GILBERT MUTUYIMANA

THE EFFECTS OF DOMESTIC SAVINGS, FOREIGN AID AND TOURISM ON ECONOMIC GROWTH IN RWANDA (1995-2020)

MASTER THESIS

2022

NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF BANKING AND FINANCE

THE EFFECTS OF DOMESTIC SAVINGS, FOREIGN AID AND TOURISM ON ECONOMIC GROWTH IN RWANDA (1995-2020)

MSc. THESIS

GILBERT MUTUYIMANA

Nicosia

December, 2022

NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF BANKING AND FINANCE

THE EFFECTS OF DOMESTIC SAVINGS, FOREIGN AID AND TOURISM ON ECONOMIC GROWTH IN RWANDA (1995-2020)

M.Sc. THESIS

GILBERT MUTUYIMANA

Supervisor:

ASSOC. PROF. DR. TURGUT TÜRSOY

Nicosia

December, 2022

Approval

We certify that we have read the thesis submitted by **Gilbert Mutuyimana** titled **"The effects of domestic savings, foreign aid, and tourism on economic growth in Rwanda (1995-2020)"** and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Social Sciences.

Examining Committee	Name-Surname	Signature
Head of the Committee:	Assoc. Prof. Dr. Turgut Tursoy	
Committee Member:	Asst. Prof. Dr Mehdi Seraj	
Committee Member:	Asst. Prof Ala Fathi Assi	
Supervisor:	Assoc. Prof. Dr. Turgut Tursoy	

Approved by the Head of the Department

17/01/2023

Assoc. Prof. Dr. Turgut Tursoy
Department of Banking and Finance

Approved by the Institute of Graduate Studies

...../...../20...

Prof. Dr. Kemal Hüsnü Can Başer
Head of the Institute

Declaration

I hereby declare that all information presented in this thesis, "**The effects of domestic savings, foreign aid, and tourism on economic growth in Rwanda (1995-2020),"** was collected, analyzed, and presented in accordance with all academic rules and ethical guidelines of the Institute of Graduate School, Near East University. I further declare that, to the best of my abilities, any supplementary resources utilized in the preparation of this thesis are adequately cited, acknowledged, and referenced.

Gilbert Mutuyimana

30/12/2022

Acknowledgments

First and foremost, I thank Almighty God for providing me with the strength and capacity to accomplish my thesis.

I would like to convey my heartfelt gratitude to my supervisors, Assoc. Prof. Dr. Turgut Tursoy and Mr. Ali Mumtaz for their outstanding assistance. This thesis would not have been completed without their encouragement and assistance.

I would also like to express my gratitude to my committee, which includes Asst. Prof. Dr Mehdi Seraj and Asst. Prof Ala Fathi Assi. I would also like to thank all of my wonderful instructors who taught me from start to finish.

Finally, I would like to express my gratitude to my mother and brothers for their sacrifice, support, and encouragement. None of this would have been possible without the support of my family, and I am grateful to everyone who assisted me in completing my thesis.

Gilbert Mutuyimana

Abstract

The effects of domestic savings, foreign aid, and tourism on economic growth in Rwanda (1995-2020)

Gilbert Mutuyimana

MA, Department of Banking and Finance

December ,2022,96pages

This study looks at the effects of domestic savings, foreign aid, and tourism on economic growth in Rwanda from 1995 to 2020, using GDP growth as a proxy for economic growth. Econometric instruments the ARDL and Granger Causality Test were used to investigate the link between domestic savings, foreign aid, and tourism and Rwanda's economic growth. A stationarity test was initially performed to determine the stationarity of the variables utilized in this research, which is required for most studies. The application of the unit root results reveal that the variables are stable at the level and the first difference. The application of the ARDL test reveal that foreign assistance has a large and favorable influence on Rwanda's economic development in both the long and short term. Furthermore, the results suggest that revenues from international visitors have a favorable and considerable influence on Rwanda's economic development, both in short- and long-term. With regard to gross domestic savings, findings show a positive effect on Rwanda's economic growth. The result from the Granger causality test revealed that there is causality between foreign aid and economic development in Rwanda.

Keywords: Domestic savings, Foreign aid, Tourism, Economic growth

ÖZ

Ruanda'da iç tasarruf, dış yardım ve turizmin ekonomik büyümeye etkileri (1995-2020)

Gilbert Mutuyimana

MA, Bankacılık ve Finans Bölümü

Aralık 2022,96 sayfa

Bu çalışma, ekonomik büyümenin bir göstergesi olarak GSYİH büyümesini kullanarak, 1995'ten 2020'ye kadar Ruanda'da iç tasarrufların, dış yardımın ve turizmin ekonomik büyüme üzerindeki etkilerini inceliyor. Ekonometrik araçlar ARDL ve Granger Nedensellik Testi, iç tasarruflar, dış yardım ve turizm ile Ruanda'nın ekonomik büyümesi arasındaki bağlantıyı araştırmak için kullanıldı. Bu araştırmada kullanılan değişkenlerin durağanlığını belirlemek için başlangıçta çoğu çalışma için gerekli olan durağanlık testi yapılmıştır. Birim kök sonuçlarının uygulanması, değişkenlerin düzey ve birinci farkta durağan olduğunu ortaya koymaktadır. ARDL testinin uygulanması, dış yardımın hem uzun hem de kısa vadede Ruanda'nın ekonomik kalkınması üzerinde büyük ve olumlu bir etkiye sahip olduğunu ortaya koymaktadır. Ayrıca sonuçlar, uluslararası ziyaretçilerden elde edilen gelirlerin hem kısa hem de uzun vadede Ruanda'nın ekonomik kalkınması üzerinde olumlu ve önemli bir etkiye sahip olduğunu göstermektedir. Gayri safi yurt içi tasarruflarla ilgili olarak, bulgular Ruanda'nın ekonomik büyümesi üzerinde olumlu bir etki gösteriyor. Granger nedensellik testinin sonucu, Ruanda'da dış yardım ile ekonomik gelişme arasında nedensellik olduğunu ortaya koydu.

Anahtar Kelimeler: Yurtiçi tasarruf, Dış yardım, Turizm, Ekonomik büyüm

Table of Content

List of Tables

List of Figures

Abbreviations

GDP: Growth Domestic Products

SACCOs: Savings and Credit Co-operatives

MINECOFIN: Ministry of Finance and Economic Planning

EDPRS: Economic Development and Poverty Reduction Strategy

LTSS: Long Term Savings Scheme

RWF: Rwandan Franc

ODA: Official Development Assistance

NGOs: Non-Governmental Organizations

GoR: Government of Rwanda

UNWTO: United Nations World Tourism Organization

US$: United States Dollar

RDB: Rwanda Development Board

WTTC: World Travel & Tourism Council

SMEs: Small and Medium sized Enterprises

ARDL: Autoregressive Distributed Lag

ADF: Augmented Dickey-Fuller

ECM: Error Correctional Model

CHAPTER I

Introduction

The growth of economy depends largely on the capacity a country has in terms of resources to finance its economic activities. A strong economic growth affects positively citizens' welfare because it is seen as a measure of success in economic activities.

Domestic savings; foreign aid and tourism are among factors theoretically believed can boost the economic growth. For example, through the accumulation of capital, domestic savings have the potential to stimulate economic growth (Nguyen and Nguyen, 2017).

The portion of a family's income that is not spent but instead placed in savings accounts at banks and other financial entities by the household, the public sector, and the private sector is referred to as domestic savings. It is generally accepted in economics theory that domestic savings have a beneficial effect on economic development because of their contribution to the accumulation of capital. These savings, in turn, generate interest after a certain period of time; this is considered to be a double-edged sword because, on the one hand, depositors are benefiting from interests on their deposits, and on the other hand, investors are investing those savings in a variety of economic activities; The quantity of money saved inside a country is what affects the amount of money that is available for investment and the total amount of capital that is at a nation's disposal to manufacture products and services. A nation with a strong level of savings is more likely to fund new investments. This, in turn, leads to the creation of employment opportunities and other possibilities that are beneficial to the expansion of the economy. Income per capita among the Rwandan population is increasing at a slow pace, which may affect how the effect of current economic growth on living standards is felt in the future. This is because, given the low level of savings in terms of sustained economic transformation, the income per capita is low to begin with. It is also a barrier on resource mobilization, which is an essential component of sustaining productivity-driven economic transformation in the primarily informal private sector. This is due to a constraint on the availability of resources. The low domestic savings rates in Rwanda may be attributed to a lack of a strong saving culture, few financial institutions,

especially in rural areas, and low incomes, all of which translate into low savings for a significant portion of the population that is unable to utilize banks. SACCOs, also known as savings cooperatives at the grassroots level, were formed by the government via the Umurenge program in order to increase the amount of money saved at home and provide access to funding for the rural people. These goals were accomplished by creating SACCOs. It is possible for a rise in GDP and a reduction in the incidence of poverty to result from an increase in savings and investment in productive activities. However, the most important factor in successful investment is not the quantity of money that is accessible but rather the profitability over the long term and the interest rates. A steady state of the macroeconomic environment, as evidenced by low levels of inflation and interest rates is one of the most effective methods for a government to encourage investment in the private sector. One of the other effective ways is for the government to reduce tax rates. It is also very important to emphasize that increasing investments is not a foolproof method for attaining success. It is vital to think about what you invest in and how fruitful the results are in order to achieve success.

The advancement of economic conditions should be the goal of every nation. Because of the surge in their economic progress, everyone now lives in more comfort and enjoys a better quality of life than at any time in the country's history. The governments of all nations work hard to reduce levels of poverty and boost their countries' overall levels of GDP. Governments can reach their overarching goal of economic growth by putting in place policies like those that encourage people to save money, encourage investment, and make things in their own countries. Increasing total wealth is one of the goals of investment. Nonetheless, an increase in savings is necessary before any increase in investment can occur. As a direct result of this, savings play a crucial role in the provision of efforts made by the government for both investment and production, which in turn determines the potential for economic growth. In the long run, the low rate of savings could prove to be a significant barrier to the expansion of the economy.

In general, we are of the opinion that higher aggregate savings play a role in greater investment and, as a direct consequence of this, quicker GDP growth in the immediate term. It seems to imply that a high rate of savings leads to lower levels of

consumption, which in turn may lead to more money being invested and a faster rate of economic growth. On other side, evidence from empirical research that suggests that a growing economy leads to a rise in personal income as well as an increase in the amount that consumers spend per capita. The concept of marginal propensity to save states that one's level of savings will increase proportionately to their level of income. As a direct result of this theory, it is simple to observe that the amount of savings increases in tandem with the expansion of the economy.

It is impossible to deny, in accordance with the contentious viewpoint concerning the connection between saving and economic development, that when aggregate saving grows, perhaps as a result of increased income, it may improve investment prospects and promote economic growth for the nations. This is something that we cannot deny. On the other hand, the amount of money that people save in their countries increases along with the growth of their economies.

There is substantial debate over what constitutes saving. For instance, the portion of a person's wealth that goes toward paying off their mortgage does not go toward meeting their immediate needs and so saves under the above definition, even if individuals do not usually consider loan repayment to be saving.

Countries with low savings and investment rates, with persistent current account deficits, governments should establish policies to increase domestic savings, that’s involving government savings through raising tax revenues and when necessary use external financing from foreign development investment, remittances, bilateral and multilateral development finance. However, countries with high investment and savings rates, they need to increase domestic consumption through promoting consumer credit and strengthening social protection.

As economic growth is measured by the value of commodities rather than their quantity, the metric is gross domestic product (GDP). According to Misztal (2011) increased savings may accelerate economic growth through increased investment. Philippe Aghion (2006) illustrated that in closed economy which seems imaginary nowadays , economies with open markets and access to international capital markets should benefit from rising rates of saving because rising rates of saving imply higher levels of capital investment. However, in economies that are open to international trade,

the contribution of local savings to growth is not significant. This argument supported by Getachew (2015) as gross national saving in closed economy is the key source of new investments that lead to higher capital formation and consequently higher economic growth. In the same line, Ahmed SELLAMI (2020) insisted on the importance of an increase in the amount of money saved at home as vital option to drive the economy out of crisis, namely in developing countries where saving rate is low. Under this circumstance of low savings rates, it is rare to achieve high rates of investment, this decline in savings and investment levels block growth opportunities

It is not always the case that domestic savings and investments are equal. This is due to the fact that countries with low savings rates can attract investment from other countries, which can result in a shortage of resources. This difference is in the negative in Rwanda. We say a gap is negative when domestics savings are not fully finance investments which lead to require external financing (MINECOFIN, 2013). To close this gap, Rwanda has adopted in 2007 the Economic Development and Poverty Reduction Strategy (EDPRS) to strengthening and deepening financial sector by national savings mobilization strategy. Savings are seen in different ways, among them pension insurance. With this regard, the Long-Term Savings Scheme (LTSS), also known as the Ejo-Heza Fund, was established by the government of Rwanda in 2017 through the Ministry of Finance and Economic Planning with mission of increasing the number of people working in the informal sector who have pensions. The subscriber will have access to a savings account at one of the approved financial institutions once they have signed up. Less than six percent of Rwanda's labor force was previously protected by formal pensions and other state welfare arrangements; the primary goal of this plan is to close the enormous coverage gap that exists in these areas. By June 2021, this fund's total assets were worth RWF 17 billion. By June 2022, however, they had grown to RWF 32 billion, which is a 95 percent increase (RWANDA, 2022). Domestic savings (% of GDP) in Rwanda reached 16.6% in 2020 from 12.1% in 2017 (MINECOFIN, 2021).

For a long time, academics have debated the effects of foreign assistance. The core issue at stake in this debate is whether or not assistance from other nations possesses a constructive effect on the political and economic development of developing

nations. Numerous underdeveloped nations are provided with substantial financial assistance by more developed nations, non-governmental organizations, and international organizations on an annual basis (NGOs). However, many of these nations are not making as much progress or increasing as rapidly or consistently as other nations.

It is generally accepted that recipient countries, particularly developing nations, benefit economically from receiving foreign assistance, well known as Official Development Assistance (ODA). However, the efficiency of such capital transfers to recipient nations has been called into serious doubt due to the fact that certain recipient countries are still considered to be developing despite the fact that they have received a significant amount of assistance. This type of capital inflows is not repaid to donors, which are typically developed countries or international organizations; however, questions have arisen as a result of the fact that some recipient countries lack strong economic management institutions as well as political processes that enforce accountability and transparency. It is critical to note that while the provision of foreign aid can be effective in the right circumstances, donors have a responsibility to put in place safeguards to ensure that the money they give is used ethically and transparently to serve the needs of the community. This should not be interpreted as a violation of a country's sovereignty.

Because private and government savings weren't enough to pay for big investments at home, the country needed help from other countries. This assistance can come in the form of financial grants or loans, as well as technical assistance, training, and humanitarian aid in the event of natural disasters (ISAIE, 2020). Benefits of foreign aid to recipient country are huge in different forms, foreign aid in form of budget support, it helps government to finance development activities such as investment in infrastructure and technology. In form of technical assistance, new skills and knowledge are acquired to strengthen or improve human capital who play role in economic transformation. In form of emergency humanitarian, it is helping to save lives notably during natural disasters by providing basic needs such as medicines, food and shelters.

Apart from benefits of foreign aid, there are also criticisms, it is possible for foreign aid to result in an increase in the real exchange rate in the recipient country and the

consequence is rising inflation, this affect also exports because the currency of recipient country is not competitive at the market. It is difficult to say a country is independent while is heavily depending on foreign aid, this lack of autonomy affects directly and indirectly (misappropriation of fund and corruption) the economic growth.

According to Abate and Papavassiliou (2022) foreign aid positively contributes to the economic growth of recipient counties notably developing ones through capital provision for investments. This argument was supported by Farahmand (2021) foreign aid is beneficial for developing countries due to its impacts on increasing investment and decrease foreign capital borrowing. Furthermore, Desire (2016) described foreign aid as a supplement to domestic savings which are source of finance for new investments, as result there is a growth in economy.

In point of fact, diverse ideas and empirical data have led to varied findings about the influence of foreign aid on growth in recipient nations. According to the findings of a research conducted by Aye Mengistu and Jin-Sang (2015), foreign assistance has played a significant part in the African economies of low-income nations by stimulating economic development via savings, which in turn has led to an increase in investment and capital stock. This argument was reinforced by Basnet (2013) where the research demonstrated that growth in five South Asian nations has a favorable and substantial influence on foreign assistance. Various other investigations, however, came to different conclusions. For instance, research conducted by Liew (2012) found that the receipt of foreign help had a detrimental effect on the rate of economic expansion among nations that are members of the East African Community.

Over the last almost three decades, Official Development Assistance (ODA) in Rwanda has played an essential role in the country's ability to assist national efforts on development and the eradication of poverty. Because of the extremely low levels of foreign direct investment, official development assistance (ODA) is one of the key sources of capital flows and investment financing. ODA also has an impact on the stability of the macro economy. Capital grants and net borrowing (on concessional terms) make up the majority of the capital flows in the balance of payments, and official development assistance has been the principal source of finance for the national budget for a significant amount of time. In addition, aid funds have led to an increase in

liquidity in the economy, which calls for stringent monitoring and supervision in order to preserve the health of the economy as a whole.

The provision of Official Development Assistance (ODA) to Rwanda has been and will continue to be of critical importance in assisting the country's efforts to combat poverty and advance economic growth. Since then, there has been a significant shift in the nature of official development assistance (ODA). Previously, ODA was characterized as having a humanitarian focus and was primarily provided by non-governmental organizations (NGOs). Today, ODA is characterized as having a development focus, and the majority of it is provided by the government of Rwanda (GoR). Today, official development assistance in Rwanda is used to supplement the efforts of local resources in order to accomplish national objectives that are specified in the Economic Development and Poverty Reduction Strategy of Rwanda (EDPRS). Since 1994, official development aid (ODA) has made substantial contributions and acted as a catalytic in the process of helping national efforts for the purpose of national development and the elimination of poverty. The Official Development Assistance (ODA) program in Rwanda is now working to improve local resources in order to meet national objectives that are outlined in the national Economic Development and Poverty Reduction Strategy (EDPRS). It is of the utmost importance, both to the government of Rwanda and to its development partners, that development cooperation be successful in supporting national priorities. Since the early 2000s, the government has taken a firm stance to increase the efficiency with which aid is used, in accordance with the broad parameters enshrined in international treaties such as the Rome Declaration on Aid Coordination, Harmonization, and Alignment; the Paris Declaration on Aid Effectiveness; the Accra Agenda for Action; and the most recent international agreement, the Busan agreement. The Development Partnership has been improved throughout the course of recent years, and an increased level of development aid has been provided to Rwanda as a result of the evolution of partnerships and support. The introduction in September 2013 of the implementation of the Second Economic Development and Poverty Reduction Strategy, more commonly referred to as EDPRS 2, denoted the beginning of the home stretch of the Vision 2020 initiative. Enhancing the

effectiveness of assistance provision is still one of the highest priorities in Rwanda's development strategy.

In the early 1950s, theoretical research that was prompted by the success of the Marshall Plan was optimistic about the impact of assistance on economic development. This study was motivated by the success of the Marshall Plan. Development theorists such as Lewis (1954) and Solow (1956) emphasized the significance of capital accumulation and large-scale investment, which may assist nations in achieving growth that is self-sustaining, without conducting a comprehensive investigation into the link between assistance flows and economic development. In his "theory of the big push," Nurkse (1953) stressed the role of savings and accumulation of capital in the advancement of an economy. He argued that developing countries remain poor as a result of a cycle of poverty that feeds on itself. The 1960s saw the introduction of the gap models for the first time. The Harrod (1939) - Domar (1946) model was one of the first and most well-known economic models. It stressed the significance of aid in closing the savings gap that exists within developing economies, which in turn led to an increase in investment. This model was developed upon by Chenery and Bruno (1962) and Chenery (1967) by include the foreign currency gap. As a result of insufficient foreign currency reserves, many developing countries are unable to make the necessary purchases of investment capital goods. Receiving aid might help bridge this gap. L.Bacha (1990) subsequently constructed a third gap by suggesting that the governments of many developing countries lack the capacity to generate income for investment. As a result, they suggested that assistance may once again address this gap. All gap models highlight the importance of foreign assistance to boost savings, domestic income, and foreign currency, which in turn help to increase investment and, as a result, higher growth rates.

However, a well-known economist Milton (1958) has from the very beginning of the concept of economic help, voiced significant skepticism over the positive influence that such assistance has on economic growth by claiming that aid is a tool that primarily favors elites in recipient countries while also misallocating resources and weakening civil society (Easterly, 2006). Boone (1996b) discovers evidence of the assistance: aid increases government consumption, but it does not promote investment or benefit the

poor (however, he discovered that aid in liberal political regimes reduces infant mortality by up to 30 percent when compared to more totalitarian regimes). According to McGillivray et al. (2006) research's moral hazard may have a harmful influence on the impact that the Solow model predicts would result from the provision of assistance.

Additionally, several real-world studies have been done to find out what effect assistance has on economic growth. According to Paul Mosley (1987), there seems to be a micro-macro contradiction. This implies that assistance seems to work at the micro-level, but there is no evidence to support the assertion that it has a positive affect at the macro-level. According to C. Burnside, and David Dollar. (2000), aid has a good connection with economic growth; however, this connection is only established when the help is supported by laws and institutions that are of a high quality. However, W. Easterly, Ross Levine, and David Roodman. (2004) called into doubt the conclusions of C. Burnside, and David Dollar. (2000) and found that those findings are not robust for a data set that has a longer time series and more countries. C. Burnside (2004) published an essay in response to this criticism, in which they defended their earlier findings and said that improving the quality of institutions is essential for increasing effectiveness.

Tourism is often seen as having a significant impact on economic growth. Positive contributions of tourism are assigned to the accumulation of physical capital, job opportunities and provision of foreign currency (LEE, 2008).

International tourism is a source of foreign currency that supports the acquisition of capital goods and technology, which may be used in other production processes. Furthermore, it plays a significant role to promote investment in new infrastructure and encouraging competitiveness, which results in job creation and increased household income. Additionally, it must be highlighted that tourism sector plays a significant role for the dissemination of technological knowledge and might possibly boost research and development.

In global economy, travel and tourism play a vital role by enabling socio economic development, job creation and poverty reduction. This in turn affect positively the economic growth. In 2019 right before the COVID-19 pandemic, travel and tourism created 1 in 4 of all new jobs globally, and contributed to 10.3% of GDP (USD 9.6

trillion) globally. Meantime, spending from international visitors counted USD 1.8 trillion which represents 6.8% of total export (WTTC, 2022).

Apparently, tourism sector contributes positively to the national growth through expenditure made by tourists (national or international) notably in accommodation, transportation, leisure and trade (especially souvenirs). According to research conducted by the United Nations World Tourism Organization UNWTO (2020) the number of tourists arriving from other countries fell by 81 percent in the month of July and by 79 percent in the month of August. The months of June and July, which fall within the summer season and take place in the Northern Hemisphere, are known for being the busiest months of the year.

As the rest of the world, tourism sector in Rwanda has been severely affected by the COVID-19 pandemic. Revenues earned from tourism in 2017 was USD 424 million, in 2018 was USD 425 million, in 2019 was USD 498 million but in 2020 revenues shrank to USD 131 million (RDB, 2021a). The government of Rwanda established an Economic Recovery Fund in order to assist numerous industries, one of which was the tourism industry. This was accomplished through a variety of activities, including the diversification of tourism products, the implementation of a strategy for sport tourism, and a robust presence in international media. As a direct consequence of this, tourism-related revenues reached 164 million USD in 2021, which was a 25% increase from the previous year's 131 million USD (RDB, 2021a). In line with presence in global media, the government of Rwanda has launched Visit Rwanda project in partnership with famous European football clubs like Arsenal (England) and Paris Saint-Germain (France). The purpose of this partnership is to raise awareness all over the world of Rwanda's rich culture, beautiful natural attractions, and abundant opportunities which will bring more tourists to the country (RDB, 2021a). Rwanda's tourism industry is important to the growth of the country's economy because it brings in foreign currency, creates new jobs, and helps reduce poverty, especially in rural areas. In 2019, the tourism and hospitality industry was responsible for the employment of slightly more than 164,000 people, accounting for 4% of the total workforce and employing the majority of young people and women. The sector has contributed nearly 13% to gross domestic product, this is higher than the world percentage (10.4%), again higher than the

percentage of sub-Saharan Africa (7.1%), and higher than the share of countries that are a part of the East African Community that Rwanda belongs to, such like Kenya (9.7%), Tanzania (9.0%), and Uganda (7.3%) (RDB, 2021b).

According to Harun BAL (2016) the tourism industry is one of the main things that helps the economy grow. This is because the tourism sector brings in foreign exchange earnings or tourism exports and creates a wide range of new jobs.

The tourism sector is widely recognized to promote a country's economic growth through different channels, this is the fact of currency earnings, fact of stimulating physical and human capital accumulation, and the fact of promoting technology and innovation (Brida et al., 2020). By supporting this argument, LEE (2008) said creation of employment opportunities , accumulation of physical capital and provision of hard currency are positive contributions attributed to tourism.

The influence of tourism on economic development is shown through its effects on employment, on currency exchange, on inflation, on the balance of payment, on production, on investment in infrastructure, on contribution to government's budget, on increase in public expenditure which in turn increase public income through taxes (Selimi et al., 2017).

The tourism industry is a key contributor to the overall economy, earning additional revenue for both the state and its residents. Sustaining natural tourism sites requires less resource investment and yields a greater return on investment. Maintaining man-made tourist sites, on the other hand, necessitates a greater expenditure of resources and yields a lesser return on that investment. However, this does not mean that people should be afraid to join the tourism business because the expected return is significantly greater than the money invested.

Statement of the Problem

Increase of revenues from domestic savings and tourism are ideal way to make a strong growth in country mostly developing ones. However, an increase of foreign aid in a country is not an indicator of a sustainable economic development. Theoretically the effect of domestic savings, foreign assistance and tourism to the growth are positive. However, empirical results are mixed. On one hand, Egide (2018) looked at how

national savings affected economic growth in Rwanda between 1995 and 2014. The findings indicate that over the course of both the short and the long term, increases in national savings contribute positively and significantly to overall economic growth. The findings of a study that used likelihood-based panel cointegration to investigate the relationship between foreign aid, domestic savings, and economic growth in LDCs show that both foreign aid and domestic savings have a positive association with economic growth (Irandoust and Ericsson, 2005). Gokovali (2010) looked into to see how important tourism is to the growth of the Turkish economy, results show that tourism contribute positively and significantly to the Turkish economy. On the other hand, research done by Nguyen and Nguyen (2017) on the effects of domestic savings on the growth of the economy in Vietnam, the results showed that gross domestic savings don't have a big effect on the growth of the economy in the short term. The findings of an investigation into the ways in which East African countries are affected by the effects of foreign aid on economic growth revealed that foreign aid hinders economic growth (Liew, 2012). Nyasha et al. (2020) conducted research on the relationship between the expansion of tourism and increased economic growth in sub-Saharan Africa., and findings showed that tourism expenditure negatively affect economic growth. These few studies show some contradictions and pay an attention to researchers to carry more investigations on this subject. Studies carried on effects of domestic savings, foreign aid and tourism in Rwanda are insufficient in literatures and authors recommended further studies. Therefore, this study is aim to add new knowledge to existed one by assessing the contribution of domestic savings, foreign assistance and tourism to the growth in Rwanda.

Research Questions

1. How does domestic saving affect Rwanda’s economic growth?
2. How does foreign assistance affect Rwandan economic growth in short and long run?
3. What role does tourism play on Rwanda's economic development?

Statement of the Hypothesis

The alternative hypothesis and the null hypothesis are presented in the following order: Where H1 represents Alternative Hypothesis and Ho represents the Null Hypothesis:

H1: There is a considerable relation between domestic saving and economic expansion in Rwanda.

Ho: There is no considerable relation between domestic saving and the economic expansion in Rwanda.

H2: There is a considerable relation between foreign aid and the economic expansion in Rwanda.

Ho: There is no considerable relation between foreign aid and the economic expansion in Rwanda.

H3: There is a considerable relation between the tourism sector and the economic expansion in Rwanda.

Ho: There is no considerable relation between the tourism sector and the economic expansion in Rwanda.

Significance of the Study

This study will help policymakers determine how to increase domestic savings and, as a result, economic development. Academics and scholars interested in analyzing domestic savings, foreign aid, tourism, and their impacts on the Rwandan economy may find this material valuable, and this study is likely to be used as a reference for future research on this topic. The goal of this research is to ascertain whether domestic savings, foreign aid and tourism help accelerate economic expansion. Policymakers in Rwanda might use this study to evaluate existing policies about the link between domestic savings, foreign aid, tourism and the country's long-term economic development and prosperity.

Objective of the Study

This research aims to assess the impact of domestic saving on the growth of economy in Rwanda. It will shed light on the extent of domestic saving and foreign aid

into the Rwandan economy and give concrete evidence of their existence. The significance of tourism sector to Rwandan development and prosperity will be analyzed.

Limitation of the Study

Analyzing the contribution of domestic savings, foreign aid and tourism to the economic development is the goal of this investigation. Geographically the study is limited to Rwanda, a country located in East-Central Africa. This study is not considering many variables that affect the growth of economy for example foreign direct investment, interest rates, exchange rate, inflation etc... Data used in this study covers the period from 1995-2020, before this time period data was not available.

Definition of Terms

Gross Domestic Product (GDP)

The phrase "gross domestic product" (GDP) refers to the sum of the monetary value or market value of all finished items and services that are produced inside the borders of a country during a specified amount of time. Because it gives such a complete picture of a country's overall level of production, it can be used to give a full picture of how the economy is doing.

Domestic Savings

It is the portion of income not consumed today with aim to accumulate wealth over time in the future. This domestic financing plays an important role in revenue collection mostly in developing countries as it provides resources needed to attain sustainable development goals, sustain economic growth and financial independence.

Foreign Aid

It is a voluntarily transfer of capital, commodities (food and drugs) or services (technical advice and training) from one country or international organization (donor) to another county mostly developing countries (recipient). This aid can take the form of grant, gift or loan with aim to promote development and eradicate poverty.

Tourism

Tourism is the act of traveling of people from a usual area to another location to pursue recreation, relax, pleasure and for business of professional purposes, while making commercial activities known as tourism expenditures.

CHAPTER II

Introduction

This chapter discusses several writers' theoretical and empirical perspectives the current concerns that have been examined and studied concerning the subject. It is mostly concerned with opinions gleaned through books, articles, and internet, among other sources.

Theoretical Literature Review

Classical Growth Theory

Adam Smith, Thomas Robert Malthus, and David Ricardo came up with the classical growth theory, which used the term "subsistence level" as a modeling term. This theory was used to simulate the increase of populations. They believed that population growth in relation to the level of subsistence would determine whether or not the GDP would increase or decrease. This suggests that if the real GDP climbed above the level of income required for subsistence, the population would rise to match it, which would bring the GDP back down to the level required for subsistence. Alternately, if the real GDP fell below the level required for subsistence, then some people would perish and real income would once again reach the level required for subsistence. In this point of view, it was comparable to a level of equilibrium, which the real GDP would eventually revert to. In addition to this, they focused on the repercussions that came about as a result of advances in technology, the concept of labor division, and different production processes. They climbed up to get a better understanding of the true development processes by analyzing the effects that a growing population, an increase in capital, and technical advancement would have in a setting with limited natural resources. His book, Wealth of Nations, is where he analyzes Adam Smith's emphasis on the role of the accumulation of capital in the process of development and how it affects worker productivity. First, he said that it is driven by the wide use of skill, dexterity, and judgment in its work. Secondly, he explained that it is determined by the proportion between the number of those who are utilized in beneficial labor and that of those who are not so employed. These are the two different circumstances that determine the income per capita in every nation where he stated that.

Theory of Economic Growth

The "Classical" Approach to Understanding the Theory of Economic Development Kurz and Salvadori (2003) concluded research by pointing out that the size of the market may be a factor that limits the division of labor. Asserted that the larger the market, the greater the division of work between individuals and between businesses; however, a greater division of labor increases labor productivity for all businesses. The Neoclassical growth model includes Harrod (1939)-Domar (1946) growth model as one of its constituent parts. It was named after two famous economists: Sir Roy Harrod from England and Professor Evesey Domar from the United States of America. Both of these individuals contributed to the development of the model. It is a time-honored empirical method that explains how the levels of capital productivity and savings affect the rates of economic development and helps people understand how these relationships work. According to Rasmidatta (2011) every nation's economy must set aside a certain proportion of its gross domestic product (GDP), even if it's only to pay for the repair or replacement of depreciated or broken capital goods (buildings, equipment, and materials). On the other hand, growth necessitates new investments that are a direct reflection of net additions to the stock of capital (Todaro and Smith, 2009). The growth model of Domar (1946) and Harrod (1939) states, in essence, that national savings ratio as well as the national capital-to-output ratio both control the growth rate in the same proportions simultaneously. This is one of the fundamental premises of the equation. Solow (1956) and Swan (1956) developed a model independently of one another that had mathematical properties and served as a helpful starting point for a broad range of extension models, such as the Ramsey-Cass-Koopmans Model (RCK) and the Diamond Model. The model primarily focuses on four factors that are available at all times in an economy: capital, labor, and knowledge or labor effectiveness, all of which are combined to generate production (Y). Change in rate of saving has an effect on the level of production per worker at any given point in time, but this doesn't change the rate of growth in output per worker on the way to balanced development in a big way as shown by their findings. This stipulate that change in savings rate has an impact on level of production per worker but does not have an effect on the growth rate of each worker's output. The Solow model suggests, the only kind of change that may have an

effect on growth is a shift in the pace of technological advancement; any other kind of shift will only have a leveling effect.

Industrial Organization Approach

It was one of the first studies to explain worldwide production in the context of a flawed market. According to Hymer (1960), international businesses that want to succeed must compete with local businesses that have an edge over them due to factors like culture, language, legal system, and customer preferences. Overseas currency risk is also a concern for foreign businesses. To make the overseas investment viable, some kind of market power must be used to counteract these drawbacks. The sources of market dominance, also known as a firm-specific advantage or monopolistic advantage in Kindle Berger's terminology, include better technology that is protected by patents, brand awareness, management expertise, scale savings, and more reasonably priced sources of financing. The most significant benefit, in Hymer (1960)'s opinion, is technical dominance since it makes it easier to provide new goods with novel features. Additionally, information helps in the development of other talents like marketing and enhanced manufacturing methods. Because of this, businesses are able to use their market dominance to invest overseas and make significant returns.

According to traditional growth theories, there are two key reasons why less developed nations expand quicker than affluent ones.

The theory of neoclassical economics suggests that less developed countries may eventually become as prosperous as those that are more developed if capital returns continue to fall. Due to falling rates of return on investment, less developed countries with fewer resources tend to build up more physical and human capital, and financial resources tend to flow to economies with higher rates of return (Neoclassical convergence or capital deepening). A high absorption capacity, according to the technology gap concept, makes it simpler for a poor nation to catch up since impoverished countries may assimilate technologies and knowledge accessible in more advanced countries (this is referred to as technical catch-up). Through the acceptance

and deployment of technology, impoverished nations have a greater possibility to expand quicker than affluent ones.

To be more specific, the catch-up effect suggests that the income of the less-developed nations will eventually catch up to that of the more-developed nations. This idea is supported by general agreements. In theory, developing countries may be able to grow at a faster rate than advanced economies by utilizing new technology and borrowing efficient systems; however, the likelihood of this scenario has become more debatable as established economies have rapidly modernized. If they are successful in obtaining some funds for investment, then, in accordance with the law of diminishing returns, the returns on this investment may be substantial. However, this will only be the case if they obtain some funds for investment. The rate of return on investment for every single unit of currency that is invested in a developed nation is significantly lower than the rate of investment returns in an underdeveloped nation. This is due to the fact that the impoverished nation is very far behind on this path of declining returns. This extra return lets less developed countries quickly increase their investment capital and level of efficiency until they reach the point where the law of diminishing returns kicks in and they can develop at the same rate as more developed countries. However, one of the reasons for this disparity is that underdeveloped countries frequently have restricted access to both capital and technology. They are unable to break out of this cycle of low productivity because they do not have the financial means to make investments or the resources that are required to modernize their business operations. They can try to model themselves after prosperous nations, but because of this limitation, they won't be able to catch up. The impact of playing catch-up is limited due to the fact that the underdeveloped nation is unable to guarantee that it will achieve catch-up growth. Abramovitz (1986) highlighted the importance of having the necessary social capabilities in order to benefit from catch-up development. These capabilities include the ability to assimilate new technologies, experiment with various financing schemes, and participate in international markets. In addition, these conditions must be met in its economy before catch-up development can occur. This is one of the reasons why there is still a disparity in development across the globe today. To be more detailed, the idea assumes that technological advancements are free to trade and easily accessible to

developing countries that are trying to catch up. A costly and inaccessible source of capital for these economies may also impede catch-up development, which is especially problematic in the event that capital is scarce in many nations. This frequently traps nations in a cycle of low efficiency, in which the most productive technology is unattainable due to its prohibitive cost. This may point to an opportunity for developing nations, which are falling further and further behind industrialized nations, to catch up and catch up quickly. There is room for the following developed countries to catch up because there is not a significant enough gap between the leading developed countries and the following developed nations in terms of their approaches to productivity. This process of catching up will continue for as long as the countries that are following have anything to learn from the countries that are leading, and it will only come to an end when the knowledge gap between the countries that are leading and those that are following becomes extremely narrow and eventually exhausted. On the other hand, increasing convergence does not necessarily imply that the leading developed nations are losing their edge in the global marketplace. In addition, the concept of convergence primarily applies to nations that are currently categorized as developed. This is because these nations already have and are able to maintain a stable economy, in addition to the environment in which to apply new skills and methods learned from other nations. As a direct consequence of this, the growth rates of developed economies reflect convergence because these countries have already established themselves and can capitalize on any opportunity that presents itself. However, the rates of economic expansion in emerging nations and industrialized nations are quite different. The growth rates of developed countries are fairly comparable to one another and are relatively close to one another. On the other hand, the growth rates of less developed countries show that some are experiencing explosive growth while others are experiencing severe declines. This highlights the fact that the richest country is getting richer while the poorest country is getting poorer in comparison.

Foreign Aid and Modernization Theory

Rostow (1959) modernization theory is one of the earliest methods used to analyze how different nations and regions initially got started on the path to economic

prosperity. It was invented in the late nineteenth century. According to studies of the development of the region, which were based on a simplified model of saving and investment, Europe experienced a pretty fast and sequential path of economic expansion in the decades following World War II. Rostow (1959) proposes that the process of modernization can be broken down into five distinct stages, which are as follows:

1. A culture with roots in the past. 2. The requirements for growth that can be maintained by themselves, including higher levels of education, increased manufacturing, and a variety of other types of capital development. 3. The stage known as "take-off" happens when economic norms are established at micro, mezzo, and macro levels, respectively. This leads to point number 4, which is a push toward maturation, which is characterized by greater economic diversity and higher living standards.5. The last is marked by widespread consumption, which encourages ongoing production as well as development of new technologies and the creation of new opportunities for employment. During these phases, the rate of gross domestic product expansion is jointly determined by the national saving rate and the country's capital ratio. To be more specific, it notes that if there were no controls exerted by the government, the rate of growth in the national income would be directly proportional to the percentage of income that is saved.

The economic justification for this concept is uncomplicated: in order for economies to advance, they must strictly adhere to the phases, and they must place a priority on savings as well as local and direct foreign investment. This is important in order to meet the requirements of each stage. The Harrod-Domar growth model, which was utilized as the foundation for savings plus investment, represents a growth formula, was the preeminent economic growth model at the time that Rostow accepted its validity. This model was the Harrod-Domar growth model. At the time, linear growth was thought to be based on two distinct savings and investment factors, despite the fact that it was intuitively appealing (from the perspective of the capitalist worldview) and experimentally confirmed at the time. Even though it seemed like this was the case in Europe after the World Wars, Europe had an advantage over other places like Southeast Asia and Africa in that it already had an infrastructure and a population that knew the skills and standards needed for a technological life. The remaining regions lacked this

advantage. The hegemonic consequences of a state or region having the political, economic, and military might at its disposal to acquire resources from outside sources are ignored, among other considerations.

According to this school of thought, in order for the so-called "Third World" to advance economically, it requires funding from Western nations. One can see, without a doubt, that the ideology of modernization is the root cause of the problem with foreign assistance. According to the theory of modernization, traditional civilizations can be found in the so-called "underdeveloped" countries of the world. At some point in their histories, all of the world's civilizations can be described as "conventional." These ancient civilizations have developed into modern societies through the application of innovation and the furtherance of technology, in particular within the context of a capitalist society in which capital is held privately.

Capitalism motivates the individual to always seek to improve their product. This desire for outperformance fosters expansion while reducing expenses and increasing effectiveness.

And hence, just as modernization and capitalism propel a nation toward modernity, the suffering of advanced nations may be attributed to a failure to innovate, leading to a technological and thus economic weakness and consequently an inability to modernize. The modernist ideology that underpins the provision of international aid with the goal of elevating standards of living in underdeveloped countries can be summarized as follows: The philosophical notion that civilized states have a moral obligation to assist other nations in their transition to modernity has been materialized into this concept in a way that can be put into practice (Todaro and Smith, 2011). To that aim, modernization theorists will accept the notion that third-world countries should constantly turn west in order to improve by engaging with western development models. As a result, foreign help might be considered as a rescue package for a beleaguered nation's release from famine and poverty. This brings us to the primary objections of modernization theory, largely by dependency theorists, including Marxists.

The Dependency Theory

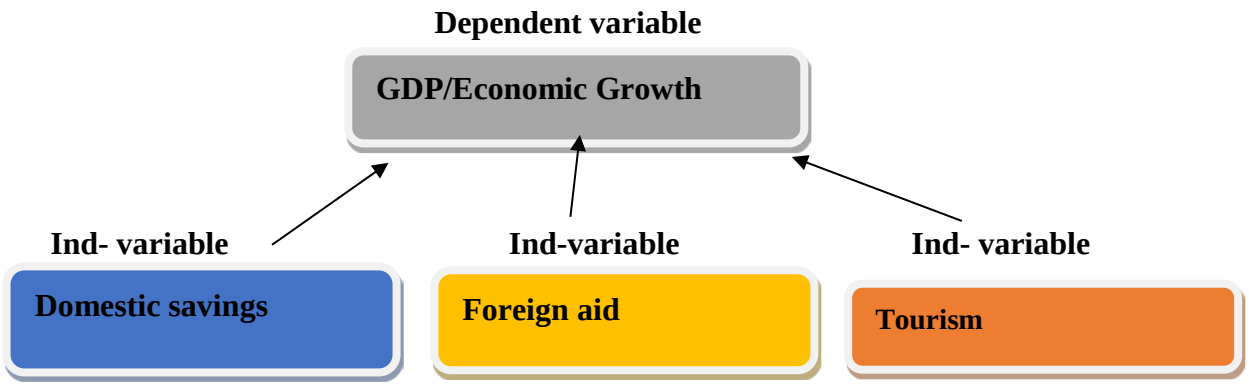
Throughout the years, the discussions that have taken place between Marxists, global system theorists, and liberal reformers have been both emotionally charged and intellectually taxing. It is a misconception to think that there is just one dependency theory since there are many different degrees of dependence theorists, and there are still significant areas of conflict amongst these theorists.

Over the course of many decades, liberal reformers, Marxists, and theorists of global systems have engaged in debates that have been both emotionally charged and academically demanding. It is a misconception to suppose that there is simply one unified theory of reliance since there are still major variations across the numerous planes of dependence theorists.

Throughout the years, the discussions that have taken place between Marxists, global system theorists, and liberal reformers have been both emotionally charged and intellectually taxing. It is a mistake to think that there is just one theory of dependence since there are good arguments of contention among the many different levels of dependency theorists (Delgado et al., 2016). The historical phenomenon known as "dependence" describes a situation in which the growth and development of the economy of one community of countries is contingent upon the growth and development of another economy to which it is subject.

Conceptual Framework

Figure 2.1



Note:

Conceptual framework aims to give view on cause and effect relationships between variables of the study. Based on literature review, this figure represents relationship or characteristic expected between independent and dependent variables.

Domestic Savings and Economic Growth Nexus

A study carried out in Kenya in 2008 and another in South Africa in 2009 to assess the link between savings and economic development in both countries. The purpose of the research was to determine the degree of correlation that exists between the two variables. Researcher investigated the relationship between the variables by employing causality and co-integration tests, and the findings indicated that savings and economic growth had a positive correlation with one another (Odhiambo, 2008, 2009). An investigation on link between savings and economic development was conducted by Anoruo and Ahmad (2001) using a vector error correction model in seven different African countries: Congo, Ivory Coast, Ghana, Kenya, and Nigeria. South Africa was also included in this study. On the list, Zambia occupied the seventh and final spot. The findings suggest that, over the course of a longer period of time, there is a connection between expanding economic activity and increasing levels of savings. Furthermore, they discovered that saving drives development in Congo and that saving and development have a bidirectional causal relationship in South Africa and the Ivory Coast. They had not previously come across this information. An empirical study is presented by the authors in their article titled "The Impact of Savings on Economic Growth. Jagadeesh (2015) conducted a research to determine the contribution of savings to the overall expansion of Botswana's economy. He applied the Harrod-Domar growth model to the economy and ran his tests with the Auto Regressive Distributed Lagged (ARDL) model to determine whether or not there is a long-run link between Botswana's gross domestic product and its gross domestic product savings. This was done in order to determine whether or not there is a long-run link between Botswana's gross domestic product and its gross domestic, he utilized the DOLS method in order to determine the dynamic long-run co-integration between GDP and its independent variables. In addition to this, he examined the time series data for Botswana from 1980 to 2013 to determine

whether or not they were stationary and whether or not they were cointegrated. The results of the tests established a significant connection between financial reserves and the expansion of the economy, as the results of the study show that the Harrod-Domar growth model is reliable. In his concluding remarks, he argued for the implementation of policies that would promote the expansion of the nation's economy. Using granger causality test to find out causal relationship, Getachew (2015) studied on domestic savings and South Africa's economic growth (1960–2013). Findings showed that gross domestic savings are source of gross fixed capital formation. In addition, Hooi Lean and Song (2009) conducted cointegration and causality tests on the relationship between domestic savings and economic growth in China from 1955 to 2004. The research revealed a co-integration relationship between the increase in domestic savings and the expansion of the economy. Significant empirical studies have shown that domestic savings have a positive impact on economic growth, which has been demonstrated in the analysis of the impact of domestic savings on the growth of the economy. It was thought that any increase in domestic savings would lead to more investments, which in turn would lead to more growth. Nguyen and Nguyen (2017) conducted the research on the effects of domestic savings on economic growth in Vietnam. The time period covered was from 1986 to 2015. Findings revealed, through the application of autoregressive distributed lag (ARDL) to the process of cointegration, that in the long run, gross domestic savings have a significant impact on economic growth. On the other hand, the study demonstrated that in the short run, gross domestic savings do not play a significant role in the expansion of the Vietnamese economy. In contrast, Egide (2018) in his study on the effect of national savings on economic growth in Rwanda from 1995–2014, he found that national savings had a positive impact on economic growth. The results of an analysis done with ordinary least squares (OLS) showed that national savings have a significant positive impact on economic growth both in long run and in short run. Furthermore, Damilola Felix Arawomo (2015) conducted research on the complementarity of foreign aid and domestic savings as drivers of economic expansion in countries in the West Africa Monetary Zone (Ghana, Nigeria, Guinea, Sierra Leone, Liberia, and The Gambia) for the period of 1980–2012. The evidence was gathered from these countries. The findings, which were reached through the use of panel data analysis

and the generalized method of moments (GMM), indicated that there is a significant and positive relationship between the amount of money saved and the growth of the economy. Within the scope of their research titled When Does Domestic Saving Matter for Economic Growth, Aghion et al. (2009) set out to investigate the question, "Can a country grow more quickly by saving more?" They investigated this subject from both a theoretical and a practical standpoint. According to the theoretical model, growth results from innovations that make it possible for local industries in developing countries to catch up with frontier technology. This requires the collaboration of an international investor who is knowledgeable with the frontier technology and a domestic entrepreneur who is familiar with the circumstances of the developing nation. Because it enables the local entrepreneur to contribute ownership into this cooperative endeavor, domestic saving is important for innovation and, by extension, prosperity in such a nation. This contributes to the amelioration of an agency issue that, in the absence of domestic saving, would discourage the participation of foreign investors. Because domestic business owners in prosperous countries are already familiar with cutting-edge technology and do not need the participation of foreign investors in order to innovate, local saving plays no significant role in the expansion of these nations' economies. An investigation that included many countries found that lag savings had a positive correlation with the rate of productivity growth in less developed countries but not in more developed countries. The same result is reached if the regression is performed again using data that was generated by a calibrated version of our theoretical model. They came to the conclusion that domestic savings are more significant for the development of innovative technologies in developing countries than they are in affluent ones.

In their research Turan and Gjergji (2014) analyze the influence that savings have on economic development. What kind of influence does savings have on economic expansion? The Case of a Small Open Economy (Albania); Sought to provide an answer to the following question in this study, they looked at Albania as an example of a small open economy. Does an increase in a country's saving rate lead to a rise in that country's economy? They used the Johansen Co Integration Test in their research to determine whether there was a correlation between financial savings and the rate of economic

growth in the country between the years 1992 and 2012. In addition, empirical research suggests that economic development and savings are intertwined, which points to the existence of a link that is consistent throughout the course of a lengthy period of time. In addition to this, their research demonstrated a beneficial connection between savings and economic growth, as well as the supplementary role that foreign direct investment plays in expansion. They suggested that the government pay special attention to the policies of FDI in order to have a positive impact on the expansion of the country's economy.

In his study titled "Causal Relationship Between Domestic Saving and Economic Development: Evidence from Cambodia," Sothan (2014) performed an analysis on data spanning the years 1989 to 2012 to determine the direction of causation that exists between domestic saving and economic development in Cambodia. He used the Granger Causality Test as one way to back up his empirical study. Findings show domestic saving does not contribute to economic development. His finding runs counter to the generally accepted view that the progression of causality goes from financial planning to economic growth. In addition, he found that the development of the economy did not, in and of itself, encourage people to save money. As a consequence of this, he came to the conclusion that rate of domestic saving in Cambodia and rate of economic growth are unrelated.

AbuAl-Foul (2010) examined empirically the long-run relationship between Morocco's (1965-2007) and Tunisia's (1961-2007) real GDP and real GDS using Pesaran et al.'s newly developed approach to cointegration in his study titled "The Causal Relationship Between Savings and Economic Growth: Some Evidence from Middle East and North Africa (MENA) Countries." In Morocco, the empirical data indicate that there is a long-run relationship between the variables, whereas in Tunisia, there is no evidence to support the existence of such a connection. In Morocco, the empirical data point to the existence of link between the variables in the long run. The results of the Granger causality test indicate that there is a connection between the expanding economy of Morocco and the country's increasing rate of personal savings. This link appears to exist in both directions. On the other hand, the data show that there is a Granger link between real GDP and real GDS in the case of Tunisia. However, this link is only in one direction. The Granger causality runs in the opposite direction, with

higher levels of economic development following higher levels of saving. In addition to the convergence theory, the author of the aforementioned research Rasmidatta (2011) conducted research in Thailand to investigate the connection between domestic saving and economic progress. The progress of the Thai economy was the primary focus of the investigation, which was designed to determine the nature of the connection between national saving and economic growth. He was interested in conducting studies on the relationship that exists between individual savings and the expansion of the economy as a whole. As a consequence of this, he conducted a Granger causality test using time series annual data from 1960 to 2010, and the empirical finding reveals that the only direct correlation runs from economic growth to domestic saving. This was result of the test.

Foreign Aid and Economic Growth Nexus

A comprehensive literature assessment on the topic of international aid and economic development reveals that there have been three distinct generations of study on the aid-growth nexus. Each of the studies conducted in this generation has shed light on the primary force that motivates the aid-growth nexus. According to the hypothesis put out by Harrod (1939)-Domar (1946), the first generation placed a larger emphasis on financial planning and savings. This line of inquiry focused on the connections between monetary aid to developing countries and domestic savings. This line of inquiry was predicated on the hypothesis that financial discipline would lead to investment, which would then lead to expansion. The second wave of study concentrated on determining the nature of connection that exists between economic growth, international aid, and investment. They concentrated most of their efforts on financial investments, without giving any thought to or acknowledging the potential of savings as a means of achieving economic expansion and development. The third wave of study did not consider savings or investments to be routes of foreign assistance to development; instead, they found numerous avenues through which foreign aid may improve economic growth. The widely used two-gaps model, which has been expanded upon by the Harrod-Domar growth model, serves as the primary foundation for the provision of foreign aid. In addition to the funding deficit for investments, there is also a shortage of foreign

currency. The savings gap refers to the reality that domestic savings are not sufficient to maintain the pace of growth that the economy's import purchasing power and other resources permit. This inadequacy is what causes the savings gap.

It is possible that the import purchasing power that is given by the value of exports in addition to capital transfers will not be sufficient to maintain the rate of development that is authorized by domestic savings. This is what is meant by the foreign exchange gap. It was claimed that the availability of foreign assistance may permit a less balanced strategy of rapid development in order to make greater use of the resources available locally. This would fill up both of the gaps (Chenery, 1967). It was also proposed that some of the possible bottlenecks of knowledge, savings, or foreign currency may be temporarily addressed by the inclusion of external resources that do not need current payments. This was one of the more interesting suggestions. As a result of this, other resources may be used to the maximum extent of their capabilities, and total production growth may be much higher than the rate of expansion that would be allowed by the development of the domestic component that is the most constraining. The literature review from the part before this one uncovered a number of different outcomes, some of which were inconsistent, as well as those that converged. There was just one study that looked at how the usage of aid flows from ODA member states impacted the economic growth in Rwanda from 1995 to 2013. The study focused on the role of foreign assistance (Desire, 2016). The panel data technique, which is based on the pooled OLS procedure, was used to evaluate the effect of international aid on Rwanda's economic development, and the findings revealed that international aid had significant beneficial impact on GDP growth. This conclusion was reached based on the fact that the findings showed that international aid had a significant impact on economic growth. But there haven't been many real-world studies on how international aid affects economic growth in developing nations, especially in those that are part of the East African Community (EAC). The size of the gap between the two budgets at this moment will determine the extent of the assistance from other nations that will be required to close the gap. When the gap in savings is greater than the gap in foreign exchange, we say that the economy is limited by savings. On the other hand, when the gap in foreign

exchange is greater than savings deficit, we say that the economy is constrained by foreign exchange (Kolawole, 2013).

When the United Nations began its first decade of development in 1961, both wealthy and poor nations recognized that additional effort would be required to mobilize internal and external resources if the defined growth objectives were to be fulfilled. This realization came at the same time that the United Nations began its first decade of development. Following the big push theory, poverty traps are caused by a number of factors, including low savings, limited production capacity, and a high population. As a result, a large push (involving a temporary infusion of capital in the form of ODA) expands investment in a variety of sectors, which ultimately results in the start of growth that is self-sustaining (Veledinah, 2014).

However, one author stated that massive sums of foreign assistance may have a detrimental influence on the governments of recipient countries, causing more harm than good in a number of situations when it is used (Abuzeid, 2009).

According to the research of Voivodas (1973), between 1956 and 1968, a sample of 22 of the world's least developed countries saw economic growth that was hindered by the provision of aid. However, Boone (1996a) discovered that aid has not resulted in higher rates of development in developing countries. He made the discovery that the aid did not have a positive effect on any factor that contributes to economic development, such as the nation's human resources or its local investments in the country. Vásquez (1998) came at a similar conclusion after researching 73 different countries from 1971 to 1995. Instead, he found that aid as a percentage of GDP had a negative association with economic development. This was one of his key discoveries. Hudson and Mosley (2001) conducted research on assistance with a particular focus on its rate of return. They came to the conclusion that assistance has a diminishing return, which means that the impact of assistance on development becomes detrimental when a certain threshold has been crossed. The large amount of assistance received, expressed as a percentage of GDP, was anywhere from 25–45 percent.

On the other side, a number of studies showed that assistance has positive effect on economic expansion. Using augmented Fischer-Easterly type model, Ramesh Durbarry (1998) conducted research on the influence that foreign aid has on the rate of

economic growth in a large number of developing nations. Results showed that foreign aid has some positive impact on growth, with results varying by geographical location, amount of aid allocated, and income level. Results also showed that this impact is not uniform. This was supported by the research conducted by Aye Mengistu and Jin-Sang (2015) in their study on the impact of foreign aid on economic growth in Africa: a comparison of low- and middle-income countries from the period 1995–2010. The results of the study, which were analyzed with a model called the generalized method of moments (GMM), revealed that for low-income African countries, there is a positive relationship between aid and economic growth. Nevertheless, the findings of this study indicate that countries with a middle income level typically see a greater impact from foreign direct investment on the expansion of their economies (FDI). Jena and Sethi (2019) investigated foreign aid and economic growth in sub-Saharan Africa for the period of 1993–2017 using the Johasen-Fisher panel cointegration test as well as Pedroni and Kao's cointegration test. The findings point to the existence of a connection, both in the short and long run, between countries in sub-Saharan Africa and their levels of foreign aid, economic growth, investment, and price stability. In addition , Yiew and Lau (2018) conducted research on the impact of foreign aid and economic growth for a sample of 95 developing countries over the period of 2005–2013. The findings from the panel data show that there is a relationship that looks like a U-shape between international aid and economic expansion. Sethi et al. (2019) conducted research on the topic of foreign aid and the growth nexus by looking at empirical evidence from India and Sri Lanka for the years 1960-2014. The results of the Johansen-Juselius test, the Granger causality test, and the vector auto-regression (VAR) modeling confirmed a long-run relationship between foreign aid, economic growth, and domestic investment in India. On the other hand, foreign aid in Sri Lanka does not have a significant impact on economic growth, either in the short or long run. Author Sothan (2017) conducted research on the topic of "foreign aid and economic growth: evidence from Cambodia for the period 1980–2014." The research utilized an autoregressive distributive lag (ARDL) bounds testing approach. According to the findings, the impact of foreign aid on growth in Cambodia is only positive in the short run, whereas in the long run, the impact of foreign aid on growth in Cambodia is negative. Liew (2012) used pooled OLS, random,

and fixed effects to examine the impact of foreign aid on the economic growth of East African countries. The study covered the period from 1985 to 2010. The findings indicated that economic growth in the sample countries was significantly hindered by the presence of a negative influence from foreign aid. An application of likelihood-based panel cointegration was performed in the investigation that was conducted by Irandoust and Ericsson (2005) on the topics of foreign aid, domestic savings, and growth in LDCs. The sample of African nations, which included Niger, Nigeria, Rwanda, Senegal, and Togo, covered the years 1965–2000. The findings indicated that both international assistance and domestic savings are positively associated with the expansion of the economies of those nations. Feeny (2005) investigated the impact of foreign aid on economic growth in Papua New Guinea for the period of 1966–1999 using an autoregressive distributive lag (ARDL) approach. The study spanned the years 1966 to 1999. The findings indicated that there was scant evidence of the contribution of foreign aid and its constituents to the expansion of the Papua New Guinea economy. ISAIE (2020) studied the effects of foreign aid on economic growth: an econometric analysis of Rwanda covering the years 2006–2019. The tests used were the Johansen-cointegration test, the Granger causality test, and the vector auto-regression (VAR) models. The findings demonstrated that there is a connection, which persists over time, between Rwanda's economic expansion, the level of foreign aid received, the exchange rate, and domestic investment. Levy (1988) conducted research to explore the effect that aid has on the economic growth of Sub-Saharan Africa. This was determined by collecting data from 13 countries that had received a considerable amount of assistance. They found that aid had a positive and large influence on economic growth after correcting for the impacts of trade, finance, and government action. This was the conclusion reached after the data was analyzed. Durbarry et al. (1998) conducted a study that was very similar to this one, and they used a variety of econometric models to demonstrate that there is a significant and positive association between the ratio of assistance to GDP and economic development in a sample of Sub-Saharan African nations from 1968 to 1982. The sample consisted of African countries located south of the Sahara. Between 1968 and 1982, researchers found evidence of the existence of this association. The optimal

degree of economic aid for recipient countries would be between 40 and 45 percent of their GDP.

Advantages of Foreign Aid

During the 1950s and 1960s, early economic development theories placed a strong emphasis on the idea that capital accumulation was the fundamental challenge facing many developing countries. According to these schools of thought, development assistance was essential for these countries since the accumulation of capital was so important to the advancement of the economy. This line of reasoning is predicated on the fact that these countries' private and governmental savings are insufficient to finance significant expenditures such as economic infrastructure. In addition, developing countries did not have the requisite amount of foreign currency to finance the acquisition of machinery and other types of capital goods.

As a direct result of this, foreign aid was essential in reducing the gap between savings and investments as well as the trade imbalance by increasing investments and, consequently, growth. By narrowing the gap between savings and investments, this was possible.

On the other hand, since the 1980s, giving aid has had more than one goal. Among the expected benefits are economic growth, the end of poverty, investments, and more money spent by the government on services in countries that receive aid. In addition, foreign assistance in the form of technical support imparts technical knowledge and abilities that have a positive influence on the process of development. It is anticipated that technical knowledge and abilities will play a role in the process of development by enhancing the caliber of the labor force (human capital) and compensating for gaps in skill sets. Aid in the form of budget assistance helps the government pay for both development and regular costs, even though the costs of development are what the donor wants to help pay for. As a consequence of this, making use of foreign assistance to invest in educational opportunities, health care, and physical infrastructure is beneficial to the expansion and growth of the economy.

Import assistance, sometimes known as "program aid," provides private and state-owned businesses with support in boosting their production capacity. This, in turn, results in higher output and an increased supply of commodities.

In addition, foreign assistance is essential for the provision of help in the event of a natural or man-made disaster, particularly in countries that are wracked by conflict and locations that are subject to natural disasters such as cyclones. Humanitarian aid has, in the majority of cases, been important in preventing further loss of life, alleviating suffering caused by hunger, and meeting the medical and pharmaceutical needs of those most at risk during natural disasters.

The freeing up of restricted foreign currency resources is one of the contributions that may be made by debt relief. The freeing up of additional resources made possible by the cancellation of debt contributes to a rise in both imports and investments.

Disadvantage of Foreign Aid

Because receivers of project support are expected to pay the continuing expenditures of the initiatives, spending habits are influenced by the help. In addition, the growth of a variety of projects throws an additional load on the capacities of developing countries, which are already rather restricted. In addition, the practice of "aid tying," which is linked to "project assistance," results in the exploitation of nations that receive foreign assistance (FA) since these countries are forced to make purchases from the country that provides the support (Riddell, 2008).

There is a possibility that FA will raise the real exchange rate of the nation that is receiving the funds, which may cause an increase in the nation's own inflation rate. This phenomenon, which is also known as the Dutch disease effect, is caused by an influx of foreign currency, which may come from earnings from exports, private capital inflows, or assistance from other nations. This puts upward pressure on the real exchange rate of the nation that is receiving the foreign investment. If a country gets foreign aid, its currency rate could go up, which would hurt its ability to compete in the export market. In the vast majority of LDCs, high levels of debt have been a significant drag on economic development. In spite of the Highly Indebted Poor Countries (HIPC) initiative, a significant amount of debt continues to be a problem for a great number of nations.

This might be the result of high interest rates on loans, which require these countries to spend a large amount of their budgets on the process of repaying the debt.

Because foreign assistance may be converted into other forms in recipient countries, its impact on economic expansion and the reduction of poverty is limited (Pack and Pack, 1993). The receiving government is able to employ local taxes and other sources of revenue in order to purchase military equipment, maintain tyrannical rule for longer periods of time, and spend lavishly (Degnbol-Martinussen and Engberg-Pedersen, 2003).

Tourism and Economic Growth Nexus

Several studies have been conducted to investigate the effects that tourism has on the expansion of the economy. The research that was conducted by Ahmad Jafari Samimi (2011) on the topic of tourism and economic growth in developing nations covered the years 1995–2009. Using the P-VAR Approach, the findings showed that there is bilateral causality and a positive relationship between tourism development and economic growth in the long run. This relationship was found to be significant. In order to provide evidence for the claim, Yusuf Akan's research Yusuf Akan (2009) investigated the impact of tourism and economic growth using Turkey as a case study from 1985 to 2007. The findings indicated, through the use of the Phillips-Perron test, the cointegration approach, the Granger causality test, and the Vector Auto-Regression (VAR) model, that tourism in Turkey has a positive long-term effect on the country's overall economic growth. The research that was done by Obadiah N. Kibara (2012) was an empirical investigation into the relationship between tourism and economic growth in Kenya. The results of applying the autoregressive distributive lag (ARDL) methodology revealed a clear unidirectional causal flow between the expansion of tourism and the growth of the economy. In a similar manner, Kreishan (2010) conducted research on the contribution of tourism to economic growth: a case study of Jordan covering the years 1970–2009. In the long run, the results of using the augmented Dickey-Fuller (ADF), the Granger causality test, and the Johansen-Juselius test showed that there is a positive relationship between economic growth and the development of tourism. In addition, the Granger causality test demonstrated that the positive effects of tourism on the economy

have a direct and causal relationship. Authors del P. Pablo-Romero and Molina (2013) conducted research on the topic of tourism and economic growth in Kenya: a review of the empirical literature. The results showed that there is a causal link between tourism and economic growth. This was shown using time series data, cross-sectional data, and panel data.

Research conducted by Gokovali (2010) utilizing the Ordinary Least Squares (OLS) method looked at the contribution of tourism to the expansion of the Turkish economy between the years 1985 and 2005. According to what was found, tourism makes a positive and important contribution to the economy of Turkey. In contrast to the theory that tourism drives economic growth, LEE (2008) discovered the opposite in his study Tourism and Economic Growth: The Case of Singapore. Using the Granger causality test, the findings revealed that there is a unidirectional Granger causality from economic growth to tourism, which supported the hypothesis that economic growth drives tourism expansion rather than tourism leading growth. In contrast, Balaguer and Cantavella-Jordá (2002) investigated tourism as a long-run economic growth factor: the case of Spain, and their findings contradicted this hypothesis via cointegration and causality tests by confirming that tourism led growth. Nyasha et al. (2020) conducted research using a model called the generalized method of moments (GMM) to investigate the effect that the expansion of tourism had on the rate of economic growth in Sub-Saharan Africa from the years 2002 to 2018. The research showed that tourism expenditures have a negative impact on economic growth, while tourism receipts have a positive impact on economic growth. According to Jamieson (1997) the economic effect of tourism can be measured as the difference in economic well-being between income levels before tourism activities and income levels after tourism activities. This can be done by comparing income levels before tourism activities and income levels after tourism activities. There is a chance that the World Tourism Organization will be able to make a big difference in setting up a new economic order for the whole world. This will not only help close the growing economic gap between economically developed and economically developing countries, but it will also make sure that economic and social development and progress continue to speed up, especially in economically developing countries.

a) Financial Benefits

The tourism business, as well as the support and resource management sectors, both benefit from an increase in tourist employment. Profitability of domestic industries is improved by tourism. Examples include the hospitality industry (including hotels and other types of lodging companies), the art galleries industry, restaurant and food service, and transportation. The local economy benefits from the creation of new foreign currency as well as the injection of capital and new money.

b) Social Advantages

It encourages the construction of necessary infrastructure, such as hotels and roads leading to diverse tourist destinations. It is possible for a community's quality of life to increase if they diversify their economy via tourism. Both locals and visitors from other countries are welcome to enjoy the recreation and tourism amenities. There is a possibility that the tourism industry may enlarge and enhance existing public areas. The local community gains more respect as a result of tourism and people from a wider range of backgrounds are able to better understand and communicate with one another.

The Tourism Industry's Contribution to the Global Economy.

World Travel and Tourism Council WTTC (2022) show that travel and tourism industry was responsible for the creation of 333 million jobs all over the world in 2019. This figure represents one-tenth of all jobs in the world. In spite of the efforts of government retention programs like furloughs and others that encouraged employment, 62 million jobs were lost in 2020, representing an 18.6% decrease. The percentage that corresponds to this number is as follows: It was accompanied by a rise in the number of jobs available in the travel and tourism industry, which rose by 18.2 million (6.7%), from 271.3 million in 2020 to 289.5 million in 2021, as the sector's contribution to the global economy increased by 21.7% in 2021, as the sector's contribution to the global economy rose by 21.7% in 2021. As a direct consequence of this, by the year 2021, the industry will be responsible for providing one out of every eleven jobs in the economy. The rate of change in the contribution of travel and tourism to employment is lower than the rate of change in GDP due to the fact that jobs are less elastic and, as a result, less

volatile. This is because of the length of time it takes to terminate the employment of current workers and train new workers. The contribution of travel and tourism to the global economy is projected to grow at an average annual rate of 5.8% between 2022 and 2032, which is more than double the average annual growth rate of the world economy, which is 2.7%. This growth in the contribution of travel and tourism to the global economy is expected to occur between 2022 and 2032. In the same time frame, the sector is expected to create 126 million new jobs.

CHAPTER III

Data and Methodology

Introduction

In the line to evaluate empirically how domestic savings, foreign aid and tourism affect the Rwandan economic growth, this chapter will cover different procedures and actions used in order to get important data; the nature and source of data of the study. Moreover, different statistical approaches utilized to analyze data are shown in this chapter.

Data Source and Information

The primary objective of this study is to investigate contribution of domestic savings, international aid, and tourism to the expansion of the Rwandan economy as well as determine the relative importance of these three factors. The study places a significant emphasis on the collection of data as well as the sources of that data. This research made use of secondary data, which are time series data of gross domestic savings in US dollars, net official development assistance and official aid in US dollars, international tourism receipts in US dollars, and GDP per capita in US dollars, all of which were collected from the database of World Bank development indicators for the time period of 1995-2020.

Variables Assessment

All variables used in this study are economic variables which have an effect on the economy. Analyzing the effect of each variable on the economic growth is crucial for policy makers.

Domestic Savings (current US$)

Domestic savings incorporate of savings of household, private and public sectors. When you subtract the final consumption expenditure from the gross domestic product, you get the gross domestic savings rate, which is given as a percentage of the GDP. These savings are source of revenues for investments which in turn stimulate growth of economy.

Foreign Aid (current US$)

The purpose of international assistance, which can take the form of grants and the provision of technical assistance, is to advance economic development of developing countries and improve the standard of living of their populations. It may come in the form of bilateral aid (aid given directly from one party to another) or it may come through multilateral development agencies (international organizations) such as the World Bank or the International Monetary Fund. The addition of local sources of financing, such as savings, that are supplemented by foreign aid plays a significant role in the acceleration of economic growth. This results in an increase in investment and capital stock.

Tourism (current US$)

This study is mainly focused on international tourism rather than domestic tourism, the expenditures made by inbound tourists account for the international tourism receipts. These expenditures can be made in a variety of ways, including payments for products and services offered in the destination country and payments to national carriers for international passenger transit. There is little doubt that each of these different forms of profits created by tourism have positive impact on economic growth.

Gross Domestic Product per Capita (current US$)

In economics, GDP per capita utilized to measure the average of living standards of population and analyze nation's prosperity based on its economic growth. However, it has shortcomings because it does not give indication of how GDP is distributed among population. The GDP gives decision-makers the information they need to figure out if the economy is growing or shrinking, if it should be helped or hurt, and if problems like a recession or high inflation are coming up.

Tabular Summary of the Selected Variables under Investigation

Variables	Symbol	Measurement Unit	Sources
Economic growth	GDP	Gross domestic product per capita (current US$)	World bank
Domestic savings	GDS	Domestic savings (current US$)	World bank
Foreign aid	AID	Foreign aid (current US$)	World bank
Tourism	ITR	Tourism (current US$)	World bank

Stationarity

In time series analysis the notion of stationarity means that analytical properties of process producing time series over time do not change. This concept is crucial because statistics of time series stationary (variance, mean…) keep constant, and lead to reliable conclusions as it is free from trends and seasons and making predictions using analytical properties of time series remain constant in the future as in the past. Analytical properties of stationary time series do not depend on the time where it discerned. With a non-stationary analytical properties keep changing over time, a forecast based on it would mislead and conclusions drawn are not reliable.

Model Specification

For cointegration analysis between domestic savings, foreign aid, tourism and the GDP per capita (economic growth), this study used Auto Regressive Distributed Lag (ARDL), developed by (Pesaran et al., 2001). The ARDL approach helps to test the existence of the long run relationship among variables. When compared with traditional cointegration tests, this one offers many advantages. First, in the order of intergration it can be applied irrespectively, while same order of intergration for all variables required by other cointegration techniques. Second, for small sample size of data, this approach performs better and gives consistent results which is worthy for this research. In this study the ARDL equation can be represented as follows:

$$\Delta EG_t = \beta_0 + \sum_{i=1}^{p} \beta_{1i}\, EG_{1-t} + \sum_{i=1}^{q} \beta_{2i}\, lnGDS_{1-t} + \sum_{i=1}^{q} \beta_{3i}\, lnAID_{1-t} + \sum_{i=1}^{q} \beta_{4i}\, lnITR_{1-t} + \text{et}\ldots\ldots \textbf{(1)}$$

$$\Delta EG_t = \beta_0 + \sum_{i=1}^{p} \beta_{1i}\, \Delta EG_{1-t} \sum_{i=1}^{q} + \beta_{2i} \Delta\, lnGDS_{t-i} + \sum_{i=1}^{q} \beta_{3i}\, \Delta lnAID_{t-i} + \sum_{i=1}^{q} \beta_{4i}\, \Delta lnITR_{t-i} + \beta_5\ \text{ECT} + \text{et}\ldots\ldots \textbf{(2)}$$

EG, GDS, AID, and ***ITR*** denote economic growth, gross domestic savings, foreign aid and international tourism revenues, respectively.

Descriptive Statistics

These are brief coefficients help to describe and understand characteristics of specific data set, tend to sum up a sample and data measures. Mean, median and mode are descriptive statistics which measure central tendency while standard deviation, variance, minimum, maximum kurtosis and skewness measure variability. As this study is a quantitative investigation, the use of descriptive statistics helps to describe the features of data set.

Unit Root Test

Using unit root test in this investigation that used time series data is crucial as it is the one which will help to test if time series variables are stationary. Importance of stationarity of variables is that the conclusions drawn are reliable. Therefore, before carrying out a cointegration test in series of time, having assurance that variables are stationary is important. In order to achieve goals of this research study, most reliable tests used among them the Augmented Dicky-Fuller test which is based on statistical regression. The Phillips–Perron test is a kind of unit root test that is used in statistics. This test was named after Peter C. B. Phillips and Pierre Perron. In other words, it is used to test the null hypothesis in time series analysis, which states that a time series is integrated out of order.

The Augmented Dickey-Fuller (ADF)

Dickey and Fuller (1979) developed and built a computer program to test their hypothesis. The program may identify whether a variable is subject to an a priori random walk or whether it has a unit root. Alternatively, the program can check to see if the variable has a unit root as well as an a priori random walk. This information can be used to identify whether or not a variable is exposed to an a priori random walk, which is the first step in the process of determining whether or not a factor is subjected to an a priori random walk. Hamilton provides four unique situations in which the extended Dickey-Fuller test might be performed in order to demonstrate its applicability and value. First, the null hypothesis contends that no matter what the conditions are, every point in the distribution has a single unit root. If the null hypothesis includes a drift element, the second technique, which is more common, will produce the test statistic with a constant term and a temporal trend. These are the two most noticeable differences between the two techniques.

$$\Delta yt=\alpha + \beta t+ \gamma yt-1+ \delta 1\Delta yt-1+\cdots+\delta p-1\Delta yt-p+1 + \varepsilon t$$

It's possible that higher-order autoregressive processes can be supported by the ADF formulation, which includes delays of order p. The ADF formulation makes it possible to consider autoregressive processes of higher order. As a consequence of this, the length of the lag p must first be computed in order for the test to be carried out on the data in an efficient manner.

ECM (Error Correctional Method Model)

The short-run dynamic relationships are estimated using a Vector Error Correction Model (VECM). This is done because the data utilized are co-integrated and only stationary at first difference. If, after performing unit root tests, the variables are determined to be nonstationary at level, the VECM should be used for modification. Co-integration relationships are incorporated into the VECM, and as a result, the long-term behavior of endogenous variables is constrained to converge to their co-integrating relationship. However, the VECM does permit short-term dynamic adjustment.

ARDL Bound Test

Pesaran et al. (2001) developed the ARDL technique to examine presence of a long-term connection between variables. This test has several advantages over standard cointegration testing. First, it may be applied in any order of intergration, whereas other cointegration approaches need the same order of intergration for all variables. Second, for small sample sizes of data, this technique performs better and produces more consistent findings, which is appropriate for our study.

Granger Causality Test

Granger causality testing utilized in this study to help with the analysis of correlation patterns based on real data, and it was discovered to be effective. To determine the link between two variables over time, the Granger causality approach can be utilized. These patterns of relationships can be discovered by analyzing empirical data sets to check for statistical correlations. In the concept of cause and effect, the concept of causality is tightly tied to the concept of cause and effect.

Model's Stability Test and Diagnostics

Validity of tests and serial autocorrelation are subjected by VECM. The term "serial autocorrelation" refers to a situation that arises whenever there is a relationship between the error terms; this relationship, which may be positive or negative, is referred to as "the serial autocorrelation." When there is a positive relationship between the error terms, this is referred to as positive serial autocorrelation, and when there is a negative relationship between the error terms, this is referred to as negative serial autocorrelation. There is a correlation between autocorrelation, large standard errors, and t-statistics. The results of the investigation are susceptible to being influenced by serial autocorrelation, making it absolutely necessary to identify the presence of heteroscedasticity. In order to test the serial autocorrelation, a Busch-Godfrey serial autocorrelation will be utilized, and the validity of VECM will be investigated by determining the importance of the error correction term and F-statistic.

Conclusion

This chapter discussed different models with clarity details on how this research is conducted. Research aim is to investigate how domestic savings, foreign assistance and tourism affect the economic development in Rwanda for the time period 1995-2020. To assess the relationships among variables of the study, different statistical models utilized for validation of data through the application (E-Views 12). First descriptive statistics utilized to sum up all the variables used in this research. Second, test for unit root using Augmented Dickey-Fuller test was conducted to find level of relationship among variables of the study.

CHAPTER IV

Introduction

The current chapter is divided into sections by which the first provides an overview of the research findings, followed by discussions on how economic growth has been affected by domestic savings, foreign aid, and tourism as well as how the effect has been interpreted. The descriptive statistics and data analysis procedures, which were covered in the first phase, are examined in depth. Following that, we will examine and describe the stationary test of a data set, and then we will examine and discuss cointegration. This section will examine and explain the stationary test of a data set. In the last section, regression analysis, diagnostic tests, and data or result stability tests will be thoroughly discussed. This last part of studying will bring the course to a close. Even with this setback, the presentation was made in line with the research goals, and the E-Views software was used to do the evaluations successfully.

Descriptive Statistic Result

The process of transforming raw data into conclusions that can be used is known as statistics. This branch of science helps with finding data, collecting it, organizing it, analyzing it, and showing it to people. Qualitative or quantitative approaches might be used when analyzing the data. Using statistics to make decisions that are based on facts is helpful. Statistics that merely

describe and summarize the data are known as "descriptive statistics." On the other hand, inferential statistics start with data and then utilize those facts to draw conclusions about the population as a whole.

Table 4.1 descriptive statistic

	GDP	AID	GDS	ITR
Mean	498.3637	7.86E+ 08	3.01E+08	2.07E+08
Median	491.1247	8.29E+08	2.85E+08	1.95E+08
Maximum	820.1772	1.62E+09	1.04E+09	6.36E+09
Minimum	221.6289	2.30E+08	-97792460	4000000

Std. Dev.	229.5207	3.28E+08	3.65E+08	1.95E+08
Skewness	0.082590	0.76036	0.510734	0.592858
Kurtosis	1.268383	1.982543	1.996305	2.161056
Jarque-Bera	3.277931	1.255773	2.221702	2.285564
Probability	0.194181	0.533719	0.32979	0.318931
Sum	12957.46	2.04E+10	7.83E+09	5.38E+09
Sum Sq. Dev.	1316993	3.65E+18	3.33E+18	9.48E+18
Observation	26	26	26	26

Source: This study

Descriptive statistics are provided in a summary that summarizes data sample and its measurements. These statistics define, demonstrate, and summarize essential properties of a dataset that were discovered in specific research. It aids analysts in gaining a better comprehension of the data. Rwanda's mean economic growth is 498.3637, the greatest mean of all variables, while the lowest mean is international tourist revenues, which is 2.07E+08. The greatest value of economic growth in Rwanda over the time of this study is 820.1772, which is also the highest in the category, while the maximum value of gross domestic saving is 1.04E+09. When a distribution is symmetric, the skewness value is zero. To put it another way, if a distribution is symmetrical (normal), then the median value equals the mean value plus the mode value (the skewness value is 0). It is said that the right tail is right-skewed when the skewness value is greater than zero. This means that the right tail is longer than the left tail. It is said that the tail is left-skewed when the skewness value is less than zero. This means that the left tail is longer than the right tail. A statistic known as kurtosis can be used to determine whether or not a distribution is longer or shorter compared to a normal distribution. If a distribution is similar to the normal distribution, then the value of the Kurtosis statistic will be zero. When compared to the normal distribution, the peak is more extreme when the kurtosis value is positive rather than zero. A kurtosis value that is less than zero, when compared to a normal distribution, denotes a flatter distribution.

Unit Root Test Result

An augmented Dickey–Fuller test, more commonly referred to as an ADF, is a type of statistical analysis that can be used to test the null hypothesis that a time series sample possesses a unit root. In the vast majority of instances, the alternative hypothesis is either stationary or trend-stationary; however, its form could potentially change depending on the version of the test that is being utilized. It is an improved version of the Dickey–Fuller test that can be applied to a wider range of time series models and a greater number of them overall. When it is applied to the test, the augmented Dickey–Fuller (ADF) statistic produces a value that is in the negative. The more negative it is, the greater the likelihood that the hypothesis that there is a unit root can be rejected as being incorrect, at least to a certain degree of certainty.

Table 4.2 ADF unit root test

ADF UNIT ROOT TEST				PP UNIT ROOT TEST		
Variables	Level	1st difference	Order of Integration	Level	1st difference	Order of integration
GDP	0.7864	0.0281	I(1)	0.8856	0.0281	I(1)
AID	0.0428	-0-	I(0)	0.9527	0.0000	I(1)
GDS	0.0517	-0-	I(0)	0.9067	0.0000	I(1)
ITR	0.3215	0.0057	I(1)	0.4296	0.0057	I(1)

Source: This study

The results of the test to determine the unit root are shown in Table 4.2. The test results show that the variables are stable at the level and the first difference. Gross domestic product and international tourist receipts are the two variables that are stationary at the first difference, while foreign aid and gross domestic saving are stationary at level. The p values for these two variables are 0.0428 and 0.0517, respectively. The other two variables, gross domestic product and international tourist receipts, have p values of 0.0281 and 0.0057, respectively. The result for the PP unit root test reveal that all of the variables are stationary at first difference. As a consequence of this finding, the ARDL model was used for the analysis in this research.

ARDL Bound Test

To do an augmented autoregressive distributed lag (ARDL) bounds test for cointegration, you need to make an extra F-test on the lagged levels of the independent variable(s) that are part of ARDL equation. This testing approach was first implemented using the bootstrapping process when it was first developed. This article presents both the small sample and the asymptotic critical values with the purpose of making the test simpler to conduct and making it accessible to a wider variety of researchers. The assumption that the dependent variable is I(1) is not required, which is one of the benefits of this expanded ARDL limits test. The three tests also offer a clear conclusion on the state of the cointegration relationship, which is another advantage. The enhanced ARDL limits test is demonstrated using empirical research on foreign aid and economic development in Rwanda. The study focuses on Rwanda.

Table 4.3 ARDL Bound Test Result

Model	Lag.	F-Statistic	Decision
GDP, AID, GDS, ITR	(2,1,0,1)	7.786298***	Co-Integration Exist
Bound Critical Value			
		I (0)	I (1)
Sign.	10%	2.37	3.2
	5%	2.79	3.67
	2.5%	3.15	4.08
	1%	3.65	4.66

Source: This study

To assess whether or not the data set under examination exhibits co-integration as part of the scope of this inquiry, a bound test is constructed on the basis of the ARDL model. When F-statistic is lower than the smallest value permitted by the distribution, it is not feasible to reject the null hypothesis. The F-statistic makes it abundantly evident that there is a connection between the variables that are independent and the variable that is dependent and that this correlation is true over a period of time (7.786298). This is because the null hypothesis cannot be rejected (the critical values for I). In the case that the statistic has a value that is larger than I, the null hypothesis of there being no co-

integration will not be accepted, and the hypothesis will thus be rejected (1). If the test statistic falls anywhere within the range of possibilities that the statistical technique presents, then it is said to be inconclusive; but, if it falls outside of that range, then it is considered conclusive.

ARDL LONG AND SHORT RUN TEST

Table 4.4 ARDL short run test

	ARDL Short run			
Variables	***Coef.***	***Std.error***	***t-statistic***	***P value***
GDP(-1)	*0.25*	*0.09*	*2.63*	*0.0179*
AID	*6.57*	*2.40*	*2.73*	*0.0147*
D(AID(-1)	*1.46*	*3.81*	*3.83*	*0.0057*
GDS	*2.73*	*2.66*	*1.02*	*0.4116*
ITR	*1.67*	*3.87*	*4.31*	*0.0005*
ECM	*-0.426*	*0.061*	*-6.975*	*0.0000*

Source: This study

Table 4.5 ARDL long run test

	ARDL long run			
Variables	***Coef.***	***Std.error***	***t-statistic***	***P value***
AID	*2.12*	*4.45*	*4.72*	*0.0002*
GDS	*4.53*	*4.71*	*0.95*	*0.3514*
ITR	*1.67*	*6.03*	*2.65*	*0.0174*
C	*43.92*	*19.67*	*2.23*	*0.0402*

Source: This study

The findings in Table 4.4 & 4.5 demonstrate a long- and short-term connection between the variables.

This result demonstrates that foreign assistance has a large and favorable influence on Rwanda's economic development in both the long and short term. This result is compatible with the findings of Ramesh Durbarry (1998) in years following the conclusion of the war, the quantity of money supplied by other nations has substantially risen. There have been many studies conducted in an effort to evaluate the efficacy of assistance on both the micro and macro levels. Despite the fact that macro-evaluations have produced conflicting findings, micro-evaluations have determined that aid is successful in the majority of circumstances. This study investigates the relationship between developing countries' receipt of foreign aid and their subsequent economic growth in a significant number of those nations. We estimate this by making use of methodologies based on both cross-sectional data and panel data. Our model is an improved Fischer-Easterly. The results give strong support for the premise that overseas aid does, in fact, have some positive impact on growth; however, this is dependent on macroeconomic policy frameworks that are stable. Furthermore, we uncover that these effects vary depending on the amount of income, the quantity of assistance provided, and the geographical location of the research. Furthermore, the results suggest that foreign visitor revenues have a favorable and considerable influence on Rwanda's economic development, both short- and long-term. This discovery is consistent with the results of (Balcilar et al., 2014). They looked at the relationship between visitor income and GDP, which has recently been a hot issue in tourism economics studies. They focused on the link between the two factors. The conclusions of current research on the causal relationship seem sensitive in terms of the nations studied, the sample period, and the approach utilized. We explore Granger causality and parameter stability using a vector error correction model using rolling windows and time-varying coefficient estimate methodologies since the causal relationship is sensitive (VECM). When this study is applied to South Africa between 1960 and 2011, the following findings may be drawn: Although the results of the full-sample VECM show that there is no Granger causality between tourism receipts and GDP, the results of the time-varying coefficients model based on state-space representation show that tourism receipts have positive

predictive content for GDP throughout the entire period, with the exception of the period between 1985 and 1990. This is because the time-varying coefficients model is based on the results of the full-sample VECM. This discovery is based on the utilization of the state-space representation by the time-varying coefficients model. Full-sample time-varying causality studies show that there is a significant bidirectional causal link between tourist receipts and GDP. Lastly, the result showed that gross domestic savings have a positive effect on Rwanda's economic growth. This result is in line with Sinha (1996) investigated on whether GDP and saving have a long-run connection. This enables us to make a distinction between the gross domestic savings of all households and the gross domestic savings of private households. Our argument is that the total domestic private savings is more important in determining GDP than the gross domestic product itself. The findings indicate that gross domestic private saving and gross domestic saving as a whole are cointegrated with GDP. However, studies that look at the relationship between the increase in private domestic saving and the increase in gross domestic saving and the growth of GDP find no link.

Residual Diagnostic Tests Result

Table 4.5 residual diagnostic test

Name of tests	Test	T statistic	P value	Result
Breusch Godfrey LM test	*Serial correlation*	*0.299*	*0.6109*	*No serial correlation*
Jarque-Bera test	*Normality*	*0.434*	*0.8045*	*Normal distribuction of data*
Greusch-pagan test	*Heteroskedasticity*	*0.896*	*0.4539*	*No heteroskedasticity*

Source: This study

In this thesis, the residual test took the following form: The Breusch-Godfrey technique of serial correlation The LM test analyzes the probability of autocorrelation in regression model errors. During a regression analysis, a test statistic is determined by calculating it using the residuals from the model under consideration. There is no evidence of a sequential relationship up to rank p, according to the null hypothesis. Autoregressive conditional heteroskedasticity (ARDL) models are used to correctly depict time-varying

financial data series, such as economic growth. When ARDL models believe that the variance of the current error term is connected to the magnitude of previous error terms, volatility clustering arises. Normality tests are used to examine if a set of data is well described by a normal distribution or whether a random variable associated with another variable is similarly normally distributed. Normality tests may also be used to assess whether or not a set of data fits the definition of a normal distribution. The results of these residual tests, as given in Table 4.5, reveal that there is no serial correlation in data set; hence, the null hypothesis is accepted, as shown by the table's p value of 0.6109. The heteroskedasticity test likewise reveals heteroskedasticity in the series, and we accept the null hypothesis in this direction with a p value of 0.45390 since it was in this specific direction. In conclusion, we find that a normal distribution with a p value of 0.8045 best matches our data.

Granger Causality Test

The Granger causality test is a statistical hypothesis test that was initially developed in 1969. Its purpose is to determine whether or not the analysis of one-time series can assist in the analysis of another time series. It is common for regressions to represent "mere" correlations; however, Clive Granger proposed that causality in economics could be evaluated by calculating the capacity to forecast the future values of one-time series using the previous values of another time series. This method could be applied to evaluate whether or not a relationship exists. The concept of "real causality" is highly philosophical, and the post hoc ergo propter hoc fallacy, which is the error of presuming that one event preceding another can be used as a demonstration of causation, is one of the reasons why econometricians say that the Granger test only discovers "predictive causality," which means that it can only be used to predict the outcome of an event (Andersen et al., 2007). Since Granger-causality is best stated as "precedence, “or "temporally linked," as Granger subsequently asserted in 1977, using the word "causality" alone is a misnomer. The Granger causality test does not investigate whether X is the cause of Y; rather, it investigates whether X is able to predict Y.

Table 4.6 granger causality test

Null Hypothesis	*Obs.*	*F-Statistic*	*Prob.*
AID does not Granger Cause GDP. *GDP does not Granger Cause AID*	*24*	*9.51117* *4.24702*	*0.0014*** *0.0299***
GDS does not Granger Causes GDP *GDP does not Granger Cause GDS*	*24*	*0.09107* *2.06859*	*0.9133* *0.1539*
ITR does not Granger Cause GDP *GDP does not Granger Cause ITR*	*24*	*0.08037* *3.11387*	*0.9231* *0.0677*
GDS does not Granger Cause AID *AID does not Granger Cause GDS*	*24*	*1.58664* *1.88760*	*0.2306* *0.1788*
ITR does not Granger Cause AID *AID does not Granger Cause ITR*	*24*	*3.19266* *3.75693*	*0.0638* *0.042***
ITR does not Granger Cause GDS *GDS does not Granger Cause ITR*	*45*	*1.03661* *3.09160*	*0.3144* *0.0860*

Source: This study

Table 4.6 demonstrates that there is bidirectional causation between the variables, with the conclusion indicating that foreign assistance and economic development are causally related at a 5% significant level. The findings also demonstrate a one-way relationship between international tourist revenues and foreign assistance. Foreign assistance causes international tourist revenues at the 5% level of significance, but international tourist receipts do not cause foreign aid in the long term.

Stability Tests

Nonlinear models frequently struggle with something known as parameter instability. As a direct consequence of this, in order to determine whether or not the findings can be trusted, it is necessary to investigate the consistency of the estimated

model that was utilized. In order to accomplish this, we make use of a test that was developed by Brown and his colleagues and is referred to as the CUSUM of Squares Test. During the process of estimating, the stability of the model has to be checked and double-checked at all times; how much weight you put on the post-estimation test is up to you (Hansen, 2000). CUSUM tests are used in multiple linear regression analysis to investigate the consistency of the coefficients. Sums of recursive residuals, as well as sums of squares of recursive residuals, are used for inference. Recursive residuals, also known as standardized one-step-ahead prediction errors, are constructed repeatedly from nested sub-samples of the data. Values that go outside of the predicted range of the sequence are evidence that the structure of the model has evolved over time, which contradicts the null hypothesis that the parameters remain unchanged.

Figure 4.1 CUSUM test

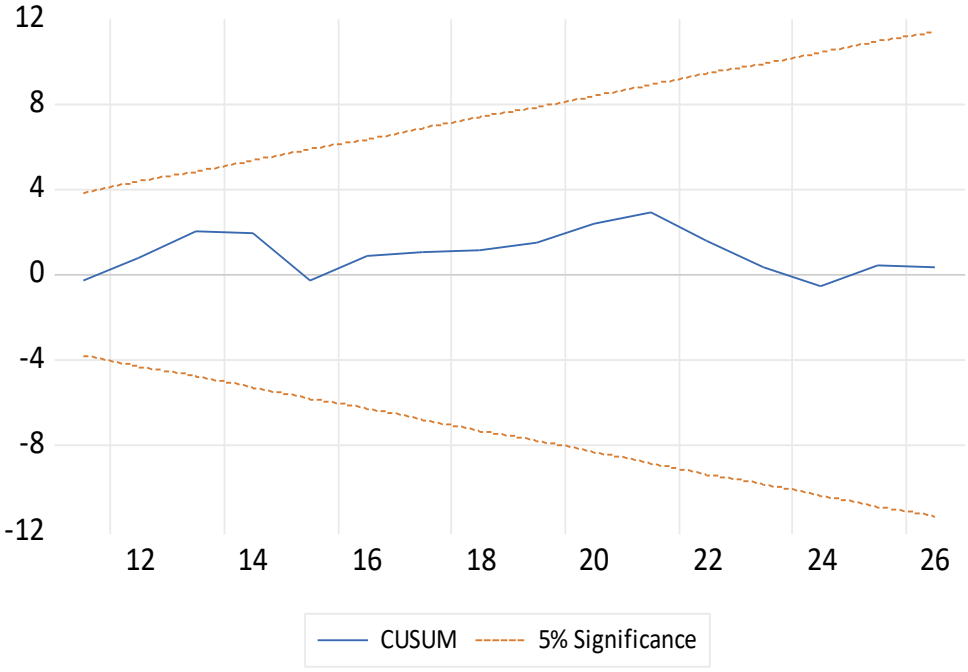
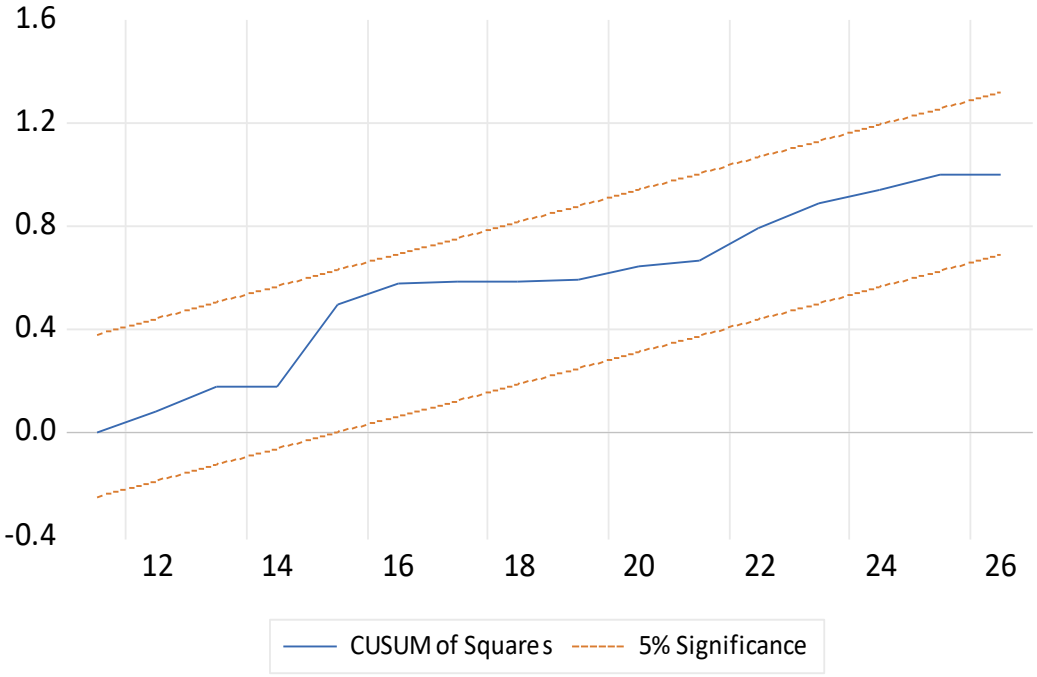


Figure 4.2 CUSUM of square



Based on the results of the stability tests, it looks like the data set is consistent. On the other hand, despite the fact that there is a null hypothesis that indicates that the parameters are consistent, the alternative hypothesis does not contain a hypothesis of this kind. The null hypothesis states that there is no change in any of the error correction coefficients used in the error correction model within an interval of confidence, including a margin of error of 5% (Bahmani-Oskooee and Ng, 2002). If any of the lines are crossed, it is possible, at a 5% level of significance, to conclude that the null hypothesis of consistent coefficients cannot be supported. The fact that the CUSUM and CUSUM of Squares graphs both fall inside the 5% significance limit shows that the model utilized in this study can be trusted to produce reliable findings. The findings of the experiments indicate that the red line defines the limits where the blue line may be found, hence the blue line is confined to those bounds. As the image demonstrates, we choose to believe that residual variances are stable rather than unstable in order to get an additional advantage; therefore, we accept the hypothesis that the null hypothesis is true and reject the hypothesis that the alternative hypothesis is true. The residual variance, on the other hand, appears to be steady rather than unstable based on the data.

CHAPTER V

Summary

This study's objective was to investigate the contributions of national savings, international assistance, and tourism on the expansion of the Rwandan economy (1995–2020). The ARDL model was utilized in order to assess the link between domestic savings, foreign aid, and tourism and overall economic growth. This research made use of the time-series methodology in order to accomplish its goals, which included analyzing the relationship between tourism, domestic savings, foreign aid, and gross domestic product. Despite of the fact that numerous studies have been conducted on the topic of foreign aid, there are still conflicting opinions regarding the extent to which foreign aid contributes on the expansion of the economy. This study concluded that foreign assistance has a large and favorable influence on Rwanda's economic development in both long and short run, which is consistent with (Ramesh Durbarry, 1998). Furthermore, the results suggest that revenues from foreign visitors have a favorable and considerable influence on Rwanda's economic development, both in short and long-term, which is consistent with (Balcilar et al., 2014). Regarding the effect of gross domestic savings on growth, the result showed that gross domestic savings have positive effect on Rwanda’s economic growth, which is consistent with (Sinha, 1996).
Data of the study was collected by using descriptive research methods. The E-Views software was used to examine secondary data from the World Bank's database. The results of ARDL bound test show that there is connection between the variables that are independent and the variable that is dependent and that this correlation is true over a period of time (the F-statistic is 7.786298)**.**

Conclusion

This study's objective was to investigate the contributions of national savings, international assistance, and tourism on the expansion of the Rwandan economy (1995–2020). The ARDL model was utilized in order to assess the link between domestic savings, foreign aid, and tourism and overall economic growth. This research made use of the time-series methodology in order to accomplish its goals, which included analyzing the relationship between tourism, domestic savings, foreign aid, and gross

domestic product. Even though there have been a lot of studies on foreign aid, people still have different ideas about how much it helps the economy development. The ARDL long-run test demonstrates a significant long-term connection between the variables. A considerable short-run relationship was discovered using the short-run ARDL test. It was necessary to utilize the bound test to evaluate whether or not the variables under consideration were co-integrated. The factors were discovered to be interconnected in the study. To put it another way, these variables tend to move in lockstep throughout time. The relationship between these factors is also studied. The findings revealed a causal association between foreign assistance and economic development at a 5% significant level; a one-way relationship between international tourist revenues and foreign assistance; foreign assistance causes international tourist revenues at the 5% level of significance, but international tourist receipts do not cause foreign aid in the long term. CUSUM-TEST was confirmed to be stable, and the stability test results were likewise consistent.

Recommendations

This research investigated the effects of domestic savings, foreign aid, and tourism on Rwanda's economic growth. Based on findings, it is advised that by better mobilizing domestic savings (household savings, government savings, and business savings), this can strengthen the influence of domestic savings on Rwanda's economic growth.

_ There is a need to raise per capita national income at the household level by lowering the phenomena of poverty and unemployment. Promoting savings awareness campaigns in financial institutions, particularly SACCOs, encouraging insurance funds awareness, encouraging further transfer of savings of citizens working abroad.

_ At the business sector level, greater attention should be paid to SMEs, and tax incentives should be used to stimulate long-term return initiatives that produce future investable savings.

_ We suggest that work be done at the government sector level to boost public business sector revenues, regulate public spending, promote the international trade sector, develop public policies that will boost total factor productivity, which will, in turn, lead

to an increase in level of domestic savings in country. This will allow for a more rapid expansion of the economy.

To achieve long-term and sustainable growth, Rwandan policymakers must create stable macroeconomic environments, appealing policies, and an adequate legal framework to attract both domestic and foreign investment. Only then can the country hope to achieve its growth goals. Most importantly, as numerous studies have shown, the formation of institutions that are of high quality and free from corruption is an absolute requirement for economic expansion and advancement. Aside from that, it is strongly recommended that Rwanda should not depend on foreign aid for extended periods of time because doing so is not a viable option for Rwanda's long-term growth and industrialization. The implementation of policies that encourage investment and exports, particularly in the manufacturing sector, should be prioritized by policymakers as an alternative to the continued reliance on foreign aid. Policies that are pro-investment (both domestically and internationally) and non-partisan need to be formulated to boost nation's physical capital and overall rate of economic expansion.

Rwandan authorities are urged to improve the effectiveness of national tourism strategies. Because of its double-sided effect on the underlying economy, investing in tourism infrastructure is also advised. The tourism industry benefits first, and subsequently other areas of the economy, including transportation, benefit from the increased activity. Maintaining peace and security in the country is critical to attract more inbound tourists and investors in tourism sector.

References

Abate, C. A., & Papavassiliou, V. (2022). The relationship between aid and economic growth of developing countries: Does institutional quality and economic freedom matter? *Cogent Economics & Finance, 10*(1). doi:10.1080/23322039.2022.2062092

Abramovitz, M. (1986). Catching up, forging ahead, and falling behind. *The journal of economic history, 46*(2), 385-406.

AbuAl-Foul, B. (2010). The causal relation between savings and economic growth: Some evidence from MENA countries. *Topics in Middle Eastern and North African Economies, 12*.

Abuzeid, F. (2009). Foreign aid and the" big push" theory: lessons from sub-Saharan Africa. *Stanford Journal of international relations, 11*(1), 16-23.

Aghion, P., Comin, D., Business, H., Howitt, S., Tecu, I., Acemoglu, D., & Tsyrennikov, V. (2009). When Does Domestic Saving Matter for Economic Growth? We are grateful for the comments and suggestions of. In.

Ahmad Jafari Samimi, S. S. a. S. S. (2011). Tourism and Economic Growth in Developing Countries: P-VAR Approach. *Middle-East Journal of Scientific Research, 10*, 28-32.

Ahmed SELLAMI, A. B., Amal RAHMANE. (2020). MEASURING THE IMPACT OF DOMESTIC SAVING ON

ECONOMIC GROWTH IN ALGERIA USING ARDL

MODEL. *Les Cahiers du Cread, 36*, 77-109.

Andersen, T. G., Bollerslev, T., & Diebold, F. X. (2007). Roughing it up: Including jump components in the measurement, modeling, and forecasting of return volatility. *The Review of Economics and statistics, 89*(4), 701-720.

Anoruo, E., & Ahmad, Y. (2001). Causal Relationship between Domestic Savings and Economic Growth: Evidence from Seven African Countries. *African Development Review, 13*(2), 238-249. doi:10.1111/1467-8268.00038

Aye Mengistu, A., & Jin-Sang, L. (2015). Foreign aid on economic growth in Africa : a comparison of low and middle-income countries. *South African Journal of*

Economic and Management Sciences, 18(4), 449-462. doi:10.4102/sajems.v18i4.737

Bahmani-Oskooee, M., & Ng, R. C. W. (2002). Long-run demand for money in Hong Kong: an application of the ARDL model. *International journal of business and economics, 1*(2), 147.

Balaguer, J., & Cantavella-Jordá, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied Economics, 34*(7), 877-884. doi:10.1080/00036840110058923

Balcilar, M., van Eyden, R., Inglesi-Lotz, R., & Gupta, R. (2014). Time-varying linkages between tourism receipts and economic growth in South Africa. *Applied Economics, 46*(36), 4381-4398. doi:10.1080/00036846.2014.957445

Basnet, H. C. (2013). Foreign Aid, Domestic Savings, And

Economic Growth In South Asia. *International Business & Economics Research Journal, 12*, 1389-1394.

Boone, P. (1996a). Politics and the effectiveness of foreign aid. *European Economic Review, 40*(2), 289-329.

Boone, P. (1996b). Politics and the effectiveness of foreign aid. *European Economic Review, 40*, 289-329.

Brida, J. G., Matesanz Gómez, D., & Segarra, V. (2020). On the empirical relationship between tourism and economic growth. *Tourism Management, 81*. doi:10.1016/j.tourman.2020.104131

Burnside, C. (2004). Aid, Policies, and Growth: Revisiting the Evidence.

Burnside, C., and David Dollar. (2000). Aid, Policies, and Growth. *AMERICAN ECONOMIC REVIEW, 90*, 847-868.

Chenery, H. B. (1967). Foreign assistance and economic development. In *Capital movements and economic development* (pp. 268-292): Springer.

Chenery, H. B., & Bruno, M. (1962). Development alternatives in an open economy: the case of Israel. *The Economic Journal, 72*(285), 79-103.

Damilola Felix Arawomo, A. A. B., Olalekan S. Oshota. (2015). Complementarity of Foreign Aid and Domestic Savings as

Drivers of Economic Growth: Evidence from WAMZ1

Countries. *Journal of Economics and Business Research,, 21*, 159-171.

Degnbol-Martinussen, J., & Engberg-Pedersen, P. (2003). *Aid: understanding international development cooperation*: Zed Books.

del P. Pablo-Romero, M., & Molina, J. A. (2013). Tourism and economic growth: A review of empirical literature. *Tourism Management Perspectives, 8*, 28-41. doi:10.1016/j.tmp.2013.05.006

Delgado, A., Hürlimann, P., Marquardt, G., Rufer, N., & Schleier, R. (2016). The dependency theory: A case of brazilian development strategy. *The Evolution of Development Thinking, 39*.

Desire, S. (2016). *Evaluating the Effect of Foreign Aid on Economic Growth of Rwanda.* (Master), University of

Rwanda, Retrieved from http://dr.ur.ac.rw/bitstream/handle/123456789/112/Desire%20Sekanabo.pdf?sequence=1&isAllowed=y

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American statistical association, 74*(366a), 427-431.

Domar, E. D. (1946). Capital expansion, rate of growth, and employment. *Econometrica, Journal of the Econometric Society*, 137-147.

Durbarry, R., Gemmell, N., & Greenaway, D. (1998). *New evidence on the impact of foreign aid on economic growth*. Retrieved from

Easterly. (2006). Planners vs. Searchers in Foreign Aid *Asian Development Review*.

Easterly, W., Ross Levine, and David Roodman. . (2004). Aid, Policies, and Growth: Comment. *AMERICAN ECONOMIC REVIEW, 94*, 774-780.

Egide, I. (2018). *THE IMPACT OF NATIONAL SAVINGS ON ECONOMIC GROWTH IN*

RWANDA. (Master), University of Rwanda, Retrieved from http://dr.ur.ac.rw/handle/123456789/907

Farahmand, M. (2021). The Relationship Between Economic Growth and Foreign Aid: The Case of Afghanistan. *Journal of Economic Policy Researches / İktisat Politikası Araştırmaları Dergisi, 8*(2), 141-154. doi:10.26650/jepr885246

Feeny, S. (2005). The Impact of Foreign Aid on Economic Growth in Papua New Guinea. *Journal of Development Studies, 41*(6), 1092-1117. doi:10.1080/00220380500155403

Getachew, A. (2015). Domestic Savings And Economic Growth in South Africa. *Munich Personal RePEc Archive*.

Gokovali, U. (2010). Contribution of Tourism to Economic Growth in Turkey. *Anatolia, 21*(1), 139-153. doi:10.1080/13032917.2010.9687095

Hansen, B. E. (2000). Sample splitting and threshold estimation. *Econometrica, 68*(3), 575-603.

Harrod, R. F. (1939). An essay in dynamic theory. *The Economic Journal, 49*(193), 14-33.

Harun BAL, E. E. A., Murat BAYRAKTAR. (2016). The Contribution of Tourism to Economic Growth: A Research on the Turkey. *JOURNAL OF ACADEMIC APPROACHES, 7*.

Hooi Lean, H., & Song, Y. (2009). The domestic savings and economic growth relationship in China. *Journal of Chinese Economic and Foreign Trade Studies, 2*(1), 5-17. doi:10.1108/17544400910934315

Hudson, J., & Mosley, P. (2001). Aid policies and growth: In search of the Holy Grail. *Journal of International Development, 13*(7), 1023-1038.

Hymer, S. H. (1960). *The international operations of national firms, a study of direct foreign investment.* Massachusetts Institute of Technology,

Irandoust, M., & Ericsson, J. (2005). Foreign aid, domestic savings, and growth in LDCs: An application of likelihood-based panel cointegration. *Economic Modelling, 22*(4), 616-627. doi:10.1016/j.econmod.2004.03.004

ISAIE, B. (2020). *Foreign aid and Economic Growth:An Econometric Study of Rwanda.* (Master), UNIVERSITY OF RWANDA, Retrieved from http://dr.ur.ac.rw/handle/123456789/1388

Jagadeesh, D. (2015). The impact of savings in economic growth: An empirical study based on Botswana. *International Journal of Research in Business Studies and Management, 2*(9), 10-21.

Jamieson, W. (1997). *Sustainable urban tourism destination management: The cases of Klong Khwang and Phimai, Thailand.* PhD thesis]. University of Calgary,

Jena, N. R., & Sethi, N. (2019). Foreign aid and economic growth in sub-Saharan Africa. *African Journal of Economic and Management Studies, 11*(1), 147-168. doi:10.1108/ajems-08-2019-0305

Kolawole, B. O. (2013). Foreign assistance and economic growth in Nigeria: The two-gap model framework. *American international journal of contemporary research, 3*(10), 153-160.

Kreishan, F. M. M. (2010). Tourism and Economic Growth: The Case of Jordan. *European Journal of Social Sciences, 15*, 229-234.

Kurz, H. D., & Salvadori, N. (2003). Theories of economic growth: old and new. *The Theory of Economic Growth: A 'Classical'Perspective, Cheltenham: Edward Elgar*, 1-22.

L.Bacha, E. (1990). A three-gap model of foreign transfers and the GDP growth rate in developing countries. *Journal of Development Economics, 32*, 279-296.

LEE, C. G. (2008). TOURISM AND ECONOMIC GROWTH: THE CASE OF SINGAPORE *Regional and Sectoral Economic Studies, 8*, 90-98.

Levy, V. (1988). Aid and growth in Sub-Saharan Africa: The recent experience. *European Economic Review, 32*(9), 1777-1795.

Lewis, W. A. (1954). Economic development with unlimited supplies of labour.

Liew, C.-Y. (2012). The Impact of Foreign aid on Economic growth of East African countries. *Journal of Economics and Sustainable Development, 3*, 129-138.

McGillivray, M., Feeny, S., Hermes, N., & Lensink, R. (2006). Controversies over the impact of development aid: it works; it doesn't; it can, but that depends …. *Journal of International Development, 18*(7), 1031-1050. doi:10.1002/jid.1335

Milton, F. (1958). Foreign Economic Aid. *Yale Review, 47*(4), 501-516.

MINECOFIN. (2013). *National Savings Mobilisation Strategy*. Retrieved from https://www.minecofin.gov.rw/fileadmin/user_upload/Minecofin/Publications/REPORTS/Finance_Sector_Development/National_Savings_mobilization_strategy.pdf

MINECOFIN. (2021). *KEY STATISTICS ON RWANDA*. Retrieved from https://www.minecofin.gov.rw/fileadmin/user_upload/Minecofin/Publications/REPORTS/Chief_Economist/Macroeconomic_Policy/Key_statistics_on_Rwanda/Key_statistics_on_Rwanda_June_2021_final.pdf

Misztal, P. (2011). THE RELATIONSHIP BETWEEN SAVINGS AND ECONOMIC GROWTH IN COUNTRIES WITH DIFFERENT LEVEL OF ECONOMIC DEVELOPMENT. *7*, 17-29.

Nguyen, N. T. K., & Nguyen, H. H. (2017). Impacts of Domestic Savings on Economic Growth of Vietnam. *Asian Journal of Economic Modelling, 5*(3), 245-252. doi:10.18488/journal.8.2017.53.245.252

Nurkse, R. (1953). Problems of capital formation in underdeveloped countries, New York: Oxford Univ. *Press, New York*.

Nyasha, S., Odhiambo, N. M., & Asongu, S. A. (2020). The Impact of Tourism Development on Economic Growth in Sub-Saharan Africa. *The European Journal of Development Research, 33*(6), 1514-1535. doi:10.1057/s41287-020-00298-5

Obadiah N. Kibara, N. M. O., Josephine M. Njuguna,. (2012). Tourism And Economic Growth In Kenya: An Empirical Investigation. *International Business & Economics Research Journal, 11*, 517-528.

Odhiambo, N. M. (2008). Financial depth, savings and economic growth in Kenya: A dynamic causal linkage. *Economic Modelling, 25*(4), 704-713.

Odhiambo, N. M. (2009). Savings and economic growth in South Africa: A multivariate causality test. *Journal of Policy Modeling, 31*(5), 708-718.

Pack, H., & Pack, J. R. (1993). Foreign aid and the question of fungibility. *The Review of Economics and statistics*, 258-265.

Paul Mosley. (1987). Aid, the Public Sector and the Market in Less Developed Countries. *The Economic Journal, 1987*.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics, 16*(3), 289-326.

Philippe Aghion , D. C., Peter Howitt. (2006). When Does Domestic Saving Matter for Economic

Growth?

Ramesh Durbarry, N. G. a. D. G. (1998). New Evidence on the Impact of Foreign

Aid on Economic Growth. *The University of Nottingham, Centre for Research in Economic Development and*

International Trade (CREDIT), 8.

Rasmidatta, P. (2011). The relationship between domestic saving and economic growth and convergence hypothesis: case study of Thailand. In.

RDB. (2021a). *CHARTING THE PATH TO ECONOMIC RECOVERY*. Retrieved from https://rdb.rw/files/AR2021.pdf

RDB. (2021b). *TOURISM AND HOSPITALITY*

SKILLS BRIEF. Retrieved from https://rdb.rw/wp-content/uploads/2021/10/Tourism-and-Hospitality-sector-brief.pdf

Riddell, R. C. (2008). *Does foreign aid really work?* : OUP Oxford.

Rostow, W. W. (1959). The stages of economic growth. *The economic history review, 12*(1), 1-16.

RWANDA, N. B. O. (2022). *MONETARY POLICY AND FINANCIAL*

STABILITY STATEMENT. Retrieved from https://www.bnr.rw/news-publications/publications/monetary-policy-financial-stability-statement/

Selimi, N., Sadiku, S. L., & Sadiku, M. (2017). The Impact of Tourism on Economic Growth in the Western Balkan Countries: An Empirical Analysis. *International Journal of Business and Economic Sciences Applied Research, 10*(2), 19-25. doi:10.25103/ijbesar.102.02

Sethi, N., Bhujabal, P., Das, A., & Sucharita, S. (2019). Foreign aid and growth nexus: Empirical evidence from India and Sri Lanka. *Economic Analysis and Policy, 64*, 1-12. doi:10.1016/j.eap.2019.07.002

Sinha, D. (1996). Saving and economic growth in India. *49*, 637-647.

Solow, R. M. (1956). A contribution to the theory of economic growth. *The quarterly journal of economics, 70*(1), 65-94.

Sothan, S. (2014). Causal relationship between domestic saving and economic growth: Evidence from Cambodia. *International Journal of Economics and Finance, 6*(9), 213-220.

Sothan, S. (2017). Foreign aid and economic growth: evidence from Cambodia. *The Journal of International Trade & Economic Development, 27*(2), 168-183. doi:10.1080/09638199.2017.1349167

Swan, T. W. (1956). Economic growth and capital accumulation. *Economic record, 32*(2), 334-361.

Todaro, M. P., & Smith, S. C. (2009). *Economic development*: Pearson Education.

Todaro, M. P., & Smith, S. C. (2011). Economic Development . 2012. *URL: https://drive. google. com/file/d/0B0_MXVXMMfsgbEJGYUxfR1dqVTg/view*.

Turan, G., & Gjergji, O. (2014). What is the impact of savings on growth? The case of a small open economy (Albania). *Mediterranean Journal of Social Sciences, 5*(13), 360-360.

UNWTO. (2020). *UNWTO World Tourism Barometer and Statistical Annex, .* Retrieved from https://www.e-unwto.org/doi/epdf/10.18111/wtobarometereng.2020.18.1.6?role=tab

Vásquez, I. (1998). Official assistance, economic freedom, and policy change: Is foreign aid like champagne. *Cato J., 18*, 275.

Veledinah, J. M. (2014). *Impact of official development assistance on economic growth in Kenya.* University of Nairobi,

Voivodas, C. S. (1973). Exports, foreign capital inflow and economic growth. *Journal of international Economics, 3*(4), 337-349.

WTTC. (2022). *TRAVEL & TOURISM ECONOMIC IMPACT 2022*. Retrieved from https://wttc.org/Portals/0/Documents/Reports/2022/EIR2022-Global%20Trends.pdf

Yiew, T.-H., & Lau, E. (2018). Does foreign aid contribute to or impeded economic growth? *Journal of International Studies, 11*(3), 21-30. doi:10.14254/2071-8330.2018/11-3/2

Yusuf Akan, İ. A., Cem Işık. (2009). The Impact of Tourism on Economic Growth: The

Case of Turkey. *Journal of Tourism, 9*.

Appendix

1 Descriptive Statistics

	GDP	AID	GDS	ITR
Mean	498.3637	7.86E+ 08	3.01E+08	2.07E+08
Median	491.1247	8.29E+08	2.85E+08	1.95E+08
Maximum	820.1772	1.62E+09	1.04E+09	6.36E+09
Minimum	221.6289	2.30E+08	-97792460	4000000
Std. Dev.	229.5207	3.28E+08	3.65E+08	1.95E+08
Skewness	0.082590	0.76036	0.510734	0.592858
Kurtosis	1.268383	1.982543	1.996305	2.161056
Jarque-Bera	3.277931	1.255773	2.221702	2.285564
Probability	0.194181	0.533719	0.32979	0.318931
Sum	12957.46	2.04E+10	7.83E+09	5.38E+09
Sum Sq. Dev.	1316993	3.65E+18	3.33E+18	9.48E+18
Observation	26	26	26	26

Appendix 2 ADF Unit Root Test

ADF UNIT ROOT TEST				PP UNIT ROOT TEST		
Variables	Level	1st difference	Order of Integration	Level	1st difference	Order of integration
GDP	0.7864	0.0281	I(1)	0.8856	0.0281	I(1)
AID	0.0428	-0-	I(0)	0.9527	0.0000	I(1)
GDS	0.0517	-0-	I(0)	0.9067	0.0000	I(1)
ITR	0.3215	0.0057	I(1)	0.4296	0.0057	I(1)

Appendix 3 ARDL Bound Test

Model	Lag.	F-Statistic	Decision
GDP, AID, GDS, ITR	(2,1,0,1)	7.786298***	Co-Integration Exist
Bound Critical Value			
		I (0)	I (1)
Sign.	10%	2.37	3.2
	5%	2.79	3.67
	2.5%	3.15	4.08
	1%	3.65	4.66

*** F-statistic for the significance of at 1% Level Source: ARDL Bond test

Appendix 4 ARDL Short Run Test

	ARDL Short run			
Variables	***Coef.***	***Std.error***	***t-statistic***	***P value***
GDP(-1)	*0.25*	*0.09*	*2.63*	*0.0179*
AID	*6.57*	*2.40*	*2.73*	*0.0147*
D(AID(-1)	*1.46*	*3.81*	*3.83*	*0.0057*
GDS	*2.73*	*2.66*	*1.02*	*0.4116*
ITR	*1.67*	*3.87*	*4.31*	*0.0005*
ECM	*-0.426*	*0.061*	*-6.975*	*0.0000*

Appendix 5 ARDL Long Run Test

	ARDL long run			
Variables	***Coef.***	***Std.error***	***t-statistic***	***P value***
AID	*2.12*	*4.45*	*4.72*	*0.0002*

GDS	*4.53*	*4.71*	*0.95*	*0.3514*
ITR	*1.67*	*6.03*	*2.65*	*0.0174*
C	*43.92*	*19.67*	*2.23*	*0.0402*

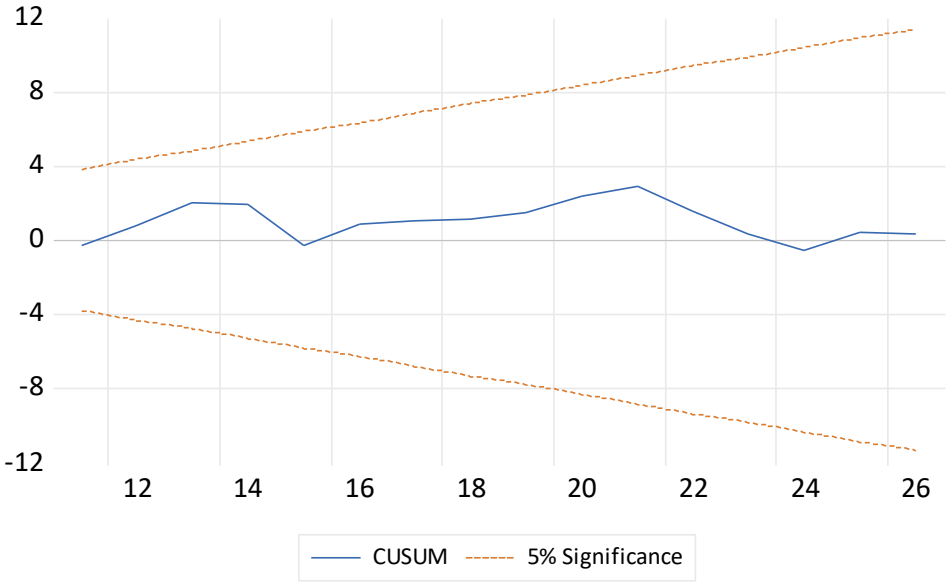
Appendix 6 Residual Diagnostic Test

Name of tests	Test	T statistic	P value	Result
Breusch Godfrey LM test	*Serial correlation*	*0.299*	*0.6109*	*No serial correlation*
Jarque-Bera test	*Normality*	*0.434*	*0.8045*	*Normal distribuction of data*
Greusch-pagan test	*Heteroskedasticity*	*0.896*	*0.4539*	*No heteroskedasticity*

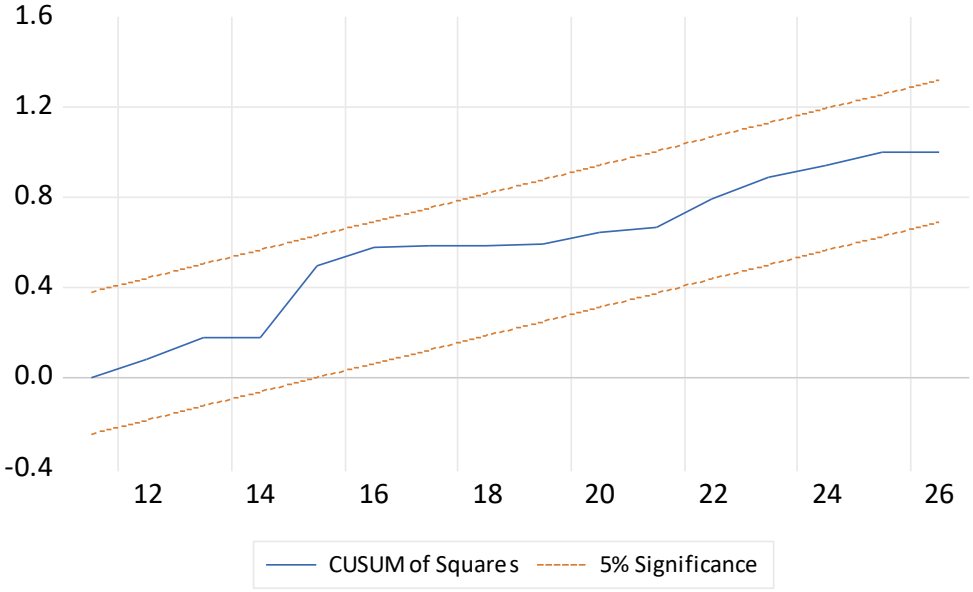
Appendix 7 Granger Causality Test

Null Hypothesis	*Obs.*	*F-Statistic*	*Prob.*
AID does not Granger Cause GDP. *GDP does not Granger Cause AID*	*24*	*9.51117* *4.24702*	*0.0014*** *0.0299***
GDS does not Granger Causes GDP *GDP does not Granger Cause GDS*	*24*	*0.09107* *2.06859*	*0.9133* *0.1539*
ITR does not Granger Cause GDP *GDP does not Granger Cause ITR*	*24*	*0.08037* *3.11387*	*0.9231* *0.0677*
GDS does not Granger Cause AID *AID does not Granger Cause GDS*	*24*	*1.58664* *1.88760*	*0.2306* *0.1788*
ITR does not Granger Cause AID *AID does not Granger Cause ITR*	*24*	*3.19266* *3.75693*	*0.0638* *0.042***
ITR does not Granger Cause GAS *GDS does not Granger Cause ITR*	*45*	*1.03661* *3.09160*	*0.3144* *0.0860*

Appendix 8 CUSUM Test



Appendix 9 CUSUM of Square



GILBERT MUTUYIMANA

ORIGINALITY REPORT

13%	10%	7%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.researchgate.net Internet Source	1%
2	docs.neu.edu.tr Internet Source	1%
3	hdl.handle.net Internet Source	<1%
4	Submitted to Higher Education Commission Pakistan Student Paper	<1%
5	procurement-notices.undp.org Internet Source	<1%
6	acikbilim.yok.gov.tr Internet Source	<1%
7	Submitted to Westminster International University in Tashkent Student Paper	<1%
8	elibrary.buse.ac.zw:8080 Internet Source	<1%
9	www.zbw.eu	