IMPACT OF REMITTANCES ON GROSS DOMESTIC SAVINGS IN UGANDA

BY

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A RESEARCH REPORT SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILMENT FOR THE AWARD OF MASTERS DEGREE
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MAKERERE UNIVERSITY
I, Musa Nkoobe, declare that this work is original and has not been submitted for any other degree award to any other University before.

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This research report has been submitted for examination with the approval of the following University Supervisor;

Sign: ........................................ Date: 12th Feb, 2019
Dr. Kilimani Nicholas
Dedication

This research report is dedicated to my parents for their valuable time and sacrifice during the course. Valuable gratitude goes to Mr. Walube Charles Edward, the principal administrator at Uganda Bureau of statistics and Ms. Babirye Nubuwati from Ministry of Finance.
Acknowledgement

First and foremost, I thank the Almighty God the giver of life and wisdom. I take the pleasure to acknowledge the advice, support and encouragement extended to me at various stages. I extend my sincere thanks to my supervisor; Kilimani Nicholas (PhD) for his support and intellectual assistance rendered in undertaking this study. My sincere thanks also go to Mr. Bahemuka Lenard, Mr. Kusiimwa January and Ms. Nambozo Zainabu who made valuable support in the pursuit of the programme.
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<th>Description</th>
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<tr>
<td>ADF</td>
<td>Augmented Dickey Fuller</td>
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<td>ARDL</td>
<td>Autoregressive Distributed Lag</td>
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<tr>
<td>BOU</td>
<td>Bank of Uganda</td>
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<td>ECM</td>
<td>Error Correction Model</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>RGDP</td>
<td>Real Gross Domestic Product</td>
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<td>UBOS</td>
<td>Uganda Bureau of Statistics</td>
</tr>
<tr>
<td>VAR</td>
<td>Vector Autoregressive</td>
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<tr>
<td>VECM</td>
<td>Vector Error Correction Model</td>
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<tr>
<td>WB</td>
<td>World Bank</td>
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Abstract

This study examined the impact of remittance inflows on gross domestic savings rate (GDS) in Uganda using secondary quarterly data for the period 1999-2017. The other macroeconomic variables used included; deposit interest rates, inflation and real per capita income. The study was investigated using the McKinnon and Shaw (1973) theory, of which the results were estimated using Vector Error Correction Modelling (VECM) to analyze the long and short run equilibrium among the variables.

The coefficients on remittance inflows, real GDP per capita growth rate and inflation were negative while that of broad money supply and debt service were positive and statistically significant at 5% level on gross domestic savings in the long run. In the short run, a positive relationship was established between previous gross domestic savings and remittance inflows with gross domestic savings, while a negative short run relationship was established between broad money supply, debt service and current account balance with gross domestic savings. It was also established that while gross domestic savings may drift apart in the short run, the disequilibrium between the variables adjusted by about 26.2 percent towards their long run equilibrium within a quarter. The study recommends government to do more in providing investment opportunities including financial products for remittances-recipient households to direct the money they receive into productive investment.
CHAPTER ONE
INTRODUCTION

1.1 Background to the study

International migration has become a strategy for individuals and families in developing countries such as Uganda to cope with poverty and economic crisis. Migrants attempt not only to improve their own livelihoods but they send a considerable share of their earnings to their families in the region of origin as remittances. The importance of international migration is evidenced by the numerous money transfer institutions and the rapid increase in international remittances. Migrants maintain a link with countries of origin through a complex network of cultural, economic, social and political relations, which can be sustained through new technologies and cheaper travel (Mwangi and Mwenda, 2015).

International remittances are transferred through formal and informal mechanisms. The main formal remittances services providers (RSPs) are money-transfer operators (MTOs), the banks and post offices, microfinance institutions (MFIs) and new transaction technology (NTT) mechanisms, including mobile network operators (MNOs). Formal channels are particularly important since they can serve as an entry point to formal financial inclusion by facilitating and expanding access to other financial products and services, in both origin and destination countries (Agunias and Newland, 2012).

Karogoz (2009) explains that remittances have a potential of serving as a development tool and positively impact on economies of recipient countries. At macro-economic level, the development effects of remittances can be decomposed into their impact of savings, investments, growth, consumption, and poverty and income distribution. At household level, they reduce inequalities in incomes and opportunities, help in acquiring houses, promote entrepreneurial activities, and meet educational and health costs. However, a study by Giuliano and Euiiz-Arranz (2005) showed that remittances like foreign Aid may only be more effective in a good policy environment. For instance, a good investment climate with well-developed financial systems and sound institutions is likely to imply that higher share of remittances is invested in physical and human capital.
Despite their economic magnitude, transfers between international migrants and their households of origin remain a relatively understudied aspect of international resource flows. Remittances to Uganda have become a substantial source of development finance where recorded workers’ remittances to Uganda totaled to 1.2 billion US dollars in 2016, compared to 1 billion US dollars in 2015 (Bank of Uganda, 2017). Remittance inflows have exceeded all traditional sources of foreign transfers, including FDI which have helped to improve the standard of living of millions of people by providing them with essential resources for food, housing, health and education (International Organization for Migration, 2006). The top remittance senders to Uganda are, United Kingdom, United States of America and Australia, while within Sub-Saharan Africa, Kenya, Democratic Republic of Congo and South Africa represent the major remittance-sending countries (Ngugi and Sennoga, 2011).

The significant growth of remittances is mainly the consequence of the increasing number of Ugandans working abroad, of the loosening foreign exchange regulatory regime, and new remittance technologies that have increased competition in the remittance markets and decreased transfer costs (Ngugi and Sennoga, 2011). The increase in remittances in Uganda have impacted on growth positively by adding on the GDP since according to Osili (2007), migrants' savings in the origin country have the potential to increase capital accumulation in labor-exporting countries and thus, this study focused on the impact of remittances on gross domestic savings in Uganda.

1.2 Problem statement

In the developing world, international migration is often caused by individuals seeking better economic opportunities for themselves and their families. Once these migrants find employment abroad, they tend to remit or send a sizeable portion of their earnings to families back home. According to International Monetary Fund (2016), international remittance flows to the developing world amounted to US $429 billion in 2016 and the level of international remittances was about 45 percent larger than the level of official development aid (US $52 billion) to the developing world. For many developing countries including Uganda, such remittances constitute the largest source of foreign exchange earnings, even exceeding export revenues, FDI, aid, or other private capital flows (World Bank, 2016). Thus, remittances have become an attractive source of foreign earning for developing countries, Uganda in particular.
Remittances are mainly used to consume and not much to invest, particularly so due to the low volatility. The positive effect on income induces a negative correlation between remittances and saving. However, remittances are a source of the financial development in recipient countries with a positive effect on investment and saving. Consequently, the effect on saving is ambiguous based on country-specific studies. Studies estimate positive or negative effects on saving according to the country and the period. For instance, Kaberuka and Namubiru (2014) found a negative correlation between remittances and saving.

Some econometric studies, like Athukorala and Sen (2004) for India, and Hossain (2014) for 63 developing countries, found a negative impact. These two studies are based on the life-cycle model with different estimation methods. In the first, a 1 percentage point rise of remittances relative to the Gross National Disposable Income decreases the saving in the long-run by 0.71 percentage point. For Hossain, an increase of 1 percentage point of remittances reduces the saving by 1.22 percentage point. Other studies show that remittances have a positive impact on saving. This is the result shown by Baldé (2011) in Sub-Saharan Africa where a 10% increase in remittances in these Sub-Saharan countries raises the saving by 7%.

Finally, Ziesemer (2012) argues that the total effect of remittances on investment is positive. Thus, for the positive effect, remittances must increase the propensity to invest and reduce the propensity to consume. Even if consumption is raised, an increase of investment may reduce the propensity to consume. Furthermore, saving reduces the cost of capital which increases the level of investment in the economy and therefore this was based on the assertion that remittances are not only used on consumption but also invested on capital goods out of its multiplier effect it leads to an increase in investment and hence savings.

1.3 Objectives of the Study

The main objective of the study was to establish the impact of remittances on gross domestic savings in Uganda.

The specific objectives were;

1. Establish the long and short run relationship between remittances and gross domestic savings.

2. Determine the impact of other macroeconomic variables on gross domestic savings.
3. Investigate whether or not remittances granger causes gross domestic savings.

1.4 Hypotheses

The following hypotheses were tested in this study:

1) There is no positive long and short run equilibrium significant relationship between remittances and gross domestic savings.

2) There is no significant positive relationship between real effective exchange rates and gross domestic savings.

3) There is no significant negative relationship between deposit interest rates and gross domestic savings.

4) There is no significant negative relationship between inflation and gross domestic savings.

5) There is no significant positive relationship between per capita GDP growth rate and gross domestic savings.

1.5 Significance of the study

Uganda like other developing economies aims at reducing reliance on foreign borrowing and donor-assistance. This can be achieved by raising domestic saving rates to mobilize capital for economic growth. In order to raise the saving rate, the government needs to know the macroeconomic determinants of gross domestic savings. This could help policy-makers to formulate more appropriate policies for the development of the country. Hence, it will equip the general public with information regarding the role that remittances play in national development. The Diaspora will also gain knowledge of how their remittances to countries of origin do not only help their kin but also how the remittances contribute to national development.

The government, which is the main custodian and driver of national development, stands to benefit from this study in several ways. The study will equip government officials and policymakers with information regarding trends in the inflow of the amount of remittances and gross domestic savings, which can help in enhancing the national fiscal policy and development policy.
1.6 Scope of the study

The study sought to the impact of remittances on gross domestic savings in Uganda. In order to fully establish them, quarterly secondary data covering a period of 19 years, hence with 76 data points was used that is 1999Q1–2017Q4 (inclusive). This period was chosen due to data availability.

1.7 Organization of the study

This research paper is made up of five chapters; chapter one includes background to the study, statement of the problem, objectives of the study, research hypotheses, scope of the study and significance of the study. The literature related to this study is stated in chapter two; chapter three presents the data sources, model specification and estimation procedure and robustness checks. In chapter four, study findings are presented and discussed. Lastly, chapter five presents summary of the findings, conclusions, recommendations and areas for future research.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction
This chapter is designed to provide a review of existing literature explaining determinants of gross domestic savings of which remittances are part. It provides the theoretical and empirical literature.

2.2 Theoretical literature
The Keynesian theory of absolute income hypothesis that explain the saving behavior of economic agents plus the Pure Altruism and Pure Self Interest theories which explain the flow of remittances are discussed.

2.2.1 The Keynesian theory of Absolute Income Hypothesis
This theory focuses on current income to explain changes in savings and consumption behavior of economic agents. The income that is considered in this theory is the absolute/disposable income. Keynes postulates that consumption will increase at a decreasing rate as the income increases other things being constant. This implies that part of the income will be saved at an increasing rate as the disposable income increases. Therefore, consumption and savings are functions of disposable income. However, other things being constant, it is assumed that rich people will save more than poor people (Keynes, 1936).

Generally, the Keynesian saving function takes the linear form with constant MPS which is expressed as follows.

\[ S = a + bY + cY^2 \]  \hspace{1cm} 2.1

Where, \( a \) is the constant and \( b \) is MPS, this function assumes that  \( a < 0 \),  \( 0 < b < 1 \) and  \( c > 0 \) implying that as the level of income rises, the average propensity to save also rises. However, with \( Y = 0 \), savings is negative (low) (Mikesell and Zinser, 1973).

2.2.2 Pure Altruism Theory
The Pure Altruism theory highlights that migrants remit money back home in concern of the welfare of the remaining family members (Hagen-Zanker & Siegel, 2007; OECD, 2006). Chami
et al., (2003), noted that the migrant’s utility is derived from that of his/her family back home. The migrant is rather satisfied when the welfare of his family back home is better off (OECD, 2006). This implies that the migrant is motivated to remit more funds to his family when there are unfavorable economic conditions holding in the home country. The theory observes that remittances are “compensatory transfers” since they increase when the migrant’s home country is faced with economic disruptions such as droughts and a financial crisis (Chami et al., 2003). In order for the migrant to remit more funds, the economic disruptions must be creating a shortfall for the remaining family.

As a result, the compensatory nature of remittances under the Pure Altruism model implies that remittances are countercyclical, that is, they increase during times when there is deterioration in economic conditions in the business cycle (Vargas-Silva, 2008; Chami et al., 2003). Furthermore, Bank of Uganda (2007) supported that altruistic remittances can be countercyclical to GDP patterns possibly because migrants tend to remit more during periods of economic disturbances in order for their families in the home country to smoothen their consumption. Also commenting on behavioral patterns of remittances under a Pure Altruism model, Brown (2006) suggests that there is an inverse relationship between the volumes of remittances and economic conditions holding in the home country. Under this model, favorable economic conditions in the home country would imply a reduction in the volume of remittance inflows.

This theory was important in this study because the Ugandans living in diaspora sacrifice their own wealth to help their people back home. It is the act of wanting to help out at home among other reasons that inspires emigrants to give their time, energy, and money to aid in the betterment of others, even when they receive nothing tangible in return. Their Altruism is the unselfish concern for other people. It involves doing things simply out of a desire to help, not because you feel obligated to out of duty, loyalty, or religious reasons.

2.2.3 Pure Self Interest Theory
The Pure Self Interest theory is modeled around the argument that remittances are not always countercyclical. There are some instances or contexts where volumes of remittances reduce following poor economic conditions in the recipient country. In such a case, there is no inverse relationship between volumes of remittances and the economic performance of the home country as postulated by (Brown, 2006). In fact, there might be a positive correlation between volumes of
remittances and economic performance of the home country where bad economic conditions may result in low volumes of remittances. Such behavioral patterns have led to the formulation of the Pure Self Interest theory.

Lucas and Stark (1985), claim that migrants’ self-interest can be one other motive for remittances. In this context, migrants remit money in order for them to invest or inherit in assets back home and also for them to return home with dignity. When there is deterioration in economic performance of the home country; migrants are most likely to remit less since the situation will have a negative impact on both investible and inheritable assets. There is most likely to be an increase in the volumes of remittances if the home economy is undergoing a favorable spell.

Application of this theory is that Self Interest is the motivator of economic activity. Why do emigrants go to work and when they get paid, why do they send money back home? There may be many reasons, but at their core they probably do it to gain praises and recognition because of self-interest. To be self-interested simply means that you seek your own personal gain.

2.3 Empirical literature
In the 1970s until the late 1980s, the economic literature had not found a positive relationship between remittances and development, arguing that remittances are mainly used for subsistence consumption (food, clothing, among others), non-productive investments, repayment of debts, and that these kinds of expenditures tend to have little positive impact on local economy’s development (Kaberuka and Namubiru, 2014).

According to Adelman and Taylor (1990), inward remittances are believed to have a positive impact on savings and investment. Household surveys in Pakistan indicated that in the late 1980s and early 1990s, the marginal propensity to save was higher (0.711) for income from international remittances than from domestic urban rural remittances (0.49) or rental income (0.085) (Adams, 1998).

Avila and Schlarb (2008) analyzed an empirical link between remittances and financial sector development on a micro level. The study revealed that receiving monetary remittances had a positive and significant effect on the probability of having a bank account. Therefore, this
contradicted Rempel and Lobdell (1978) and Lipton (1980) argument that remittances were mainly devoted to daily consumption needs. On the other hand, tests conducted by Leon-Ledesma and Piracha (2001) on 11 countries of Central and Eastern Europe and Drinkwater et al., (2003) on 20 developing countries show that remittances contribute significantly in increasing the level of savings in their home countries. According to Grabel (1996), there is unambiguous evidence that once basic needs are met, remittances are used for savings, debt repayment, consumer durables, land and housing purchases, small enterprise development and agriculture, and investments in education and healthcare.

Olayemi and Jolaosho (2013) also assessed the impact of real interest rate on savings mobilization in Nigeria. The study revealed that real interest rate has negatively impacted on the level of savings mobilization in Nigeria and therefore there is need for government in Nigeria to bridge the existing gap between the lending and savings rates and increase per capita income level of the populace, to stimulate savings for investment and economic growth were revealed by the study. Therefore, efforts should be geared towards reducing domestic inflation rate to arrest its negative impact on real rates in Nigeria.

Chaudhry et al., (2014) study the concentrate effects of fiscal and monetary factors on aggregate saving in Pakistan. Their study shows the negative relationship between broad money supply (M2) and national saving. Deposit and inflation rate showed a positive relationship with savings. ARDL and ECM approach were used to estimate long run and short run elasticities respectively. Government should expand network of National Savings Schemes, microfinance institutions, banks and postal savings in the country.

In Kenya, Ndirangu and Muturi (2015) studied the determinants of gross domestic savings for the period 1970-2013. In the study Gross Domestic product (GDP), inflation rate, real interest rate and age-dependency ratio were included as independent variables and their effect on the gross domestic savings in Kenya was estimated using the error correction model. The results of the study showed that GDP significantly explained the changes in the GDS at 10% level of significance. Inflation rate and age-dependency ratio were also found to have a positive effect on gross domestic savings while the real interest rate was inversely correlated to the gross domestic savings.
Davis (2013) employed Co-integration approach to explore the determinants of private savings in Ghana using the Phillips and Ouliaris (1990) residual-based tests for co-integration to determine the long run relationship between private savings and its determinants. Financial liberalization, per capita income and inflation were found to have a positive and significant relationship with private savings. The study also showed positive and significant coefficient of the fiscal deficit variable which confirmed the Ricardian Equivalence hypothesis and concluded that there is a strong willingness to save but the capacity to save is not very robust.

Jilani et al., (2013) analyzed the impact of various factors on national savings of Pakistan. The independent variables used were; GDP, inflation, fiscal deficit and rate of interest. Their study found inflation having a negative but significant impact on national savings; hence policies should be made to reduce inflation and real rate of interest showed a negative and insignificant impact on national savings.

Mansoor and Khattak (2014) investigated the determinants of savings by households. They found out that employment and income has a positive relation with the savings of the people while tax burden and unemployment reduces the savings of the people. OLS was used for empirical analysis of data. The policy which was recommended to address the problem was that government should provide the basic elementary education and scholarships so that people can find better job opportunities in the future. Micro-level loans should be provided to the farmers and also to those who want to start business of their own.

In Ethiopia, Kidane (2010) examined the determinants of gross domestic savings for the period 1971-2009. The study used variables such as per capita income, inflation rate, total dependence ratio, real interest rate, the ratio of broad money supply (M2) to GDP, growth of tax revenue and lagged gross domestic savings. The model was estimated using cointegration and error correction model. The results of the estimated model provided evidence of a statistically positive effect of growth of per capita income and growth of tax revenue on gross domestic savings. On the other hand, real interest rate, the ratio of broad money supply (M2) to GDP, lagged gross domestic savings and dependence ratio seemed to have negative effects on gross domestic savings in Ethiopia.
In an attempt to investigate determinants of domestic saving performance for the period 1980-2005 in Egypt, Mahmoud (2008) used a variety of determinants that included growth per capita income, real interest rate, the ratio of broad money supply (M2) to GDP, budget deficit and current account deficit using co-integration test and error correction model. The study found a statistically significant and positive effect of growth of per capita income, real interest rate and inflation on domestic savings rate. However, it found that budget deficit, current account deficit and money supply had significant and negative effects on domestic savings performance in Egypt.

Ayalew (2013) investigated the determinants of domestic saving in Ethiopia using time series annual data form 1970/71-2010/11. Using an ARDL bounds testing Approach and Error correction model (ECM) to capture both short run and long run relationships, the Estimated results revealed that growth rate of income, budget deficit ratio and inflation rate were statistically significant in short run and long run determinants of domestic saving. But, deposit interest rate, current account deficit ratio and financial depth were found to be statistically insignificant determinants in the long run.

2.4 Summary

From the above literature, the effects of remittances on gross domestic savings are inconclusive. Whether remittances affect gross domestic savings positively or negatively is still an issue and moreover, the study has been conducted in Uganda in this aspect. Given this fact, from the reviewed studies where Uganda is used as a case study, none has investigated the impact of remittances on gross domestic savings. Therefore, this study sought to fill the gap by establishing the impact of remittances on gross domestic savings in Uganda.
CHAPTER THREE

METHODOLOGY

3.1 Introduction
This chapter describes methods that were used to achieve the stated objectives. The chapter explains the sources of data, theoretical framework, empirical model specification, variable definition and their measurements, estimation technique and limitation of the study.

3.2 Theoretical framework
In order to establish the factors impacting gross domestic savings in Uganda, McKinnon and Shaw (1973) theory was used to derive the empirical model used in the study. From the hypothesis the rate of return on savings, as measured by interest rate would have a positive effect on saving rates.

The McKinnon and Shaw 1973 complementarity hypothesis is as shown in equation 3.1:

\[ M = L(Y, d - \pi^e); L_Y > 0, L_{d-\pi^e} < 0 \]

Where, M is real money demand, Y is real income, d is nominal interest rate on savings and time deposits, \( \pi^e \) is expected rate of inflation, and \( d-\pi^e \) shows the real interest rate.

Equation (3.1) gives the long-run real money demand function. \( L_Y \) represents the impacts of income on money demand and thus this implies that an increase in the income generates a strong demand for money. \( L_{d-\pi^e} \) represents a negative impact of real interest rate on money demand. But as demand for more money rises, remittances supplement as a source of such resources and part of this money is saved. Hence our model (3.1) is augmented to include remittances as shown in equation 3.2:

\[ M = L(Y, d - \pi^e, RMT) \]

3.2
Where, RMT are remittances. There’s a positive relation between gross domestic savings and the demand for real money balances. Therefore, gross domestic savings can be incorporated as a factor determining the demand for real money balances as indicated in equation 3.3;

\[ S_d = \left( Y, d - \pi^e, RMT, U \right) \] 3.3

Where, \( S_d \) is the actual gross domestic savings, \( d - \pi^e \) is the real interest rate, RMT are remittances and U is the error term. From equation 3.3 a rise in real interest rates leads to an increase in gross domestic savings, increased income increases domestic savings and increased remittance inflows increase domestic savings.

### 3.3 Empirical model specification

In order to estimate the impact of the factors determining gross domestic savings in Uganda this study adopts the model in equation 3.3. In addition to the variables considered in the model, the model was modified to omit real Gross Domestic Product hence remittances, deposit interest rates, inflation rate, per capita GDP growth rate, broad money supply, debt service, current account balance and real effective exchange rates were the independent variables added. These variables were added in order to capture their impact on gross domestic savings.

Based on the time series data on savings over the period 1999-2017 an econometric analysis was used to determine the factors affecting Gross Domestic savings in Uganda.

The linear model is expressed as follows;

\[ GDS = f(RMT, RGDPPCGR, DIR, INF, M_2, DS, CAB, REER, \epsilon) \] 3.4

The econometric model is thus explicitly expressed as follows:

\[ GDS_t = \beta_0 + \beta_1 RMT_t + \beta_2 RGDPPCGR_t + \beta_3 DIR_t + \beta_4 INF_t + \beta_5 M_2t + \beta_6 DS_t + \beta_7 CAB_t + \beta_8 REER_t + \epsilon_t \] 3.5

Where, GDS=Gross domestic savings, RMT=Remittance inflows, RGDPPCGR=Real per capita income growth rate, DIR=Deposit Interest Rates, INF=Inflation rate, M_2=Broad
money supply, DS=Debt service, CAB=Current account balance and REER=Real effective exchange rate within the sample period and \( \varepsilon \) is the stochastic term for the period t. \( \beta \)'s are parameters that were estimated.

### 3.4 Data Source

The study employed quarterly data for Uganda spanning from 1999:I to 2017:IV. Data was sourced from the World Development Indicators by World Bank (2018), Bank of Uganda and Uganda Bureau of Statistics.

### 3.5 Variable definition and measurement

**Table 3.1: Variable definition and their measurement**

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<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Measurement</th>
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<tr>
<td>GDS</td>
<td>This is the dependent variable in the study. Arok (2014) defines GDS as the total domestic savings by government, firms and households in a given year where savings could be in terms of bank deposits; loans and invested funds.</td>
<td>GDP less final consumption expenditure</td>
</tr>
<tr>
<td>RMT</td>
<td>Personal remittances comprise personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from nonresident households. Personal transfers thus include all current transfers between resident and nonresident individuals. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by nonresident entities. Data are the sum of two items defined in the sixth edition of the IMF's Balance of Payments Manual: personal transfers and compensation of employees.</td>
<td>Remittances is the sum of personal transfers and compensation of employees</td>
</tr>
<tr>
<td>DIR</td>
<td>Deposit Rate refers to the amount of money paid out in interest by a bank or financial institution on cash deposits.</td>
<td>Interest on cash deposits</td>
</tr>
<tr>
<td>INF</td>
<td>The International Monetary Fund define inflation at consumer prices as the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.</td>
<td>Consumer price index</td>
</tr>
<tr>
<td>GDPPCGR</td>
<td>GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.</td>
<td>GDP divided by mid-year population</td>
</tr>
<tr>
<td>M2</td>
<td>Broad money is the sum of currency outside banks; demand</td>
<td>Broad money</td>
</tr>
</tbody>
</table>
deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler’s checks; and other securities such as certificates of deposit and commercial paper.

| DS | Multilateral debt service is the repayment of principal and interest to the World Bank, regional development banks, and other multilateral agencies. Public and publicly guaranteed debt service is the sum of principal repayments and interest actually paid in currency, goods, or services on long-term obligations of public debtors and long-term private obligations guaranteed by a public entity. | Multilateral debt service (% of public and publicly guaranteed debt service) |
| CAB | Current account balance is the sum of net exports of goods and services, net primary income, and net secondary income. | Current account divided by GDP |
| REER | Real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs. | Nominal exchange rate divided by a price deflator |

### 3.6 Limitation of the study

The major limitation of this study was lack of quarterly data for gross domestic savings as a percentage of GDP, remittances and real GDP per capita growth rate. Thus, annual data was interpolated into quarterly data since Box Jenkins recommends at least 50 observations to run time series analysis and this resulted into auto correlation. The study employed quadratic match averages in E-views 8.0 to generate quarterly series for these variables.
CHAPTER FOUR

EMPIRICAL RESULTS ON THE IMPACT OF REMITTANCES ON GROSS DOMESTIC SAVINGS IN UGANDA

4.1 Introduction

This chapter presents the empirical results and study findings. The long and short run model plus the causality test results using the relevant model estimations have been presented and discussed. Also presented and discussed are results for the necessary diagnostic tests of the models.

4.2 Empirical findings

4.2.1 Normality test of the variables

Jarque-Bera test of all the variables was first conducted to establish the normality of the variables (gross domestic savings, remittance inflows, gross domestic product per capita growth rate, deposit interest rates, inflation, money supply, debt service, current account balance and real effective exchange rates) and the results are presented in Table 4.1. From the results, all variables except remittances and deposit interest rates did not follow a normal distribution since their p-values are less than 0.05. According to Maddala (1992), if variables are not normally distributed, one can consider transformation of variables or to increase the sample size. Therefore, variables were transformed using natural logarithms so that they become normally distributed.

Table 4.1: Normality test of variables in level

<table>
<thead>
<tr>
<th></th>
<th>SAV</th>
<th>RMT</th>
<th>GDPPCGR</th>
<th>DIR</th>
<th>INF</th>
<th>M2</th>
<th>DS</th>
<th>CAB</th>
<th>REER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std. Dev.</td>
<td>3.83</td>
<td>0.98</td>
<td>2.12</td>
<td>2.62</td>
<td>6.44</td>
<td>2.47</td>
<td>14.02</td>
<td>3.06</td>
<td>6.79</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.26</td>
<td>1.65</td>
<td>0.38</td>
<td>0.71</td>
<td>0.46</td>
<td>-0.39</td>
<td>-0.36</td>
<td>0.30</td>
<td>0.28</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.88</td>
<td>5.32</td>
<td>2.36</td>
<td>3.46</td>
<td>3.16</td>
<td>2.08</td>
<td>2.39</td>
<td>2.20</td>
<td>3.17</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>4.62</td>
<td>48.86</td>
<td>2.97</td>
<td>6.69</td>
<td>2.66</td>
<td>4.36</td>
<td>2.69</td>
<td>3.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Probability</td>
<td>0.10</td>
<td>0.00</td>
<td>0.23</td>
<td>0.04</td>
<td>0.27</td>
<td>0.11</td>
<td>0.26</td>
<td>0.22</td>
<td>0.61</td>
</tr>
<tr>
<td>Observations</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
</tr>
</tbody>
</table>

Source: Author’s computation from E-views 8.0

Note: SAV=gross domestic savings, RMT=remittance inflows, GDPPCGR=real gross domestic product per capita growth rate, DIR=deposit interest rates, INF=inflation, M2=money supply, DS=debt service, CAB=current account balance and REER=real effective exchange rates.

The transformation using natural logarithms was done on all the variables and the results are presented in Table 4.2. The results indicate that the transformation of the variables reduced the
standard deviations. Hence the variables were used for further analysis in their natural logarithms.

Table 4.2: Normality test of the variables in natural logarithms

<table>
<thead>
<tr>
<th></th>
<th>LSA</th>
<th>LRMT</th>
<th>LGDP</th>
<th>LDIR</th>
<th>LINF</th>
<th>LM2</th>
<th>LDS</th>
<th>LCAB</th>
<th>LREER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6.92</td>
<td>6.91</td>
<td>6.91</td>
<td>6.92</td>
<td>6.91</td>
<td>6.93</td>
<td>6.97</td>
<td>6.90</td>
<td>7.01</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.26</td>
<td>1.65</td>
<td>0.38</td>
<td>0.45</td>
<td>-0.39</td>
<td>-0.39</td>
<td>0.29</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.87</td>
<td>5.31</td>
<td>3.45</td>
<td>3.14</td>
<td>2.08</td>
<td>2.41</td>
<td>2.20</td>
<td>2.15</td>
<td>3.15</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>4.61</td>
<td>48.66</td>
<td>2.94</td>
<td>6.54</td>
<td>2.44</td>
<td>4.38</td>
<td>2.82</td>
<td>2.97</td>
<td>0.86</td>
</tr>
<tr>
<td>Probability</td>
<td>0.10</td>
<td>0.00</td>
<td>0.23</td>
<td>0.04</td>
<td>0.29</td>
<td>0.11</td>
<td>0.24</td>
<td>0.23</td>
<td>0.65</td>
</tr>
<tr>
<td>Observations</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>72</td>
</tr>
</tbody>
</table>

Source: Author’s computation from E-views 8.0

Note: SAV=gross domestic savings, RMT=remittance inflows, GDPPCGR=real gross domestic product per capita, DIR=deposit interest rates, INF=inflation, M2=money supply, DS=debt service, CAB=current account balance, REER=real effective exchange rates and L=Natural logarithm

4.2.2 Unit root test or order of integration

If the time series are non-stationary, the regression results obtained in a traditional way are spurious (Gujarati, 2004). Thus, unit root tests were conducted on all the series that is, gross domestic savings, remittance inflows, real gross domestic product per capita growth rate, deposit interest rates, inflation, money supply, debt service, current account balance and real effective exchange rates using Augmented Dickey-Fuller test in level, first and second difference as in Tables 4.3, 4.4 and 4.5 respectively.

The results indicate that all variables in their logarithmic form were non-stationary in level apart from gross domestic savings, remittance inflows and deposit interest rates as in Table 4.3. Thus, variables; real gross domestic product per capita growth rate, inflation, money supply, debt service, current account balance and real effective exchange rates were further differenced to achieve stationarity.
Table 4.3: Unit root test results for the series in levels

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF Statistic</th>
<th>p-value</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross domestic savings</td>
<td>-4.454</td>
<td>0.004</td>
<td>I(0)</td>
</tr>
<tr>
<td>Remittance inflows</td>
<td>-3.597</td>
<td>0.037</td>
<td>I(0)</td>
</tr>
<tr>
<td>Real GDP per capita growth rate</td>
<td>-2.991</td>
<td>0.142</td>
<td>I(1)</td>
</tr>
<tr>
<td>Deposit Interest Rates</td>
<td>-3.966</td>
<td>0.014</td>
<td>I(0)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-2.137</td>
<td>0.516</td>
<td>I(1)</td>
</tr>
<tr>
<td>Money supply</td>
<td>-2.563</td>
<td>0.298</td>
<td>I(2)</td>
</tr>
<tr>
<td>Debt service</td>
<td>-3.162</td>
<td>0.101</td>
<td>I(2)</td>
</tr>
<tr>
<td>Current account balance</td>
<td>-2.433</td>
<td>0.359</td>
<td>I(2)</td>
</tr>
<tr>
<td>Real effective exchange rates</td>
<td>-2.921</td>
<td>0.163</td>
<td>I(2)</td>
</tr>
</tbody>
</table>

*Source: Author’s computation from E-views 8.0*

*Note: H₀: the series are non-stationary. H₀ is rejected if the absolute value of ADF test statistic exceeds the critical values at 5%. ADF=Augmented Dickey Fuller. 5% critical value=3.4753*

Upon first differencing as in Table 4.4, inflation and real GDP per capita growth rate became stationary and hence integrated of order one (i.e. absolute value of ADF statistic exceeds the critical value). Thus, money supply, debt service, current account balance and real effective exchange rates were not stationary even after first differencing and this necessitated second differencing as in Table 4.5.

Table 4.4: Unit root test results for the series in first difference

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF Statistic</th>
<th>p-value</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP per capita</td>
<td>-4.855</td>
<td>0.001</td>
<td>I(1)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-3.997</td>
<td>0.013</td>
<td>I(1)</td>
</tr>
<tr>
<td>Money supply</td>
<td>-3.160</td>
<td>0.102</td>
<td>I(2)</td>
</tr>
<tr>
<td>Debt service</td>
<td>-2.257</td>
<td>0.450</td>
<td>I(2)</td>
</tr>
<tr>
<td>Current account balance</td>
<td>-2.917</td>
<td>0.164</td>
<td>I(2)</td>
</tr>
<tr>
<td>Real effective exchange rates</td>
<td>-2.945</td>
<td>0.155</td>
<td>I(2)</td>
</tr>
</tbody>
</table>

*Source: Author’s computation from E-views 8.0*

Upon second differencing, money supply, debt service, current account balance and real effective exchange rates became stationary and hence integrated of order two as in Table 4.5.
Table 4.5: Unit root test results for the series in second difference

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF Statistic</th>
<th>p-value</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money supply</td>
<td>-7.520</td>
<td>0.000</td>
<td>I(2)</td>
</tr>
<tr>
<td>Debt service</td>
<td>-5.296</td>
<td>0.000</td>
<td>I(2)</td>
</tr>
<tr>
<td>Current account balance</td>
<td>-6.994</td>
<td>0.000</td>
<td>I(2)</td>
</tr>
<tr>
<td>Real effective exchange rates</td>
<td>-6.244</td>
<td>0.000</td>
<td>I(2)</td>
</tr>
</tbody>
</table>

Source: Author’s computation from E-views 8.0

4.2.3 Testing for co-integration

Co-integration analysis using Johansen’s Approach

The procedure was applied to test whether there was some cointegration and the number of cointegrating equations amongst gross domestic savings, remittance inflows, real gross domestic product per capita growth rate, deposit interest rates, inflation, money supply, debt service, current account balance and real effective exchange rates, and the results are presented in Table 4.6.

Table 4.6: Unrestricted Cointegration Test (Maximum Eigen value)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Max-Eigen Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>72.767</td>
<td>58.434</td>
<td>0.001</td>
</tr>
<tr>
<td>At most 1*</td>
<td>62.021</td>
<td>52.363</td>
<td>0.004</td>
</tr>
<tr>
<td>At most 2*</td>
<td>47.077</td>
<td>46.231</td>
<td>0.041</td>
</tr>
<tr>
<td>At most 3</td>
<td>34.494</td>
<td>40.078</td>
<td>0.186</td>
</tr>
<tr>
<td>At most 4</td>
<td>31.145</td>
<td>33.877</td>
<td>0.102</td>
</tr>
</tbody>
</table>

Source: Author’s computation from E-views 8.0

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

The Unrestricted Cointegration test results as shown in Table 4.6 show that the Maximum Eigen Statistic (47.08) exceeds the critical value (46.23) at 5 percent level, implying that there are three possible cointegrating vectors in this relationship among the variables in the model. According to Gujarati (2004), if cointegration is accepted, then there is a long run relationship between the non-stationary series.
4.2.4 Optimal Lag length determination

The optimal lag length \( \rho \) was determined using the Akaike Information Criterion (AIC), Hannan and Quinn Information Criteria (HQIC), and Schwartz Information Criterion (SIC). Table 4.7 presents the optimal lag length using AIC, HQIC and SIC.

**Table 4.7: Lags to estimate**

<table>
<thead>
<tr>
<th>Lag</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-80.784</td>
<td>-80.493</td>
<td>-80.669</td>
</tr>
<tr>
<td>1</td>
<td>-102.194</td>
<td>-99.279*</td>
<td>-101.038</td>
</tr>
<tr>
<td>2</td>
<td>-103.877*</td>
<td>-98.339</td>
<td>-101.680*</td>
</tr>
<tr>
<td>3</td>
<td>-103.055</td>
<td>-94.896</td>
<td>-99.818</td>
</tr>
</tbody>
</table>

* indicates lag order selected by the criterion (each test at 5% level)
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

*Source: Author’s computation from E-views 8.0*

From Table 4.7, the maximum lag length is 1 and Schwartz Information Criterion was selected. This was chosen due to the fact that Schwartz Information Criterion value (99.28) was less than both the Akaike Information Criterion and Hannan-Quinn information criteria which were 103.88 and 101.68 respectively in absolute terms.
4.3 Model estimation and discussion of results

4.3.1 Long run model

The results of the long run model are presented in Table 4.8;

Table 4.8: Results of the long run model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. error</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>16.794</td>
<td>4.022</td>
<td>0.000</td>
</tr>
<tr>
<td>LRMT</td>
<td>-1.561</td>
<td>0.389</td>
<td>0.000</td>
</tr>
<tr>
<td>LGDPCCGR</td>
<td>-0.467</td>
<td>0.162</td>
<td>0.005</td>
</tr>
<tr>
<td>LGDIR</td>
<td>0.102</td>
<td>0.153</td>
<td>0.509</td>
</tr>
<tr>
<td>LINF</td>
<td>-0.132</td>
<td>0.057</td>
<td>0.025</td>
</tr>
<tr>
<td>LM2</td>
<td>0.724</td>
<td>0.193</td>
<td>0.000</td>
</tr>
<tr>
<td>LDS</td>
<td>0.078</td>
<td>0.032</td>
<td>0.019</td>
</tr>
<tr>
<td>LCAB</td>
<td>-0.243</td>
<td>0.138</td>
<td>0.084</td>
</tr>
<tr>
<td>LREER</td>
<td>0.068</td>
<td>0.084</td>
<td>0.427</td>
</tr>
</tbody>
</table>

R-squared 0.650 Adjusted R-squared 0.606 F-statistic 14.642
Prob(F-statistic) 0.000 S.E. of regression 0.002 P-value 0.995
Jarque-Bera (P-value) 1.189 (0.552)
Heteroskedasticity Test: ARCH: F-statistic 0.000045

Source: Author’s computation from E-views 8.0

Regression results in Table 4.8 show model results. It had an Adjusted R-squared of 0.606; this implied that the explanatory variables in this model explained 60.6 percent of the variations in gross domestic savings. The F-statistic of 14.64 with probability value of 0.00 in the long run indicated that the long run model was correctly specified.

The Jarque-Bera statistics for testing for normality of the residual was 1.189 with a probability value of 0.552. This therefore indicates that the model residuals were normally distributed hence the estimates were reliable for inference. The ARCH for stability of the residuals yielded F-statistic of 0.00045 with probability values of 0.995 for the estimated period. This confirmed that the model was stable.
A multi-collinearity test was performed as collinearity amongst variables used in the model causes some parameters to be unidentified numerically. The results of the centered variance inflation factor (VIF) were all less than 5 hence the absence of multi-collinearity among the variables regressed in the model.

**4.3.1.1 Discussion of the long run results**

The coefficient of remittance inflows was negative and significant at 5 percent level. Thus, assuming all other factors constant, a 1 unit increase in remittance inflows would lead to 1.56 percent reduction in gross domestic savings other factors held constant. The findings of this study are in support of what Kaberuka and Namubiru, (2014) noted that in the 1970s until the late 1980s, the economic literature did not find a positive relationship between remittances and development, arguing that remittances were mainly used for subsistence consumption (food, clothing, among others), non-productive investments, repayment of debts, and that these kinds of expenditures tend to have little positive impact on local economy’s development. Furthermore, the findings of this study disagree with the tests conducted by Leon-Ledesma and Piracha (2001) on 11 countries of Central and Eastern Europe and that of Drinkwater et al., (2003) on 20 developing countries who found out that remittances contributed significantly in increasing the level of savings in their home countries.

Furthermore, the coefficient of real GDP per capita growth rate was negative and significant at 5 percent level. Thus, a 1 unit increase of growth rate in real GDP per capita would lead to 0.467 percent reduction in gross domestic savings other factors held constant. The findings of this study disagree with the findings of Turan and Gjergji (2014) and Mansoor and Khattak (2014).
Turanand Gjergji (2014) studied the relationship between economic growth and savings. According to the empirical results it was revealed that there was a positive relationship between savings and economic growth. More so, Mansoor and Khattak (2014) investigated the determinants of savings by households. They found out that employment and income had positive relations with the savings of the people while tax burden and unemployment reduces the savings of the people.

In addition, the coefficient of inflation was negative and significant at 5 percent level. Thus, a 1 unit increase in inflation would lead to 0.132 percent reduction in gross domestic savings other factors held constant. The findings of this study are contrary with the findings of Chaudhry et al., (2014) who examined the effects of fiscal and monetary factors on aggregate saving in Pakistan and their study found a positive relationship between inflation with savings. On the other hand, this finding is in agreement with the findings of Jilani et al., (2013) who analyzed the impact of various factors on national savings of Pakistan including GDP, inflation, fiscal deficit and rate of interest. Their study found inflation having a negative but significant impact on national savings.

More so, the coefficient of broad money supply was positive and significant at 5 percent level. Thus, a 1 unit increase in money supply would lead to 0.724 percent increase in gross domestic savings other factors held constant. The findings of this study contradict with the findings of Kidane (2010) who examined the determinants of gross domestic savings for the period 1971-2009 in Ethiopia. The results of the estimated model provided evidence of a statistically negative relationship in the ratio of broad money supply (M2) to GDP on gross domestic savings in Ethiopia. With regard to debt service, its coefficient was positive and significant at 5 percent level. Thus, a 1 unit increase in debt service would lead to 0.078 percent increase in gross domestic savings other factors held constant.

4.3.2 Short run model

Since there was cointegration among the variables, it indicated that there was information in the error correction term to be interpreted and it was established by the Vector Error Correction Model (VECM) with one lag based on the Schwarz information criterion. The VECM allows the long-run behavior of the endogenous variables to converge to their long run equilibrium relationship while allowing a wide range of short run dynamics.
Table 4.10: Results of the short run model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-2.792</td>
<td>1.306</td>
<td>0.037</td>
</tr>
<tr>
<td>DLSAV_1</td>
<td>1.127</td>
<td>0.055</td>
<td>0.000</td>
</tr>
<tr>
<td>DLRMT_1</td>
<td>0.400</td>
<td>0.163</td>
<td>0.017</td>
</tr>
<tr>
<td>DLGDPPCGR_1</td>
<td>0.058</td>
<td>0.147</td>
<td>0.693</td>
</tr>
<tr>
<td>DLDIR_1</td>
<td>-0.123</td>
<td>0.062</td>
<td>0.051</td>
</tr>
<tr>
<td>DLINF_1</td>
<td>0.023</td>
<td>0.035</td>
<td>0.524</td>
</tr>
<tr>
<td>DLM2_1</td>
<td>-0.563</td>
<td>0.128</td>
<td>0.000</td>
</tr>
<tr>
<td>DLDS_1</td>
<td>-0.048</td>
<td>0.015</td>
<td>0.002</td>
</tr>
<tr>
<td>DLCAB_1</td>
<td>-0.225</td>
<td>0.106</td>
<td>0.037</td>
</tr>
<tr>
<td>DLREER_1</td>
<td>0.032</td>
<td>0.034</td>
<td>0.350</td>
</tr>
<tr>
<td>ECT_1</td>
<td>-0.262</td>
<td>0.073</td>
<td>0.001</td>
</tr>
</tbody>
</table>

R-squared 0.963  Adjusted R-squared 0.957  D W Statistic 2.392
F-statistic 152.882  Prob(F-statistic) 0.000  S.E. of regression 0.001

Heteroskedasticity Test: Breusch-Pagan-Godfrey: F-statistic 0.409  P-value 0.937

Source: Author’s computation from E-views 8.0

Regression results in Table 4.10 show model results. It had an Adjusted R-squared of 0.957; this implied that the explanatory variables in this model explained 95.7 percent of the variations in gross domestic savings in the short run. The F-statistic of 152.88 with probability value of 0.000 in the short run indicated that the short run model was correctly specified. The Breusch-Pagan-Godfrey test of heteroscedasticity for stability of the residuals yielded F-statistic of 0.409 with probability values of 0.937 for the estimated period. This confirmed that the model was stable.

4.3.2.1 Discussion of the short run model

The results in Table 4.10 showed that previous gross domestic savings exhibited a positive and significant effect on current gross domestic savings in the short-run. The elasticity of 1.127 implied that 1 percent increase in previous gross domestic savings would lead to an increase in current gross domestic savings by 1.127 percent. Furthermore, the coefficient of remittance inflows was a positive and significant at 5 percent level in the short run. Thus, assuming all other factors constant, a unit increase in remittance inflows in the short run would lead to 0.4 percent increase in gross domestic savings.
Also, money supply and current account balance exhibited significant negative effects on gross domestic savings in the short-run. The elasticity of -0.563 for money supply implied that a 1 unit increase in money supply would lead to a 0.563 percent reduction gross domestic savings in the short run while the elasticity of -0.225 for current account balance implied that a unit increase in money supply would lead to a 0.225 percent reduction gross domestic savings in the short run.

Furthermore, results revealed that the Error Correction Term (ECT_1) in the model was significant and correctly signed that is, negative as expected and was significant at the 5 percent level. It’s coefficient of -0.262 implied that in each quarter, gross domestic savings adjusted by 26.2 percent between the current level and the long run equilibrium level.
CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the major findings and recommendations. The study was conducted for the purpose of establishing the impact of remittances on gross domestic savings in Uganda for the period 1999 to 2017 and econometric methodologies were utilized to analyze the data. Hence, this chapter reviews and summarizes the report and identifies the recommendations to the government.

5.2 Summary of the findings

The coefficient of remittance inflows, real gross domestic product per capita growth rate and inflation were negative and significant at 5 percent level in the long run (= -1.561, -0.467 and -0.132 respectively). Thus, assuming all other factors constant, a 1 unit increase in remittance inflows, real gross domestic product per capita growth rate and inflation in the long run would lead to 1.561, 0.467 and 0.132 percent reduction in gross domestic savings other factors held constant respectively. Furthermore, the coefficient of broad money supply and debt service were positive and significant at 5 percent level in long run (= 0.724 and 0.078 respectively). Thus, assuming all other factors constant, a one-unit increase in broad money supply and debt service in the long run would lead to 0.724 and 0.078 percent increase in gross domestic savings respectively. In addition, deposit interest rates, current account balance and real effective exchange rates did not significantly impact on gross domestic savings in Uganda for the 1999 to 2017 period in the long run.

On the other hand, the first lag of gross domestic savings and remittances positively and significantly affected gross domestic savings in Uganda in the short run while broad money supply, debt service and current account balance significantly affected gross domestic savings negatively at 5 percent level. In addition, GDP per capita growth rate, deposit interest rates, inflation, and real effective exchange rates did not significantly impact on gross domestic savings in Uganda for the 1999 to 2017 period in the short run.
Furthermore, results reveal that the Error Correction Term (ECT_1) in the short-run model was significant and negative at the 5 percent level. It’s coefficient of -0.262 implied that in each quarter, the gross domestic savings adjusted by 26.2 percent between the current level and the long run equilibrium level.

5.3 Conclusions
A negative long-run relationship was established between remittance inflows, real GDP per capita growth rate and inflation with gross domestic savings, while a positive long run relationship was established between broad money supply and debt service with gross domestic savings. In the short run, a positive relationship was established between previous gross domestic savings and remittance inflows with gross domestic savings, while a negative short run relationship was established between broad money supply, debt service and current account balance with gross domestic savings. It was also established that while gross domestic savings may drift apart in the short run, the disequilibrium between the variables adjusted by about 26.2 percent towards their long run equilibrium within a quarter.

5.4 Recommendations for policy
Empirical results also show that the remittances have a negative and significant impact on gross domestic savings in the long run. The study recommends government to do more in providing investment opportunities including financial products for remittances-recipient households to direct the money they receive into productive investment.

5.5 Recommendations for further research
Results from this study have showed that remittance inflows have a negative effect on gross domestic saving and thus, the large flow of remittances to Uganda can be attributed to the altruism motive which mainly determines the flow of remittances in LDCs but a large percentage of remittances is used for consumption, with less amounts going to investment, education and health. There is thus a need for study to assess the methods used in recording all the information regarding inward remittances since it remains questionable as to why remittances do not have positive effect on domestic savings.
REFERENCES


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