	48	20.478		
	Total	990.064	49			
a. Dependent Variable: Annual Inflation rate %						
b. Predictors: (Constant), Remittances as a % of GDP						

Own model using SPSS

The ANOVA model above gave the findings that the regression model was not fit to predict the relationship between Annual Inflation rate and diaspora remittances as it had a level of significance of 0.558 which is greater than 0.05.

Table 4.10: Analysis of Variance-Annual Average exchange Rate

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	914239.033	1	914239.033	.751	.391[b]
	Residual	58460556.206	48	1217928.254		
	Total	59374795.239	49			
a. Dependent Variable: Average annual exchange rate						
b. Predictors: (Constant), Remittances as a % of GDP						

Own model using SPSS

The ANOVA model above gave the findings that the regression model was not fit to predict the relationship between average annual exchange rate and diaspora remittances as it had a level of significance of 0.391 which is greater than 0.05.

Table 4.11: Analysis of Variance- Annual unemployment Rate

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.553	1	.553	.143	.707[b]
	Residual	185.215	48	3.859		
	Total	185.768	49			
a. Dependent Variable: Unemployment as a % of total labour force						
b. Predictors: (Constant), Remittances as a % of GDP						

Own model using SPSS

The ANOVA model above gave the findings that the regression model was not fit to predict the relationship between unemployment rate and diaspora remittances as it had a level of significance of 0.707 which is greater than 0.05.

4.3.3.3 Model Coefficients

The outcomes of the analysis gotten from the model of coefficients and matching statistics are as indicated in the tables below.

Table 4.12: Model Coefficients -GDP growth rate

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.548	1.040		4.373	.000
	Remittances as a % of GDP	.078	.444	.025	.175	.862
a. Dependent Variable: Annual GDP % growth rate						

Own model using SPSS

The model coefficients for GDP growth rate above shows (t=0.175, p-0.862). A unit increase in diaspora remittances will cause a 0.175 unit increase in GDP growth rate.

Table 4.13: Model Coefficients -Annual Inflation Rate

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.463	1.612		4.628	.000
	Remittances as a % of GDP	-.406	.688	-.085	-.591	.558
a. Dependent Variable: Annual Inflation rate %						

Own model using SPSS

The model coefficients for annual inflation rate above shows (t=-0.591, p=0.558). A unit increase in diaspora remittances will cause a 0.591 unit decrease in inflation rate.

Table 4.14: Model Coefficients-Annual Average Exchange rate

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1226.165	393.246		3.118	.003
	Remittances as a % of GDP	145.440	167.867	.124	.866	.391
a. Dependent Variable: Average annual exchange rate						

Own computation using SPSS

The model coefficients for annual exchange rate above shows (t=0.866, p=0.391). A unit increase in diaspora remittances will cause a 0.866 unit increase in average exchange rate.

Table 4.15: Model Coefficients: Unemployment Rate as a % of total labor force

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.479	.700		4.971	.000
	Remittances as a % of GDP	-.113	.299	-.055	-.378	.707
a. Dependent Variable: Unemployment as a % of total labour force						

Own model using SPSS

The model coefficients for unemployment rate above shows (t=-0.378, p=0.707). A unit increase in diaspora remittances will cause a 0.378 unit decrease in unemployment rate.

From the four tables above, the following regression models were established:

GDP growth rate =4.548+0.078rem+ μe

Annual Inflation rate=7.463+-0.406rem+ μe

Average Annual Exchange rate= 1226.165+145.44rem+ μe

Unemployment rate =3.479+-0.113rem+ μe

4.4 Summary and Interpretation of the Findings

This study had one constant variable i.e diaspora remittances & four dependent variables i.e macroeconomic variables (GDP, Inflation, exchange rate and unemployment). The regression coefficients showed that diaspora remittances positively affect GDP growth rate in EAC. A unit rise in diaspora remittances will cause a 0.175 unit rise in GDP growth rate. However, at 5% level of significance, diaspora remittances is not statistically significant in affecting GDP growth

rate in EAC (p=0.862, p>0.05). The coefficients further depict that a unit increase in diaspora remittances will lead to a 0.591 decrease in inflation rate. However, at 5% level of significance, diaspora remittances is not statistically significant in affecting inflation rate in EAC (p=0.558, p>0.05). It has been also deduced from the regression coefficients that a unit increase in diaspora remittances leads to a 0.866 increase in exchange rate. However at 5% level of significance, diaspora remittances is not statistically significant in affecting exchange rate in EAC (p=0.391, p>0.05). On unemployment, the coefficients established that a unit increase in diaspora remittances causes a 0.378 decrease in the unemployment rate but at a 5% level of significance, diaspora remittances is not statistically significant in affecting unemployment rate in EAC (p=0.707, p>0.05).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Introduction

This chapter gives the summary of the findings conclusions and recommendations in relation to the study objective.

5.2 Summary of the findings

This study was done to find out the effect of diaspora remittances on macroeconomic variables in EAC. The study used descriptive research design and used secondary data. It got the data on particular macroeconomic variables i.e ; yearly GDP growth rate, annual inflation rate, average annual exchange rate of the respective EAC currencies/USD and unemployment rate as a percentage of the total labour force from World Bank development indicators, Bureau of statistics and Central Banks of five countries in EAC. The data sets covered a ten year period between 2011 and 2020.

The data was analyzed and summarized using SPSS version 25 and results summarized in tables. Regression analysis was used to determine a number of statistics: R, R-Square, P-Value, and F-Test statistics. These figures were used to determine the connection, strength of the link and the statistical significance of the model. Remittances as a percentage of GDP had a mean of 2.1502% with a standard deviation of 0.93918 and a maximum and minimum values of 4.07% and 0.66% respectively. Annual GDP growth rate registered a mean of 4.7154% with a standard deviation of 2.88988 and a minimum and maximum of -3.90% and 9.46% respectively. Annual inflation rate had a mean of 6.5888%, a standard deviation of 4.49504 and a minimum and

maximum of -5.50% and 18.93%. Average exchange rate recorded a mean of Sh1538.89, a standard deviation of 1100.79 a minimum maximum of Sh 85.07 and Sh 3727.79 respectively. Unemployment rate had a mean of 3.2362% a standard deviation of 1.94710 and a minimum and maximum of 1.02 and 10.99 respectively. The study established R^2 of 0.001 which shows that 0.1% of the total disparity in changes in annual GDP growth is caused by diaspora remittances, 0.7% of the total variations in changes in annual inflation is caused by diaspora remittances, 1.5% of the total disparity in changes in annual average exchange rate is caused by diaspora remittances and 0.3% of the total difference in unemployment is caused by diaspora remittances. The regression coefficients showed that diaspora remittances positively affect GDP growth rate in EAC. A unit increase in diaspora remittances will lead to a 0.175 unit increase in GDP growth rate. However, at 5% level of significance, diaspora remittances is not statistically significant in affecting GDP growth rate in EAC ($p=0.862$, $p>0.05$).

The coefficients further depicted that a unit increase in diaspora remittances will lead to a 0.591 decrease in inflation rate. However, at 5% level of significance, remittances are not statistically significant in moving inflation rate in EAC ($p=0.558$, $p>0.05$). It has been also deduced from the regression coefficients that a unit increase in diaspora remittances leads to a 0.866 increase in exchange rate. However at 5% level of significance, diaspora remittances is not statistically significant in affecting exchange rate in EAC ($p=0.391$, $p>0.05$). On unemployment, the coefficients established that a unit increase in diaspora remittances causes a 0.378 decrease in the unemployment rate but at a 5% level of significance, diaspora remittances is not statistically significant in affecting unemployment rate in EAC ($p=0.707$, $p>0.05$).

5.3 Conclusions

The findings of this study show that remittances positively affect GDP growth rate in EAC and the study concludes that at 5% level of significance, remittance are not statistically significant in affecting GDP growth rate in EAC. Diaspora remittances negatively affect inflation rate, positively affect exchange rate and negatively affect unemployment rate. However, the study determines that at 5% level of significance, diaspora remittances is not statistically significant in affecting inflation rate, exchange rate and unemployment rate.

The study was one of its own kind as it focused on the impact of diaspora remittances on macroeconomic variables in EAC. The study concentrated on four macroeconomic variables namely; Annual GDP growth rate, Annual inflation rate, Average exchange rate and Unemployment as a % of total labour force. The only study I came across done by Ondienga et al,(2017) on the effect of remittances on selected macroeconomic variables in EAC focused on consumption, investment, import and output as its macroeconomic variables and concluded that foreign remittances had significant positive effects on the selected macroeconomic variables. Further most of the studies conducted on the effects of remittances were non EAC specific and mainly focussed on its effect on economic growth.

5.4 Policy Recommendations

Remittances have become a more maintainable source of foreign currency for third world nations than other capital inflows like foreign direct investment, public debt or assistance for official development. The EAC should encourage diaspora people to invest in the EAC region and that the respective governments should encourage remittances by doing away with barriers linked with sending money through formal channels of sending money back home. The EAC

governments can also encourage more remittances by coming up with policies that reduce the cost of remitting money and establish efficient and effective formal channels of remitting money back to home countries. The EAC governments can come up with good infrastructures to administer and ways to gain directly into the funds from foreign lands as a strength for ventures and progress of the nation.

5.5 Limitations of the study

This research depended on secondary data which could be subject to errors of credibility and accuracy. The study did not take into consideration remittances that are received through informal channels as the World Bank development indicators only consider remittances received through financial institutions.

The researcher was overwhelmed by the study as it involved data from five economies and most of it was not readily available and the researcher had to do the research in conjunction with official duties at her work place and other obligations. The research had also to be done within a short period.

The research project was also costly as it relied more on the internet especially due to limitation of human interaction because of the current Covid 19 pandemic, the cost of printing and binding and mobile costs are also among the costs incurred while doing the research.

5.6 Suggestions for further studies

This study proposes further studies to focus on other macroeconomic variables in the EAC that were not covered in this study such as interest rate. Further researchers can cover a different and a longer time period to research and do a similar study. Other studies on effects of diaspora remittances can focus more on unemployment and exchange rate in EAC. Studies can also

incorporate remittances received through informal channels if data is availed and combine with the formal channels remittances.

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APPENDICES

Appendix I: Data Collection Sheets for each country in EAC

KENYA

Year	Diaspora Remittances (% of GDP)	GDP growth rate at Market prices (%)	Average Inflation Rate (%)	Average Exchange rate Ksh /USD	Unemployment (% of total labour force)
2011	2.23	5.10	18.93	85.07	2.86
2012	2.40	4.60	3.20	86.03	2.86
2013	2.37	3.80	7.15	86.31	2.87
2014	2.35	5.00	6.02	90.60	2.82
2015	2.45	5.00	8.01	102.31	2.80
2016	2.52	4.20	6.35	102.49	2.79
2017	2.48	3.80	4.50	103.23	2.69
2018	3.10	5.60	5.71	101.85	2.64
2019	2.97	5.00	5.82	101.34	2.64
2020	3.14	-0.30	5.62	109.17	2.98

Remittances –World Development indicators
GDP, Inflation, Exchange- CBK
Unemployment-% total labour force national estimates-World Development Indicators

UGANDA

Year	Diaspora Remittances (% of GDP)	GDP growth rate at Market prices (%)	Average Inflation Rate (%)	Average Exchange rate Ush /USD	Unemployment (% of total labour force)
2011	2.94	9.4	15.13	2522.75	5.46
2012	3.36	3.8	12.68	2503.31	5.32
2013	3.27	3.6	4.90	2586.46	2.69
2014	2.73	5.1	3.08	2600.33	2.67
2015	2.80	5.2	5.41	3245.54	2.64
2016	3.94	4.8	5.45	3420.45	2.64
2017	3.79	3.8	5.64	3611.36	2.60
2018	4.07	6.3	2.62	3727.79	2.54
2019	4.05	6.4	2.87	3703.98	2.51
2020	2.81	2.9	3.79	3717.54	2.48

1. Inflation-World Bank Development Indicators
2. Exchange rate- Bank of Uganda
3. Inflation rate-Bank of Uganda website
4. GDP-Uganda Bureau of Statistics
5. Remittances data- World Development Indicators

BURUNDI

Year	Diaspora Remittances (% of GDP)	GDP growth rate at Market prices (%)	Average Inflation Rate (%)	Average Exchange rate franc/USD	Unemployment (% of total labour force)
2011	2.03	4.03	14.9	1294.38	5.78
2012	1.99	4.45	11.8	1523.54	5.78
2013	1.98	4.92	9.0	1542.87	5.77
2014	2.08	4.24	3.7	1560.91	5.63
2015	1.64	-3.9	9.6	1550.69	5.63
2016	1.06	-0.6	9.7	1678.83	5.66
2017	1.06	0.5	9.7	1753.77	5.55
2018	1.59	1.61	-5.5	1799.37	5.37
2019	1.60	1.84	4.59	1872.65	5.37
2020	1.40	0.30	7.98	1939.58	6.47

Remittance as a percentage of GDP, Unemployment, GDP -World Development Indicators

GDP- World Bank Development Indicators- World Bank

Exchange rate, Inflation- Bank of Burundi

RWANDA

Year	Diaspora Remittances (% of GDP)	GDP growth rate at Market prices (%)	Average Inflation Rate (%)	Average Exchange rate Rwf /USD	Unemployment (% of total labour force)
2011	2.53	7.96	3.08	603.96	1.1
2012	2.38	8.64	10.27	631.41	1.14
2013	2.18	4.72	5.92	670.08	1.18
2014	2.23	6.17	2.35	694.37	1.17
2015	1.86	8.86	2.53	747.41	1.14
2016	1.99	5.97	7.17	819.79	1.11
2017	2.33	3.98	8.28	844.99	1.06
2018	2.70	8.58	-0.31	879.10	1.02
2019	2.52	9.46	3.35	922.52	0.99

2020	2.33	-3.36	9.85	972.47	1.35

Remittance as a percentage of GDP, Unemployment, GDP -World Development Indicators

GDP, Inflation-World Bank Development Indicators

Unemployment- World Bank Development indicators (national ILO estimates)

Exchange rate- National Bank of Rwanda

TANZANIA

Year	**Diaspora Remittances (% of GDP)**	**GDP growth rate at Market prices (%)**	**Average Inflation Rate (%)**	**Average Exchange rate Tzs /USD**	**Unemployment (% of total labour force)**
2011	1.18	7.67	18.9	1646.40	3.47
2012	0.98	4.5	12.4	1578.84	3.19
2013	0.84	6.78	6.0	1609.0	2.93
2014	0.78	6.73	5.5	1706.32	2.13
2015	0.82	6.16	6.6	2163.57	2.1
2016	0.81	6.87	4.8	2183.40	2.08
2017	0.76	6.79	4.5	2245.8	2.03
2018	0.72	7.00	3.1	2290.60	1.99
2019	0.71	7.00	3.7	2300.67	1.96
2020	0.66	4.80	3.1	2309.34	2.16

Remittance as a percentage of GDP, Unemployment, GDP -World Bank Development Indicators

GDP, Inflation, Exchange rate- Tanzania National Bureau of Statistics

Unemployment- World Bank Development indicators (national ILO estimates)

Appendix 2: Summary of Raw Data for all countries combined

VARIABLES	COUNTRY	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Diaspora Remittances as a %of GDP	KENYA	2.23	2.40	2.37	2.35	2.45	2.52	2.48	3.10	2.97	3.14
	UGANDA	2.94	3.36	3.27	2.73	2.80	3.94	3.79	4.07	4.05	2.81
	TANZANIA	1.18	0.98	0.84	0.78	0.82	0.81	0.76	0.72	0.71	0.66
	RWANDA	2.53	2.38	2.18	2.23	1.86	1.99	2.33	2.70	2.52	2.33
	BURUNDI	2.03	1.99	1.98	2.08	1.64	1.06	1.06	1.59	1.60	1.40
Annual GDP growth %	KENYA	5.10	4.60	3.80	5.00	5.00	4.20	3.80	5.60	5.00	-0.30
	UGANDA	9.40	3.80	3.60	5.10	5.20	4.80	3.80	6.30	6.40	2.90
	TANZANIA	7.67	4.50	6.78	6.73	6.16	6.87	6.79	7.00	7.00	4.80
	RWANDA	7.96	8.64	4.72	6.17	8.86	5.97	3.98	8.58	9.46	-3.36
	BURUNDI	4.03	4.45	4.92	4.24	-3.9	-0.60	0.50	1.61	1.84	0.30
Annual Inflation rate %	KENYA	18.93	3.20	7.15	6.02	8.01	6.35	4.50	5.71	5.82	5.62
	UGANDA	15.13	12.68	4.90	3.08	5.41	5.45	5.64	2.62	2.87	3.79
	TANZANIA	18.90	12.40	6.00	5.50	6.60	4.80	4.50	3.10	3.70	3.10
	RWANDA	3.08	10.27	5.92	2.35	2.53	7.17	8.28	-0.31	3.35	9.85
	BURUNDI	14.90	11.80	9.00	3.70	9.60	9.70	9.70	-5.50	4.59	7.98
Average Exchange rate in Kshs, Ush, Tzs, RWF,BF/USD	KENYA	85.07	86.03	86.31	90.60	102.31	102.49	103.23	101.85	101.34	109.17
	UGANDA	2522.75	2503.31	2586.46	2600.33	3245.54	3420.45	3611.36	3727.79	3703.98	3717.54
	TANZANIA	1646.40	1578.84	1609.00	1706.32	2163.57	2183.40	2245.80	2290.60	2300.67	2309.34
	RWANDA	603.96	631.41	670.08	694.37	747.41	819.79	844.99	879.10	922.52	972.47
	BURUNDI	1294.38	1523.54	1542.87	1560.91	1550.69	1678.83	1753.77	1799.37	1872.65	1939.58
Unemployment (% of labour force)	KENYA	2.86	2.86	2.87	2.82	2.80	2.79	2.69	2.64	2.64	2.98
	UGANDA	5.46	5.32	2.69	2.67	2.64	2.64	2.60	2.54	2.51	2.48
	TANZANIA	3.47	3.19	2.93	2.13	2.10	2.08	2.03	1.99	1.96	2.16
	RWANDA	1.10	1.14	1.18	1.17	1.14	1.11	1.06	1.02	10.99	1.35
	BURUNDI	5.78	5.78	5.77	5.63	5.63	5.66	5.55	5.37	5.37	6.47