

**REPUBLIC OF TURKEY
ISTANBUL GELISIM UNIVERSITY
INSTITUTE OF GRADUATE STUDIES**

Department of Economics and Finance

**THE EFFECT OF CAPITAL ACCUMULATION ON ECONOMIC
GROWTH IN SOMALIA**

Master Thesis

AISHA ABDULLAHI MOHAMED

Supervisor
Assoc. Prof. Dr. ONUR ÖZDEMİR

Istanbul – 2023

THESIS INTRODUCTION FORM

- Name and Surname** : Aisha Abdullahi Mohamed
- Language of the Thesis** : English
- Name of the Thesis** : The effect of capital accumulation on economic growth in Somalia
- Institute** : Istanbul Gelisim University Institute of Graduate Studies
- Department** : Economics and Finance
- Thesis Type** : Master
- Date of the Thesis** : 06.01.2023
- Page Number** : 64
- Thesis Supervisors** : Assoc. Prof. Dr. Onur Ozdemir
- Index Terms** : Gross capital formation, export, saving, exchange rate, and economic growth,
- Turkish Abstract** : Bu çalışma, 1989'dan 2020'ye kadar olan yıllar boyunca sermaye birikimi, ihracat, tasarruf ve döviz kuru ile somali'nin ekonomik büyümesi arasındaki bağlantıyı incelemektedir.
- Distribution List** : 1. To the Institute of Graduate Studies of Istanbul Gelisim University
2. To the National Thesis Center of YÖK (Higher Education Council)

Signature

Aisha Abdullahi Mohamed

REPUBLIC OF TURKEY
ISTANBUL GELISIM UNIVERSITY
INSTITUTE OF GRADUATE STUDIES

Department of Economics and Finance

**THE EFFECT OF CAPITAL ACCUMULATION ON ECONOMIC
GROWTH IN SOMALIA**

Master Thesis

AISHA ABDULLAHI MOHAMED

Supervisor

Assoc. Prof. Dr. ONUR ÖZDEMİR

Istanbul – 2023

DECLARATION

I hereby declare that in the preparation of this thesis, scientific ethical rules have been followed, the works of other persons have been referenced in accordance with the scientific norms if used, there is no falsification in the used data, any part of the thesis has not been submitted to this university or any other university as another thesis.

Aisha Abdullahi Mohamed

.../.../2023



**TO ISTANBUL GELISIM UNIVERSITY
THE DIRECTORATE OF GRADUATE EDUCATION INSTITUTE**

The thesis study of Aisha Abdullahi MOHAMED titled as The effect of capital accumulation on economic growth in Somalia has been accepted as MASTER in the department of Economics and Finance by out jury.

Director

Assoc. Prof. Dr. Onur OZDEMIR
(Supervisor)

Member

Assoc. Prof. Dr. Kemal ERKISI

Member

Asst. Prof. Dr. Ebru Gül YILMAZ

APPROVAL

I approve that the signatures above signatures belong to the aforementioned faculty members.

... / ... / 20..

Prof. Dr. Izzet GUMUS

Director of the Institute

SUMMARY

This study examines the consequence of capital accumulation on economic growth in Somalia from 1989 - 2020. To create an economic model and assess the data, econometric methods of the OLS model were utilized. All variables underwent the unit root test, and some of them were discovered not to be stationary in the first difference model, but they are all stationary at the second level. An experiment of the Johnson co-integration hypothesis revealed that there is at least one co-integration between the variables of GDP, gross capital formation, export, saving, and exchange rate. The study set up a strong long-term correlation between Capital Accumulation and Economic Growth in Somalia. The research effort's empirical findings were created on the impact of capital accumulation on the expansion of the Somali economy. A policy recommendation was made such as government should sufficiently mobilize enough and allocate to the real sector for appropriate use and they must shape a good project system that is capable to meet up the demand of domestic and foreign investors.

Keywords: GDP, gross capital formation, export, saving, and exchange rate.

ÖZET

Bu çalışma, 1989'dan 2020'ye kadar Somali 'de sermaye birikimi ve ekonomik büyümenin etkisini incelemektedir. Bir ekonomik model oluşturmak ve verileri değerlendirmek için OLS modelinin ekonometrik teknikleri kullanılmıştır. Tüm değişkenler için birim kök testi yapılmış, tüm değişkenler düzeyde durağan değil, birinci fark modelinde durağan çıkmıştır. Johnson eş bütünleşme testi test edilmiş ve GSYİH, sermaye, ihracat, tasarruf ve döviz kuru değişkenleri arasında en az bir eş bütünleşme olduğu bulunmuştur. Çalışma, Somali'de sermaye birikimi ile ekonomik büyüme arasında uzun vadeli pozitif bir etki olduğunu ortaya çıkardı. Bu araştırma çabasındaki ampirik bulgular ve sermaye birikiminin Somali Ekonomisindeki ekonomik büyüme üzerindeki etkisi üzerine inşa edilmiştir. Devletin yeterince seferber etmesi ve reel sektöre uygun kullanım için tahsis etmesi ve yerli ve yabancı yatırımcıların talebini karşılayabilecek iyi bir proje sistemi oluşturması gibi bir politika önerisi yapılmıştır.

Anahtar kelimeler: GSYİH, brüt sermaye oluşumu, ihracat, tasarruf ve döviz kuru

TABLE OF CONTENTS

SUMMARY	I
ÖZET	II
TABLE OF CONTENTS	III
ABBREVIATIONS	VI
LIST OF TABLES	VII
LIST OF GRAPHICS	VIII
LIST OF FIGURES	IX
PREFACE.....	X

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY	11
1.2 PROBLEM STATEMENT	12
1.3. RESEARCH QUESTIONS.....	13
1.4. HYPOTHESIS OF THE STUDY	13
1.5 PURPOSE OF THE STUDY	14
1.7 SCOPE OF STUDY	14
1.8. METHOD OF STUDY	14
1.8.1 DATA TYPE AND SOURCES	14
1.8.2 DATA ANALYSIS	14
1.9 SIGNIFICANCE OF THE STUDY.....	14
1.10 CONCEPTUAL FRAMEWORK	15
FIGURE 1.1 FRAMEWORK CONCEPTUAL.....	15

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION.....	16
-----------------------	----

2.1 UNDERSTANDING CAPITAL ACCUMULATION	16
2.2 CAPITAL FORMATION AND ECONOMIC GROWTH.....	17
2.3 EXPORT AND ECONOMIC GROWTH.....	20
2.4 SAVING RATE AND ECONOMIC GROWTH.....	22
2.5 EXCHANGE RATE AND ECONOMIC GROWTH	26

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION.....	31
3.1 RESEARCH DESIGN	31
3.2 POPULATION OF THE STUDY	31
3.3 DATA COLLECTION METHOD	31
3.4 DATA PROCESSING	32
3.5 E-VIEWS	32
3.5.1 DATA ANALYSIS	32
3.5.3 UNIT ROOT TEST	33
3.5.4 CO-INTEGRATION TEST	33
3.5.5. T-TEST STATISTIC	34
3.5.6 F-TEST STATISTIC.....	34
3.6 QUALITY CONTROL.....	34
3.6.1 VALIDITY	34
3.6.2 RELIABILITY	34
3.7 LIMITATIONS OF THE STUDY	35

CHAPTER FOUR

DATA ANALYSES AND FINDINGS

3.0 INTRODUCTION.....	36
4.1 DESCRIPTIVE STATISTICS	36
4.2-UNIT ROOT TEST	37
4.3 JOHNSON CO-INTEGRATION TEST.....	38
4.4 MULTIPLE-LINEAR REGRESSION	39
T-STATISTIC TEST	40
4.5.1 SERIAL CORRELATION LM TEST.....	43
4.5.2 HETEROSKEDASTICITY TEST	44
4.5.3 MULTICOLLINEARITY TEST.....	44

4.5.4 NORMALITY TEST	45
4.5.6 STABILITY TESTS	46

CHAPTER FIVE

CONCLUSION

5.0 INTRODUCTION	49
5.1. CONCLUSION	49
5.2 RECOMMENDATION	49
5.3 POLICY IMPLICATION	49
REFERENCE	51
APPENDIXES	57

ABBREVIATIONS

EXP: Export

EXR: Exchange rate

GCF: Gross Capital Formation

GDP: Growth Domestic Product

GSYİH: Brüt Yerli Ürün

OLS: Ordinary Least Squares

S: Saving

SESRIC: Statistical, Economic and Social Research, and Training Center for Islamic Countries

LIST OF TABLES

Table 4.1 Descriptive	36
Table 4.2 Unit root test	38
Table 4.3 Cointegration test	41
Table 4.4 Multiple linear regression	42
Table 4.5.1 Normality test	47
Table 4.5.2 Heteroscedasticity test hypothesis	47
Table 4.5.3 Autocorrelation test	48
Table 4.5.4 Multicollinearity test	49
Table 4.5.5 Model specification test	50

LIST OF GRAPHICS

Graphic 1. Normality test	47
--	----



LIST OF FIGURES

Figures 1. Normality test 47



PREFACE

To begin with, I want to thank Allah, the Almighty, for helping me and my research while I was working on it. I want to express my gratitude to Associate Professor ONUR OZDEMR, my supervisor, for all of his support and guidance over the duration of this thesis. Gelişim University's Economics and Finance Department has my sincere gratitude, for all of the fantastic staff members there, and everyone who gave me permission to work on my thesis and pursue a graduate degree.



CHAPTER ONE

INTRODUCTION

This chapter will provide an introduction to the topic that has been chosen, and based on the research found about the topic, a background was written. The background will be followed by a problem statement, including an overall purpose and research question and a substantial part for conceptual frameworks. An overview of the entire thesis will also be presented.

1.1 Background of Study

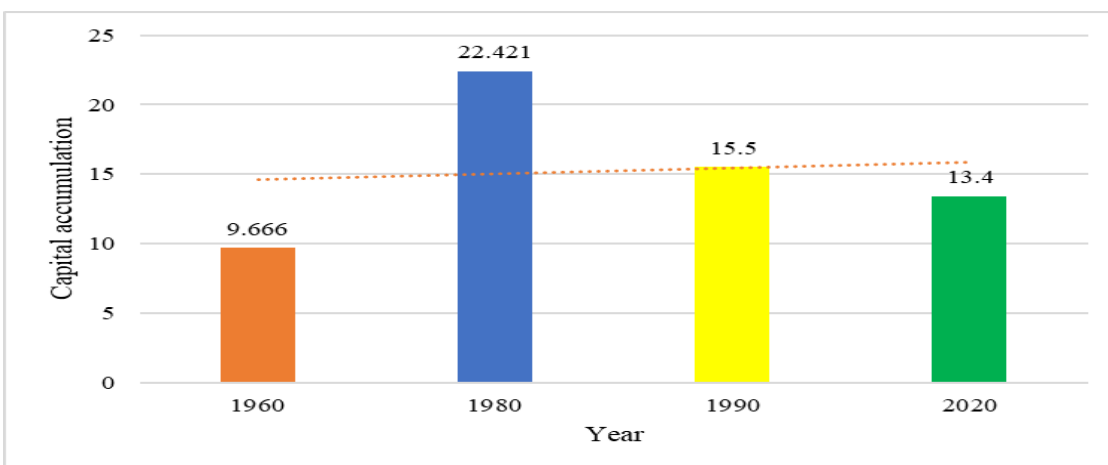
The current body of scholarly work on the minor aspect of capital accumulation for economic enhancement contains a wealth of information. The definition of capital accumulation is the increase of wealth through the investment of profits (Omar, 2018). The role of capitalist production in the economic growth of any nation is well supported by the data. For instance, Topcu et al. (2020) claim that through leveraging capital goods, capital accumulation enables countries to enhance their saving ratio. Countries can enhance the quantity of capital they have available to them by reinvesting the profits from capital products (Zhang et al., 2020). While many developed Western nations have implemented sensible economic measures to guarantee that their investments will yield a suitable return, the same cannot be said for many developing nations.

As countries strive to gain competitiveness in liberalized international markets, countries in the Global South, such as Somalia, tend to ignore the aspect of increasing wealth through profit investment (Dursun & Ismail, 2020). Most of the profits made by governments, mainly from foreign direct investment or exports, are not reinvested into the economy, which reduces the overall accumulated capital.

Although Somalia's economy has recently experienced modest growth, it is nevertheless susceptible to frequent shocks. The actual annual GDP growth rate was 2.5 percent between 2013 and 2017. Despite unfavorable weather that drastically decreased agricultural output in late 2016 and early 2017, growth took place. Affecting disadvantaged populations and reducing their capacity to adapt, weather-related shocks have resulted in land degradation, reduced agricultural output, livestock deaths, and forced displacement. Increased shock resilience is necessary for Somalia to improve and sustain economic growth and escape chronic poverty (this topic and

others are covered in the Country Economic Memorandum). Economic growth alone has not been enough to eradicate poverty.

Figure 1.1: Gross Capital Accumulation in the Federal Republic of Somalia



Source: Ministry of the Finance Federal Republic of Somalia.

Figure 1.1 illustrates that gross capital accumulation increased considerably from 9.66% in 1960 to 22.421% in 1980. However, it dipped in 1990 to 15.5% before declining further to 13.4% of GDP in 2020. The decrease in GDP could be attributed to the instability in the Federal Republic of Somalia. Instructively, by tapping into the value of assets through savings and inputs. Improving the environment for doing business will upscale capital accumulation just as a proportion of GDP. Opening industries and exploiting natural resources will provide more jobs and ensure that more people contribute to the country's GDP in a meaningful way.

1.2 Problem Statement

It's typically accepted that a country needs both wealth accumulation and the expansion of its human capital to disintegrate the cycle of poverty. It is frequently proposed that developing nations should accumulate capital to boost their long-term development rates. Increasing savings rates, maintaining a sound banking and lending system, avoiding corruption, and having a robust infrastructure to support investment are all important for increasing capital accumulation.

In light of the well-known Karl Marx's theory and the exogenous and endogenous enhancement models, which firmly maintain that capital investment influences long-term economic growth,

numerous scholars have attempted to determine what effect these variables have on economic growth (Ewubare & Ogbuagu, 2015).

The inability of Somalia's government to take part in certification programs or to offer authenticity paperwork that would allow enterprises to sell items internationally is a challenge to the country's economic growth. Instead, businesses must come up with creative, frequently expensive alternatives. High capital goods production is required for Somalia to have economic progress. Furthermore, profits from capital goods must be reinvested to ensure that the amount of capital goods increases proportionately. Unfortunately, given the nation's political unrest, this has not been the case because capital goods are not being utilized to their full potential, and Somalia's GDP has not grown economically.

Researchers intended to examine how capital accumulation affects economic growth in this research (as determined using a time-series data set that begins in 1989 and continues through 2020). According to the researcher, no studies haven't been conducted in Somalia on this topic. Previous inquiries haven't been able to resolve the problem, so I think more research is required.

1.3. Research Questions.

What effect does capital accumulation influence on economic growth in Somalia? Has it assisted the economy to increase or slow down?

How do exports and economic growth interact?

How do exchange rates and economic growth interact?

What role does Somalia's economic growth have in saving?

1.4. Hypothesis of the Study

H0: $\beta_0 = 0$ (There is no Correlation between the accumulation of capital and economic growth).

H1: $\beta_1 = 0$ (There is a Correlation between the Accumulation of Capital and Economic Growth).

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (All explanatory variables do not affect economic growth).

H1: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (All explanatory variables affect economic growth).

1.5 Purpose of the study

How capital accumulation affects Somalia's economic growth is the aim of this study.

1.6 Objective of the Study

This research aim is to determine how capital accumulation affects Somalia's economic growth by evaluating different variables including gross domestic product (GDP), gross capital formation, export, saving, and exchange rate using Ordinary Least Square (OLS).

1.7 Scope of Study

This study, which is being carried out in Somalia aims that the consequences of capital accumulation on economic growth. It measures changes in several variables by analyzing time series data from 1989 to 2020.

1.8. Method of Study

1.8.1 Data Type and Sources

Secondary data on the exchange rate, GDP, gross capital formation, exports, and savings are used in this research. The SESRIC and World Bank Development are utilized in the study. Additional sources of information are work papers, books, journals, and articles, as well as online sources.

1.8.2 Data Analysis

Results were examined using descriptive and econometric methods. Tables, charts, and other elements were used to help with the understanding of the evaluation of outcomes. Also, to exclude the danger of erroneous regression in econometrics, a stationary test was run on each variable. Both econometric calculations were carried out utilizing the corresponding software, Eviews 10.

1.9 Significance of the Study

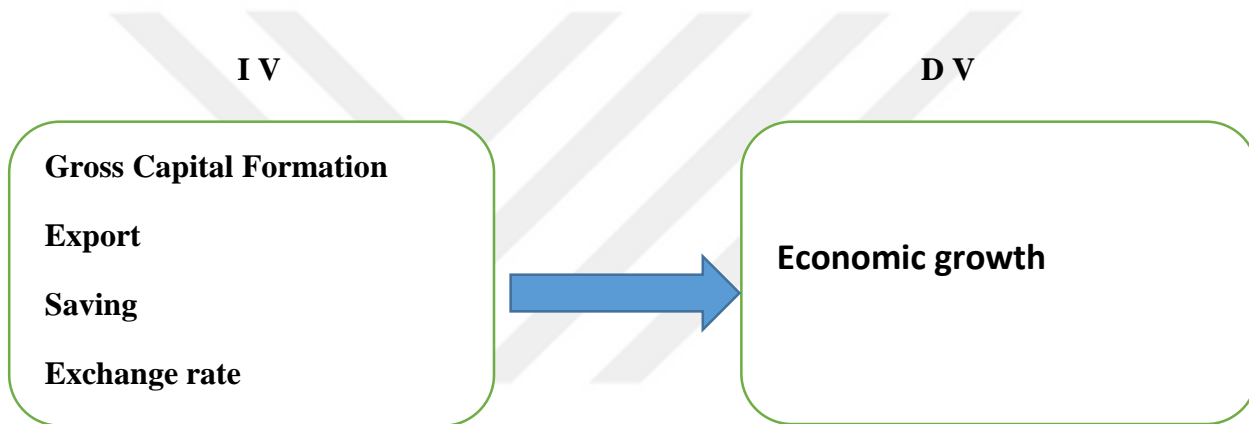
The economic policymakers and planners in Somalia who base their decisions on capital accumulation in the future would benefit from this study. As it will provide an opportunity to examine the level of capital formation or accumulation in the Federal Republic of Somalia, this research will also serve as a useful guide for monetary authorities and authorized contributors in the external sector. The research results may benefit multinational corporations (MNCs) that want to enter overseas markets with similar characteristics to Somalia.

The Federal Government of Somalia and, indeed, many governments in the Global South through their line ministries may find the results of this study beneficial.

1.10 Conceptual Framework

Independent variables (IV) and dependent variables (DV) are the study's two main variables. Economic growth is the dependent variable (DV) according to the conceptual framework, whereas the independent variables (IV) in the research include gross capital formation, exports, savings, and exchange rates.

Figure 1.1 Framework Conceptual



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The objective of this chapter is to obtain considerable insight into earlier literature and comprehend the evolution of capital accumulation and economic growth in Somalia. One of the fundamental elements fostering economic progress is capital accumulation. Several variables affect economic booming, but the study's main focus is on how capital accumulation affects it in Somalia. This chapter will provide an outline of the literature.

In the study of economies and how nations take advantage of different circumstances to strengthen their economies, the concept of capital accumulation is frequently used. Capital accumulation is one of the foundations of a capitalist economy and is also the expansion of assets as a result of investments or revenues (Das, 2018). The objective is to raise an initial investment's price as a return on investment, whether by way of appreciation, rental income, capital gains, or interest (Bharti & Yang, 2021). The expansion of wealth as a result of investments or gains is known as "capital accumulation." Wealth can be increased through appreciation, rental income, capital gains, and interest. One way to gauge capital accumulation is the rise in asset value brought on by investments and savings. Contrarily, many people consider inequality to be a negative aspect of capital accumulation.

2.1 Understanding Capital Accumulation

By investing earned income and saved money, capital accumulation primarily aims to increase present wealth (Bharti & Yang, 2021). The investment has several distinct economic sectors in mind. Purchasing tangible goods that aid in production is one way to raise money. Inanimate objects like machinery are also included. Research and development, often known as "human capital," can help boost output. Another choice to raise your capital is to invest in financial assets like stocks and bonds if their value rises. A key element of capital building is appreciation (Tran & Wende, 2022). This entails making financial investments in tangible assets with rising value over time, such as real estate. It's important to remember that building up capital doesn't necessarily require investing money. To do this, simple strategies like better organization can be applied. For instance, by setting up a manufacturing facility to be more efficient, a business can

enhance productivity without needing to spend more money on equipment or hire more staff. As a result of the increased output, profits would then increase.

2.2 Capital Formation and Economic Growth

In several empirical studies on economic growth, it's been discovered that the proportion of capital formation and the rate of economic growth strong positive correlation. Studies conducted independently on the topic of the connection between capital formation and economic growth in Sub-Saharan Africa, Asia, and Latin America (Ndikummana, 2000) Theyblished a strong correlation between the rates of capital production and economic growth. The research demonstrates that in the 1990s, Asia, which experienced larger than the rest of the globe growth, had a proportion of gross domestic capital formation (GDCF) to gross domestic product (GDP) of 27%, while the corresponding ratios in Latin America and Sub-Saharan Africa were 20% and 17%, respectively.

Akindele (2010) conducted research on the correlation between economic growth and capital formation in Nigeria between 1981 and 2009. By using short-run analysis, Johansen co-integration techniques, and error-correcting mechanisms, the correlation between economic growth and capital formation was empirically examined, with an emphasis on capital formation as the main driver of economic growth. The research's experimental findings revealed a strong positive correlation between gross capital formation and economic growth in both long and short timeframes. Finally, given the positive effects and consequences of capital formation on the Nigerian economy, it should be supported by all means based on empirical findings based on the relationship each determinant demonstrated with economic growth in the Nigerian economy.

Capital development is emphasized by almost all economists as the primary factor in determining economic growth. According to Jhingan (2003), capital production can end the impasse between poverty and growth that exists in underdeveloped nations. Low-income levels in these nations prevent sufficient demand, output, and investment, all of which are necessary for growth. Development economists have long held that capital formation is a basic factor and the primary driver of continuing economic growth. The process of the capital formation increases national output and is important for labeling the requirements of an expanding population in less developed countries (LDCs), where it has a specific significance (Jhingan, 2003).

The most prominent classical economist, Adam Smith, believed that economic growth required the acquisition of capital. Capital accumulation was regarded as the "key to progress" in classical theories. Capital accumulation was viewed by all classicists as the means to economic growth and progress. Therefore, they emphasize greater savings. They believe that only capitalists can save. Due to its subsistence-level income, the working class is unable to save money. The "stationary state" was a concept that the classicists discussed further in their theories. The stationary state was seen by all classical economists as the culmination of growth and capital accumulation processes.

In talks about less developed countries, the capital-labor ratio has become one of the most significant positions for LDCs (Akindele, 2010). It has been said that a country with a large population base, like Nigeria (more than 14 million), depends on the rate of capital generation to continue experiencing economic growth. High capital availability is also a requirement for high labor productivity in such a nation. Growth in capital formation also affects a nation's economic well-being. It aids in supplying every need of a growing population in a developing nation. When capital evolution leads to the effective taking advantage of essential resources and the establishment of different sorts of industries, the level of income grows, the people's diverse desires are gratified, their standard of living rises, and their economic welfare increases. Capitalization results in market expansion. Capital generation helps eliminate market flaws and puts a stop to poverty cycles on both sides of supply and demand by creating economic and social overhead capital. As capital production rates increase, state income levels increase as well. This capital development process aids in raising national output and GDP, which in turn raises state income levels and rates. The rate of capital formation, therefore, depends on the growth of that rate. Likewise, the country's income-level Capital generation, which is acknowledged as the foundation of economic growth and progress, is the primary solution to the challenging problem of impoverished nations.

However, Hicks (1957) noted that whereas economic growth is thought to be an issue for advanced affluent countries, economic development is a problem for impoverished countries such as Nigeria, Africa, Latin America, Asia, the USA, Western Europe, the U.K., etc. The advanced economies are expected to increase at a proportion of 2.6 percent in 2006–2007, with the U.S.A. at 2 percent, the Euro area at 2.6 percent, Japan at 2.1 percent, and the United Kingdom at 3

percent. Africa's share was estimated to be 6.1%, Sub-Saharan Africa and Nigeria's at 6.8%, and developing Asia at 10%.

The primary drivers of economic development are numerous, and numerous studies have been conducted on the topic of growth. The researchers employed various conceptual and methodological frameworks, focusing on various essential factors. They made several suggestions describing the starting points of economic development and progress. Economic growth research, which can be handled from both theoretical and empirical perspectives, must be a part of economic development. We can conduct a dynamic growth analysis and empirically examine the economic growth of a single country over time by comparing cross-sectional data from many countries. According to Stern (1989), several growth theories developed by different economic schools can be used to theoretically analyze a nation's growth. Stern stresses highly aggregated growth and development models to dispel the substantial role of capital accumulation in economic development.

Capital accumulation and economic growth are closely intertwined. Without capital creation, it is impossible to attain the aims of economic evolution, such as bringing down joblessness, achieving economic solidity, enhancing the standard of living for all inhabitants, etc. The primary aim of economic evolution is to enlarge economies and reduce social overhead capital (or costs), which, on the other hand, quickens the capital production process. These costs result in an improvement in the production process, which improves the GDP by increasing employment opportunities, raising living standards, and reducing poverty. Ndidi & Shuaib (2015)

Therefore, for whole nations, regardless of their degree of economic evolution, to attain their economic development objectives, capital production is required. Capital formation is the process of acquiring or stockpiling valuable assets to the size of a current source of wealth or developing new sources of further wealth (Ugochukwu & Chinyere 2013).

Nweze (2017) claims that "capital formation" is mainly known as the process of increasing an economy's physical capital stock through investments in its social and economic infrastructure. An elevation in the stock of physical capital can be attributed to both private and public capital formation. Government entities and public enterprises are the two different sources that make up the gross public capital formation. Governments increase the productivity of private investment

by independently investing in infrastructure projects such as those related to public health, education, power, transportation, and the building of roads, highways, and water and sewage systems.

The public capital formation can have a direct impact on the pace and productivity of private sector capital formation. according to a 1990 study by Khan and Reinhart. The government must enact measures to foster an environment where private capital can flourish since it has such a huge impact on persistent economic growth and, by extension, the improvement of living standards.

Capitalization rates and productivity in the private sector can be directly influenced by public capital formation, according to Khan and Reinhart's 1990 study, "Economic Development and Private Investment in Developing Nations." This is because there is a significant positive relationship between capital accumulation and economic growth.

2.3 Export and Economic Growth

Muhammad and Usman (2012), looked into the Impact of Exports on Economic Growth: A Case of Luxemburg. The main objective of the study was to evaluate the significant impacts of exports, government spending, and education spending on the development of the economy. The World Development Indicator (WDI) section of the World Bank's official website served as the source of the data for the current study. Exports, government spending, and education spending were the key explanatory variables, with GDP serving as the dependent variable. Learning from government experience The study's 35 annual years of monitoring cover the years 1975 through 2009. Exports and economic growth were the two primary factors in the study. The theory that export volume affects economic growth is examined in this research. The results demonstrate a long-run equilibrium correlation between trade and economic growth from 1974 through 2009 using the OLS method and accounting for the Luxembourg economy. Their findings are consistently showing a favorable correlation between exports and economic growth (EG). The unemployment that arose from the global financial crisis in 2008–2009 is a major problem for Luxembourg's economy. The government should diversify its exports to emerging nations to address this issue. It should diversify its economy to include financial sectors because doing so will promote financial growth. As more countries join the EU, the level of competition rises and becomes more intense. It needs to provide the Euro Zone with cutting-edge goods and services if

it hopes to resolve this problem. Finally, higher economic growth is crucial for the country's financial advancement and the globalization of trade. Nguyen (2016) carried out research titled "Impact of Export on Economic Growth in Vietnam: Empirical Research and Recommendation" to determine the impact of exports on economic growth.

The study employed regression analysis to look at Vietnam's exports, economic development, and GDP growth between 1990 and 2015. "Emerging economy" was the key term. Based on data from the Vietnam General Statistics Office Statistical Yearbook and ongoing economic reports, the author gathered statistical data for the study's variables, which came from the proper authorities. Because it was created by governmental organizations, this informational source is quite reliable. This study's primary area of interest is the connection between exports and economic expansion. It also incorporates important research from both local and international sources, examines regression findings, and assesses changes in Vietnam's exports and economic growth during the last 25 years. According to their data, exports have had a considerable and positive impact on GDP growth in both the present year and the two years that follow. This report offers some suggestions for boosting Vietnam's exports in light of the circumstances. The research is unable to compare this connection in other countries in the region and throughout the world owing to time, knowledge, and experience limitations, as well as differences in each country's conditions, strengths, weaknesses responsibilities, and impacts of exports on GDP. To provide deeper with know In light of better knowledge of this issue, it is anticipated that future studies on the effect of exports on economic growth in Vietnam will be broadened. For this, it will probably be necessary to compare and collate data from other nations, initially from the ASEAN area and later from other continents.

Abdulahkim et al. (2018) examined the relationship between exports and economic growth in the GCC countries using panel data. This research evaluated the export-led development hypothesis for the Sultanate of Oman, the State of Qatar, the Kingdom of Saudi Arabia, and the United Arab Emirates between 1990 and 2014. The figures were created using the 2016 World Development Indicator (WDI) and the IMF's International Financial Statistics (IFS) (IMF). The two key factors in the study were exchange rates and economic development. Exports have a significant influence on economic growth in the GCC nations of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE, according to the report. Accordingly, the fixed effects model outperforms both the

estimator of random effects and the pooled ordinary least squares. The results are consistent with those in the literature and show how export growth significantly speeds up the GCC's economic development. According to empirical research, the economies of the GCC nations had a significant boost from exports between 1990 and 2014. Even though financial development has been proven to be both significant and insignificant, it has been established that fixed capital creation and energy consumption are the main forces behind economic growth. The conclusions apply to and are acceptable for a range of nations due to the fixed effect panel data model's findings.

2.4 Saving Rate and Economic Growth

Saving is essential for economic development; hence, Najarzadeh and Tasan (2014) examined the link between Iranian savings and total and non-oil economic growth. They looked at different aspects of Iran's economy's long-term causal linkages. An autoregressive distributed lag model and annual data from 1972 to 2010 were used to derive the empirical results. According to the study's conclusions, both total and non-oil economic growth are positively and significantly impacted by savings. Savings are significantly and favorably affected by both forms of economic development. The findings also demonstrate a long-term, bidirectional causal relationship between saving and economic growth as well as saving and non-oil economic growth. Romm (2005) examined the relationship between savings and economic development in South Africa using a vector error correction model for 1946–1992. He came to conclude the rate of savings had a direct and indirect impact on economic growth. He claims that the primary way savings have an immediate impact is through private investment. Additionally, he showed how increasing economic activity is good for private savings rates.

The dynamic relationship between domestic savings and economic development in developed nations has drawn the attention of several experts. The emerging nations of Africa have, at best, gotten relatively little empirical attention, despite their obvious importance. Development economists have been debating the connection between economic growth and savings in great detail. Bacha (1990), DeGregorio (1992), Otani and Villanueva (1990), and Stern (1991) all found using the ordinary least squares (OLS) approach that a greater rate of savings growth is connected to a higher rate of economic growth. This analysis supports the conventional belief that domestic savings promote economic development through investment. The conclusion is that

since the majority of emerging economies import capital, they must grow domestic savings to increase the number of foreign investment funds available. According to Saltz (1999), savings and GDP have a positive relationship in developed nations has drawn the attention of several experts. The emerging nations of Africa have, at best, gotten relatively little empirical attention, despite their obvious importance. Development economists have been debating the connection between economic growth and savings in great detail. Bacha (1990), DeGregorio (1992), Otani and Villanueva (1990), and Stern (1991) all found using the ordinary least squares (OLS) approach that a greater rate of savings growth is connected to a higher rate of economic growth. This analysis supports the conventional belief that domestic savings promote economic development through investment. The conclusion is that since the majority of emerging economies import capital, they must grow domestic savings to increase the number of foreign funds available. According to Saltz (1999), savings and GDP have a positive relationship. Recent studies show that economic growth results in savings. These most recent analyses claim that domestic savings growth is Granger-caused by economic expansion. Widely held beliefs hold that the growth rates of savings and the economy are adversely associated, which is not the case in this discovery.

Between 1960 and 2001, Mohan (2006) looked into the relationships between savings and economic development in 13 different countries. There were various income levels in these nations. The nations were divided into four groups according to their income levels: low income, less than average income, above average income, and high income. He illustrated how the causal link and direction differ amongst nations based on their level of income using the Granger Causality Test. Generally speaking, countries with low and below-average incomes tended to support the Keynesian hypothesis that saving is a function of growth, whereas those with high and above-average incomes tended to support the Solow hypothesis that saving is a factor in economic growth.

Hemmi et al. (2007) investigated the relationship between wise saving and economic growth. An autoregressive conditional heteroskedastic (ARCH) model was applied to yearly data from 1955 to 1990. They concluded that higher rates of savings may promote long-term growth. They also found that bigger shocks to precautionary saving result in higher levels of total savings. Sajid and Sarfaraz (2008) evaluated the effect of savings on economic development using seasonal data for

Pakistan from 1973 to 2003. Using co-integration techniques and a Vector Error Correction Model, the authors evaluated the causal relationship between savings and economic growth (VECM). Their findings point to a one-way causal connection between savings and economic growth. The report's long-term recommendations stress the significance of saving in Pakistan's efforts to reinvest new money. The short-term statistics also demonstrate a connection between GDP and domestic savings. Only in the short run do national savings and GDP have a causal link. The results of the short- and long-term assessments of this study supported the Keynesian idea that saving depended on income levels.

According to a study, Odhiambo focused his analysis on Kenya's economic expansion and savings (2008). He studied the relationships between economic growth, savings, and the budget deficit using panel data from 1991 to 2005. His work stood out from previous studies because it gave two-way causality testing a lot of attention. The study finds a causal relationship between savings and economic growth and finds that savings have a significant influence on the development of the financial sector. Odhiambo also investigated the relationship between savings and economic growth in South Africa (2009). He demonstrated that there is a one-way causal link between the savings rate and foreign capital inflows using data from 1950 to 2005 and a multi-variable causality test.

Furthermore, Granger's findings show that economic expansion causes foreign capital inflows. He concludes that measures should be developed to encourage saving and quick economic growth.

The notion that saving occurs before capital accumulation is supported by several theoretical arguments. The capital accumulation hypothesis states that investing and saving are crucial in raising the return on investment from assets (Zhang et al., 2020). For instance, savings encourage employment, production, and investment, which improve long-term economic growth (Ribaj & Mexhuani, 2021). The inequalities between nations with higher savings rates and those with lower savings rates are well supported by the data currently available.

For instance, according to Bankole, the developed Global North has greater savings rates than the developing Global South does for South Asia and sub-Saharan Africa (2020). This claims that saving happens before economic growth, which goes against the Keynesian hypothesis that claims that better economic growth causes an increase in saving. According to Gidigbi and Donga (2020), as capital accumulation increases, new production opportunities appear, spurring growth

and helping governments increase their sources of revenue. The United Nations Conference on Trade and Development emphasizes the need for developing nations to adopt policies that encourage saving so that money can be invested in endeavors with a higher likelihood of success to propel economic growth in these countries (Ribaj & Mexhuani, 2021).

Van Wyk and Kapingura (2021), citing the World Bank, assert that countries with greater levels of savings can make larger economic investments by buying stocks and bonds and building infrastructure, among other capital goods, to raise the value of the initial investment. If more households are saving money, the country may have a cash surplus, which is a positive indicator for capital formation. The World Bank additionally provides information on a country's gross domestic product (GDP), which is the total value of all goods and services produced there, as well as the total amount of outstanding public debt owned by the government of the country. If a nation's rate of capital production increases, its GDP will also increase (Bustos et al. 2020). The level of income and the trajectory of each person's income provide an explanation rate (Das, 2018). It is a helpful insight that savings raise capital stocks since they increase the quantity of money available for investment. Before capital formation may increase the quantity and quality of assets a country has at its disposal, savings must be available.

The conventional theory of economic growth states that economies improve by reinvesting capital stocks to make sure that all resources are fully used during production (Siddiqui, 2020).

Reinvesting capital gains Income is a function of saving, demonstrating a relationship between a country's measurement to grow its economy and its level of saving (Monette, 2019). The Arthur Lewis development model from 1954 highlights the significance of savings in unleashing the market's capacity for excess labor through the creation of jobs like this (Boianovsky, 2019). Savings allow countries to reinvest their extra capital, which in turn boosts industrial production and improves economic circumstances, both of which lead to the creation of new jobs.

Private savings and public savings don't get along well. There are fewer incentives for the private sector to save as a result of falling interest rates, while the government is increasing its surplus budgets (Gamber & Seliski, 2019). Increased government expenditure, therefore, gives the private sector more motivation to raise its savings (Mavrodieva et al. 2019). However, the increase in savings as a share of GDP has a positive result on per-capital income; as a result, savings and income are positively connected (Straub, 2019). However, the relationship changes when per capita levels grow, altering the nature of development levels. There is the minimal

capacity for savings because the majority of them are higher-income purchases in low-income countries (Gamber & Seliski, 2019). In contrast, increased income stimulates savings, and the magnitude of the link reduces as income increases as a result of population aging, fewer investment possibilities, and lower total fertility rates. Savings and growth also exhibit a statistically significant relationship. This is supported by the "permanent income theory," which states that consumption is dependent on expected long-term average income (Straub, 2019). Higher actual and expected incomes lead to higher consumption, but the opposite is also true. Young adults with jobs, for instance, save more money than seniors.

2.5 Exchange Rate and Economic Growth

Akpan et al. (2011) looked at how exchange rate fluctuations affected Nigeria's economic expansion. This study set out to determine how variations in exchange rates affected real economic growth.

This study employs the Optimal Currency Area (OCA) hypothesis, which was created by Mundell and McKinnon in 1961, as the earliest major justification for selecting an exchange rate system (1963). The survey's primary findings were growth in production and exchange rates. The macroeconomic structural model developed by Edwards and Sebastien in 2000 and the vector autocorrelation model (VAR) are both used in the study's model. This study's main objective is to determine how growth and exchange rates are related while also considering other important implications for both variables. This study improves Sebastien's initial (2000) model by incorporating the exchange rate as an open economy indicator. The International Monetary Fund (IMF) quarterly series from 1986 to 2010 and the Central Bank of Nigeria (CBN) quarterly series are both used in this investigation. In essence, The results suggest that there is a statistically significant direct relationship between the two variables.

The outcomes of vector autoregression also demonstrate a considerable degree of cointegration between real income and the real exchange rate. Exchange rates and income may be unrelated over the long term, but in the near term, they have a direct and significant relationship. In light of this, there is space for development. Regarding Nigeria's current exchange rate management system This has the potential to affect the pace of income growth, but only when combined with a comprehensive economic reform that includes a complementary monetary policy.

Another research study conducted by Adeniran et al. (2014) to determine how exchange rates affect economic growth was titled *The Impact of Exchange Rate Fluctuation on Nigerian Economic Growth: An Empirical Investigation*.

Another research study conducted by Adeniran et al. (2014) to determine how exchange rates affect economic growth was titled *The Impact of Exchange Rate Fluctuation on Nigerian Economic Growth: An Empirical Investigation*.

For instance, according to Bankole, the developed Global North has greater savings rates than the developing Global South does for South Asia and sub-Saharan Africa (2020). This claims that saving happens before economic growth, which goes against the Keynesian hypothesis that claims that better economic growth causes an increase in saving. According to Gidigbi and Donga (2020), as capital accumulation increases, new production opportunities appear, spurring growth and helping governments increase their sources of revenue. The United Nations Conference on Trade and Development emphasizes the need for developing nations to adopt policies that encourage saving so that money can be invested in endeavors with a higher likelihood of success to propel economic growth in these countries (Ribaj & Mexhuani, 2021).

This study looked at how exchange rates affected economic development between 1986 and 2013. The outcomes confirmed earlier findings that growing nations benefited from exchange rate regimes with greater flexibility. They discovered the advantages of exchange rates. The findings also showed that interest rates and inflation are detrimental to economic growth. Based on experimentally supported research, some writers claimed that there is a positive association between the exchange rate and economic growth, while other authors claimed that there is a negative correlation. The study's actual analysis, however, showed a positive association between the exchange rate and increasing output. This study demonstrates that the government should support export promotion initiatives to maintain a favorable trade balance. Additionally, it was proposed that in order to where international investors are encouraged to invest in Nigeria, appropriate infrastructure, sufficient security, and effective fiscal and monetary policies are needed.

To determine the impact of exchange rates on economic expansion, Maxwell (2018) looked at the connection between the exchange rate and South African economic growth.

Non-linear autoregressive distributive lag, a recently developed econometric approach, is used in this study (NARDL). The yearly data used in this study spans the years 1970 to 2017.

The actual effective exchange rate of the rand serves as the study's first variable and compares the rand's value to the 20 trade partners' currencies. The second element is economic growth, as indicated by gross domestic product (GDP). The entire worth of products and services produced inside a nation's borders over a specific period—typically a year or quarter—is measured by the GDP of that nation. Financial investment and economic investment make up the two categories of the economic investment variable used in the study (capital formation). A significant amount of GDP is made up of government expenditure, which is taken into consideration in the study as well. Public goods and services are the major objectives of government spending. The last research variable was the general money supply, expressed as a share of GDP. The total amount of assets held outside of financial institutions, including foreign currency, resident time deposits, savings, and demand deposits other than those held by the government, can be defined as follows: The World Bank's electronic data databases the remaining variables, while the South African Reserve Bank's electronic databases. The NARDL model's results show that a positive change in the real effective exchange rate has a significant and long-lasting positive impact on the gross domestic product, whereas a negative change has a significant and long-lasting negative impact. The results also show the same pattern over both the short and long timeframes.

The report advises against focusing solely on the actual effective exchange rate while attempting to boost South Africa's economic growth. Additionally, investments need to be considered because South Africa needs to grow. The Impact of Exchange Rates on Economic Growth by Touitou et al. (2019) investigates how exchange rates affect Algerian economic growth.

The study then examines how the exchange rate influences economic growth using a four-variable VAR model (autoregressive vector model) that includes the money supply, exchange rate, financial development, and economic growth. The least squares estimation method is used with the Eviews 9 application. Using the Cholesky decomposition and the VAR analysis of the exchange rate impact, we can pinpoint the structural shocks of the variables and deconstruct their impact on growth. As a result, we may use impulse response functions to determine how economic growth responds to exchange rate shocks. For their research, we used a time series with 26 observations that ranged from 1990 to 2015. Among the various data sources, we have are the World Bank, the Bank of Algeria, and the International Monetary Fund (World Development Indicators). Using a four-variable VAR model, we looked at how the exchange rate affected economic development from 1990 to 2015.

Briefly stated, the model estimation reveals that it is a VAR2, which is globally significant, stationary, and validated by the various tests. Furthermore, Granger causality suggests that the real exchange rate and financial development are what drive Algeria's growth. According to Cholesky's decomposition, the foreign exchange rate has an important role in influencing the difference in the forecast's accuracy. Increasing loan levels that reflect financial development and a drop in the exchange rate both promote economic growth, according to research on implausible response functions. An increase in the money supply has very little effect on growth. Consequently, it is possible to state that the dinar's real effective exchange rate. Because hydrocarbons play a significant part in the Algerian economy, the tax on petroleum tax consumption, boosts economic growth. This outcome is in line with Keynesian theory, which advocates increasing consumption as a means of reviving the economy. Domestic loans with a focus on investments demonstrate that financial development also contributes to growth.

To understand how exchange rates affect economic growth, Karahan (2020) examined the influence of exchange rates on economic growth in the Turkish economy.

The study's variables included the nominal exchange rate (ER) and the rate of economic growth (EG). Therefore, we used quarterly data from the Electronic Data Delivery System of the Central Bank of the Republic of Turkey for their analysis, which covered the years 2002 to 2019. The Dickey, Fuller, and Phillips-Perron tests are used to determine whether the data collection is steady before moving on to the empirical analysis. The Johansen (1988) cointegration test is then used to examine the long-term link between inflation and interest rates. Finally, we use Granger's (1988) Causality Test based on the Error Correction Model to investigate the causal connection between inflation and interest rates. The Philips Perron (PP) and Augmented Dickey-Fuller (ADF) units were also used to conduct stationary assessments of the variables. root check According to their findings, output levels decreased as the level of the exchange rate increased.

The Central Bank of the Republic of Turkey's Electronic Statistics Delivery System was used to create the quarterly statistics, which covered the years 2002 through 2019. Their findings offer concrete support for the structuralist hypothesis, which contends that an increase in the exchange rate causes a decline in economic production. Therefore, it is incorrect to assume that Turkey, a country whose industrial sector depends on imported inputs, sees export-led development as a result of the local currency's depreciation. The primary policy conclusion of the findings is that Turkey requires an exchange rate control system to keep its existing inflation-targeting regime in

place. Instead: Under the inflation targeting technique used since 2002, policymakers in Turkey must restrict upward exchange rate movements by considering how they would affect economic development in the context of entirely liberalizing the exchange rate. Therefore, the only option to sustain the inflation-targeting system in Turkey is through an all-encompassing monetary policy that includes a complementing exchange rate strategy. Khan, 2021, conducted research titled "The Impact of Exchange Rate on Economic Growth in Bangladesh" to determine how the exchange rate affects economic growth. The ordinary least squares method is employed to determine the connection between the dependent variable and independent variables.

For the study's secondary data collection, the World Bank, Bangladesh Bank, and International Monetary Fund 1990–2020 databases were employed. The nominal exchange rate, foreign direct investment, inflation, and a dummy variable for a pandemic are the independent variables, while the GDP growth rate is the dependent variable. The great majority of previous research has employed these criteria. The study also employed the Augmented Dickey-Fuller and Phillips-Perron Unit Root Tests to look for unit roots and validate the stationary character of the variables. Using yearly data from 1990 to 2020, this study evaluates the effects of inflation, currency rates, foreign direct investment, and an unexpected event shock on the economic development of Bangladesh.

According to a multiple regression study, both exchange rates and foreign direct investment have had a major impact on the nation's economic growth. Unexpected occurrences like COVID-19, natural disasters, etc. hurt the economy, although inflation, FDI, and currency rates are among the positive influences. Since inflation has a direct influence on interest rates and the value of the currency, the government is required to control it.

The study's functional, heteroskedasticity- and autocorrelation-free model is sufficient to demonstrate the model's stability. The nation's leaders should concentrate on developing and refining the right policies to support economic growth and development.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter is the third chapter of the study of Capital Accumulation and economic growth in Somalia. The chapter gives the theoretical framework of the study which starts with the definition of the study constructs, the theory adopted and the data used along with the model which the study uses.

3.1 Research Design

The goal of this study is to look at how the independent variables of gross capital formation, export, savings, and exchange rate relate to the independent variable of economic growth that was discussed earlier.

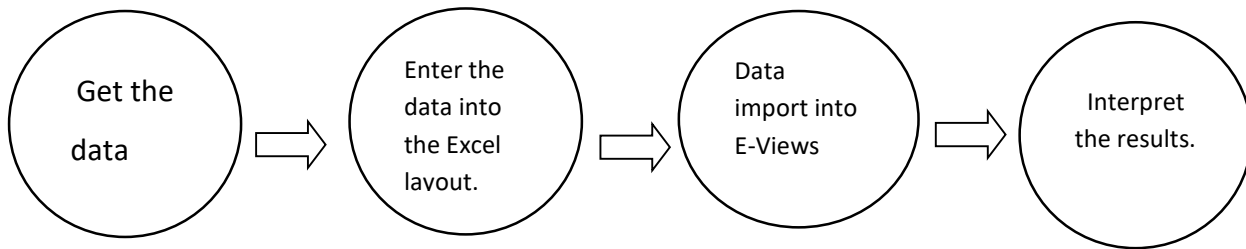
3.2 Population of the Study

All potential observational devices, or a subset of them, make up the population (Zikmund et al 2013). The broadest category of study participants that can be sampled is referred to as the "population" (MO, 1990). The SESRIC's repository for Somalia Economic Data, which spans the years 1989 to 2020, is where the researcher selected a sample of 31 years' worth of data.

3.3 Data Collection Method

The investigation will primarily use secondary data. Time series data will be used between 1989 and 2020 to show how macroeconomic factors define Gross Domestic Product (GDP), which is effectively a proxy measure for economic growth. The secondary data reports from SESRIC are used in this investigation. The researchers used this kind of data since it allowed them to complete the study on schedule, with good work, while also saving them time. Additionally, the SESRIC provides accurate and comprehensive data to academics so they may easily access it and save money by acquiring used data.

3.4 Data Processing



Several stages are necessary for data processing. To analyze time-collection data, the researchers must first get and gather data from the SESRIC. They will then enter the data into an Excel layout and import the results into the well-known econometric programming project E-Views.

3.5 E-Views

E-views are used to describe various econometric analyses, including time series analysis, cross-sectional analysis, board information analysis, and gauging. The E-Perspectives focused on the use of quantifiable programming with accounting pages and data set developments. Additionally, it supports the design of undocumented documents for information storage. According to Wert (2010), information can be used to predict the future benefits of information by using E-views and can be used quickly to develop a measurable connection.

E-views are used to measure both common and unusual relapses, according to Startz (2009). E-views were also employed by the expert for analytical checking. A professional can decide whether there is a multicollinearity, autocorrelation, or heteroscedasticity issue after running the test.

Additionally, specialists supervise model-specific testing to check whether the model was correctly or erroneously determined. To determine whether the wrong word is frequently transmitted through e-mail, the analyst additionally does an ordinariness test.

3.5.1 Data Analysis

This study uses e-views to carry out and test the econometric analysis (E-views10).

3.5.2 Descriptive Statistics

Descriptive statistics are brief informational coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of a population.

3.5.3 Unit root test

The unit root test is used to determine whether trending data should first be differenced or regressed on predictable functions of time to make the data stable. Economic and finance theory also suggests that non-stationary time series variables may have long-run equilibrium relationships. There are numerous analytical techniques for both stationary and non-stationary data. The most popular methods, Dickey-Fuller and Phillip-Perron, are applied to null hypotheses such as the existence of a unit root test, non-stationarity, or the failure to reject the alternative hypothesis.

3.5.4 Co-integration Test

According to Porter (2009), multiple linear regression models with a single explained variable have more than two explanatory factors (Y). A dependent variable (Y) is present when there are two or more explanatory variables (Xi). The function can be used to forecast how an independent variable and a dependent variable will interact.

Multiple linear regression was also used in the analysis by the researcher. Four additional independent factors were added by the researcher to explain how capital accumulation affects economic growth. Export, savings, exchange rate, and gross capital formation are the explanatory factors. Multiple linear regression was developed using the model shown below:

$$GDP_t = \beta_0 + \beta_1 GCF_t + \beta_2 EXP_t + \beta_3 S_t + \beta_4 EXCR_t + \varepsilon$$

GDP, or growth domestic product, is our dependent variable, and since the model's coefficient is zero and all four explanatory variables must be zero as well, GDP will remain at zero. Additionally, the independent variables' slopes of the coefficient are 1, 2, 3, and 4. While t is the time series data lag, ε the error term, or, shows that there may be other external factors that have an impact on the model. Since the model is linear, there shouldn't be any connection between the explanatory factors and the parameter assumption. This is because the independent variables are linked together, which creates a multi-collinearity problem that skews the result.

3.5.5. T-test Statistic

To test a hypothesis, statisticians employ the t-test. It makes use of the t-statistic, the values of the t-distribution, and the degrees of freedom to assess statistical significance. Use the t-test to see if there are statistically significant variations between group means. It demonstrates if the differences in means may have happened randomly. The t-test is generally used when data sets have a normal distribution but the population variance is unknown.

3.5.6 F-test Statistic

To ascertain whether or not the variances of two populations or two samples are identical, the F test, a statistical tool, is employed in hypothesis testing. An f distribution is followed by the data in an f test. The f statistic is used in this test to compare and divide two variances. The f-test may yield one- or two-tailed results depending on the nature of the issue. A proper F test requires F distribution in the population and independent events in each sample. The null hypothesis cannot be rejected after performing the hypothesis test unless the F-test findings are statistically significant.

Analysts will demonstrate that by utilizing the complete model and accounting for the elective hypotheses, the endogenous variable may be satisfactorily explained. If the likelihood is less than 0.01, 0.05, or 0.10, the entire model is likely to adequately represent the endogenous variable.

3.6 Quality Control

3.6.1 Validity

The researcher employed an economic and statistical model to evaluate the validity of the data before moving forward. A test's capacity to function as intended is referred to as validity.

3.6.2 Reliability

The consistency with which a study tool will yield the same outcomes under related conditions is referred to as reliability. Because of this, the researcher used the most reliable secondary data available for this investigation.

The research was carried out by all ethical standards, and all copyrights were identified for which obtaining permission to reproduce materials was necessary.

The SESRIC database provided the data for this study, and there were no overestimations or underestimations in the data.

3.7 Limitations of the Study

Finding precise data that relates to the variables you need can be difficult, and the time series data may contain several econometric flaws.



CHAPTER FOUR

DATA ANALYSES AND FINDINGS

3.0 Introduction

This chapter revealed the results of the data analysis. Multiple linear regression was used in this study to identify the independent variables that significantly impacted economic growth after gathering empirical data. The empirical outcomes of ordinary least squares have also been subjected to diagnostic checks, such as tests for heteroscedasticity, multicollinearity, autocorrelation, and normality. Additionally, this chapter used the E-Views 10 student version to conduct a unit root test and a co-integration test.

4.1 Descriptive Statistics

	LOG(GDP)	LOG(EXCHANGE_RATE)	LOG(GCF)	LOG(EXPORT)	LOG(SAVING)
Mean	21.09494	9.331584	19.50346	15.00147	19.40975
Median	21.13712	9.620302	19.52885	15.00462	19.45775
Maximum	21.67879	10.37036	20.07505	15.42689	20.00438
Minimum	20.18413	6.195782	18.59452	14.31097	18.43743
Std. Dev.	0.361443	0.918941	0.342490	0.289178	0.375421
Skewness	-0.626121	-1.536893	-0.693975	-0.423919	-0.785435
Kurtosis	3.268917	5.501750	3.802291	2.405258	3.613632
Jarque-Bera	2.187235	20.94255	3.426768	1.430063	3.792234
Probability	0.335002	0.000028	0.180255	0.489177	0.150151
Sum	675.0381	298.6107	624.1106	480.0472	621.1121
Sum Sq. Dev.	4.049876	26.17802	3.636291	2.592348	4.369170
Observations	32	32	32	32	32

32 observations were made for the investigation, as displayed in the table (4.1) earlier. The other four variables are independent, with GDP being the only dependent one (GDP, gross capital formation, export, saving, and exchange rate). A range of 21.67879 to 20.18413 percent is the GDP growth rate. The average GDP growth is 21.09494%. This suggests that the economy is stable.

4.2-Unit Root Test

Table 4.1 summarizing unit root test at 95%

Variables	Test for a unit root in	Test critical values at 5%	t-statistics	P-value	Remarks
GDP	Level	-2.963972	-2.623700	0.0995	Nonstationary
Saving	Level	-3.574244	-3.091002	0.1271	Nonstationary
EXR	Level	-3.568379	-4.351181	0.0088	Stationary
GCF	Level	-3.574244	-3.172004	0.1097	Nonstationary
Export	Level	-3.562882	-5.207046	0.0010	Stationary
GDP	1st Difference	-3.568379	-4.477026	0.0065	Stationary
Saving	1st Difference	-3.568379	-4.745122	0.0034	Stationary
Export	1st Difference	-3.574244	-9.187950	0.0000	Stationary
GCF	1st Difference	-3.56379	-4.626103	0.004600	Stationary
EX	1st Difference	-3.574244	-5.445498	0.0007	Stationary

To evaluate whether a time series variable is non-stationary and has a unit root, statisticians utilize the unit roots test. Depending on the test used, the alternative hypothesis is either the existence of a stationary, trend stagnant or explosive root, while the null hypothesis is the existence of a unit root. Consequently, the goal of this part is to ascertain whether or not a unit root problem exists.

Hypothesis

H0: A unit root is present (time series is non-stationary)

H1: There isn't an issue with the unit root (time series is stationary)

4.3 Johnson co-integration test

Hypothesis:

H0: The cointegration equation does not exist.

H1: There is a cointegration equation, at least one.

Table 4.31 Cointegration Test

Unrestricted Co-integration Rank Test (Trace)					
Hypothesized		Trace	0.05		
No. of	Eigenvalue	Statistic	Critical Value	Prob.**	
CE(s)					
None *	0.917145	178.1940	69.81889	0.0000	
At most 1 *	0.857100	103.4741	47.85613	0.0000	
At most 2 *	0.655742	45.10569	29.79707	0.0004	

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Conclusion

Since the level of significance t-statistics of the Trac and Maxeigen value tests, 0.000, 0.0000, are less than the critical value, we have no reason to accept H0 and may thus infer that there is at least one co-integration between the GDP, gross capital formation, export, saving, and exchange rate variables. In other words, they are moving to gather.

4.4 Multiple-Linear Regression

Dependent Variable: LOG(GDP)

Method: Least Squares

Date: 11/24/22 Time: 15:02

Sample (adjusted): 1 32

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GCF)	1.101147	0.181511	6.066563	0.0000
LOG(EXPORT)	0.119001	0.049775	2.390754	0.0241
LOG(SAVINGS)	0.074402	0.170496	0.436388	0.0060
LOG(EXCHANGE_RATE)	0.075318	0.020873	3.608420	0.0012
C	2.145260	0.461628	4.647161	0.0001
R-squared	0.993673	Mean dependent var		21.09494
Adjusted R-squared	0.992735	S.D. dependent var		0.361443
S.E. of regression	0.030807	Akaike info criterion		-3.979539
Sum squared resid	0.025625	Schwarz criterion		-3.750518
Log-likelihood	68.67262	Hannan-Quinn criteria.		-3.903625
F-statistic	1060.040	Durbin-Watson stat		2.024343
Prob(F-statistic)	0.000000			

According to the multiple linear regression, our R squared is 0.99. This signifies that the four factors have adequately described the variation's percentage change (GCF, exports, savings, and

exchange rate). Therefore, as seen in the preceding table, the multiple coefficients of determination are 0.993673, or 99% which seems high and this may be due to the LM test which was almost near to 5 percentage while the other factors outside of our model account for 0.01% of Somalia's economic growth.

The outcome of our model demonstrates that gross capital formation and gross domestic product (GDP) in Somalia have a positive connection. A percentage point increase in GCF (while other explanatory factors such as export, saving, and exchange rate remain constant) will increase output and cause GDP to rise.

The outcome of our model demonstrates that gross capital formation and gross domestic product (GDP) in Somalia have a positive connection. as a percentage point rise in GCF (while other explanatory factors such as exports, savings, and exchange rates held constant),

An increase in one unit of export (while other explanatory factors are held constant) will increase GDP by 0.11900 dollars. Additionally, the outcome of Table 4 demonstrates a positive correlation between savings and GDP. An increase in savings (while other explanatory variables such as GCF, exports, and exchange rates remain constant) would increase GDP by 0.74202 dollars. In addition to that, there is a positive relationship between the exchange rate and economic growth. An increase in one percent of the exchange rate (while other explanatory factors such as GCF, exports, and saving are held constant) leads to an increase in the gross domestic product of 0.075318 dollars.

T-statistic Test

The T-test will be used to determine whether the explanatory variables are significant to the explained variable, presuming the model is normally distributed at $\alpha = 0.05$.

Hypothesis 1:

H0: $\beta_1 = 0$ (GCF is not significant).

H1: $\beta_1 \neq 0$ (GCF is significant).

Decision rules:

There is no reason to reject the null hypothesis (H_0), which claims that gross capital production is minor in Somalia's economic growth if the value of the T-probability test is greater than 0.05. The null hypothesis is not disproved if the opposite is true (H_0).

Conclusion

We agreed that GCF had a substantial impact on Somalia's economic growth since the P-value for GCF is 0.0000, which is less than 0.05, we have no reason to reject H_0 , and there is strong evidence to support this conclusion at a 5% significant level.

Hypothesis 2:

$H_0: \beta_2 = 0$ (EXPORT is not Substantial)

$H_1: \beta_2 \neq 0$ (EXPORT is Significant)

Decision rules:

If the outcome of the T-probability test is greater than 0.05, we have no reason to reject the null hypothesis (H_0), which states that Export plays a small role in Somalia's economic growth. The null hypothesis is not disproved if not (H_0).

Conclusion

We agreed that the export of goods from Somalia had an effect on the country's economic growth because the P-value for export is 0.024, which is less than 0.05, and we have no reason to reject H_0 . Extremely strong evidence at a 5% significant level backs up this conclusion.

Hypothesis 3:

$H_0: \beta_3 = 0$ (Exchange rate not substantial)

$H_1: \beta_3 \neq 0$ (The exchange rate is substantial)

Since the P-value for export is 0.024, which is less than 0.05, and there is no reason for us to reject H_0 , we agreed that Somali export had an impact on Somalia's economic growth. This conclusion is supported by extremely strong evidence at a 5% significant level.

Decision rules:

If the T-test probability value is more than 0.05, it is impossible to reject the null hypothesis (H_0), which contends that the growth of Somalia's economy is unaffected by exchange rates. In that situation, the null hypothesis must be rejected (H_0).

Conclusion

We accepted that the exchange rate has a significant impact on Somalia's economic growth since the P-value for exchange is 0.0012, which is less than 0.05, and because we have no reason to reject H_0 . This is due to the overwhelming evidence that trade has a big impact on Somalia's economic growth at a level that is 5% significant.

Hypothesis 4:

$H_0: \beta_4 = 0$ (SAVING is not Substantial)

$H_1: \beta_1 \neq 0$ (SAVING is Substantial)

Decision rules:

Savings do not affect Somalia's economic progress, according to the null hypothesis (H_0), which is acceptable if the T-probability test result is greater than 0.05. Therefore, we reject the null hypothesis (H_0).

Conclusion

Given that saving has a P-value of about 0.6660, which is more than 0.05, we concluded that saving has little to no positive effect on Somalia's economic growth. Therefore, there isn't much

evidence to suggest that the savings are significantly contributing to Somalia's economic growth at a 5% significance level.

F-statistic test

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (no linear relationship)

H1: $\beta_1 = \beta_2 = \beta_3 = \beta_4 \neq 0$ (there is linear relationship).

Decision rule

The F-test probability value must be greater than 0.05 to accept the null hypothesis H0. The null hypothesis will be disregarded if not (H0).

Conclusion

Since the probability value of the F-test, which takes into account every variable in the multiple regression model, is close to 0.0000, which is below the level of significance at 5%, it is crucial to reject the null hypothesis. (H0). We may infer that the four independent variables of GCF, export, saving, and exchange rate have a combined statistical and economic significance level of = 5%.

4.5 Diagnostic Econometric Problem

4.5.1 Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.905968	Prob. F(10,17)	0.1162
Obs*R-squared	16.91390	Prob. Chi-Square(10)	0.0763

Interpretation

We reject the null hypothesis that there is no series correlation using the Breusch-Godfrey Serial Correlation LM Test ($0.0763 > p\text{-value } 0.05$) because our p-value is over the threshold of significance.

4.5.2 Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.541649	Prob. F(4,27)	0.2184
Obs*R-squared	5.949693	Prob. Chi-Square(4)	0.2029
Scaled explained SS	6.618556	Prob. Chi-Square(4)	0.1575

Interpretation

There is no heteroskedasticity test to be rejected at our null hypothesis at the 5% level of our p-value. As shown in the table p-value (0.2029>0.05) is greater than our significant value.

4.5.3 Multicollinearity Test

Variance Inflation Factors

Date: 10/22/22 Time: 22:43

Sample: 1989 2020

Included observations: 31

Table 4.5.4: Variance Inflation Factor (VIF) Analysis

Variance Inflation Factors

Date: 11/24/22 Time: 14:57

Sample: 1 34

Included observations: 31

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LOG(GCF)	0.032946	12673.2	4.2294
LOG(EXCHANGE_RTE)	0.000436	1291.169	7.01706
LOG(EXPORT)	0.002478	18806.26	6.767394
LOG(SAVINGS)	0.029069	369379.1	9.338209

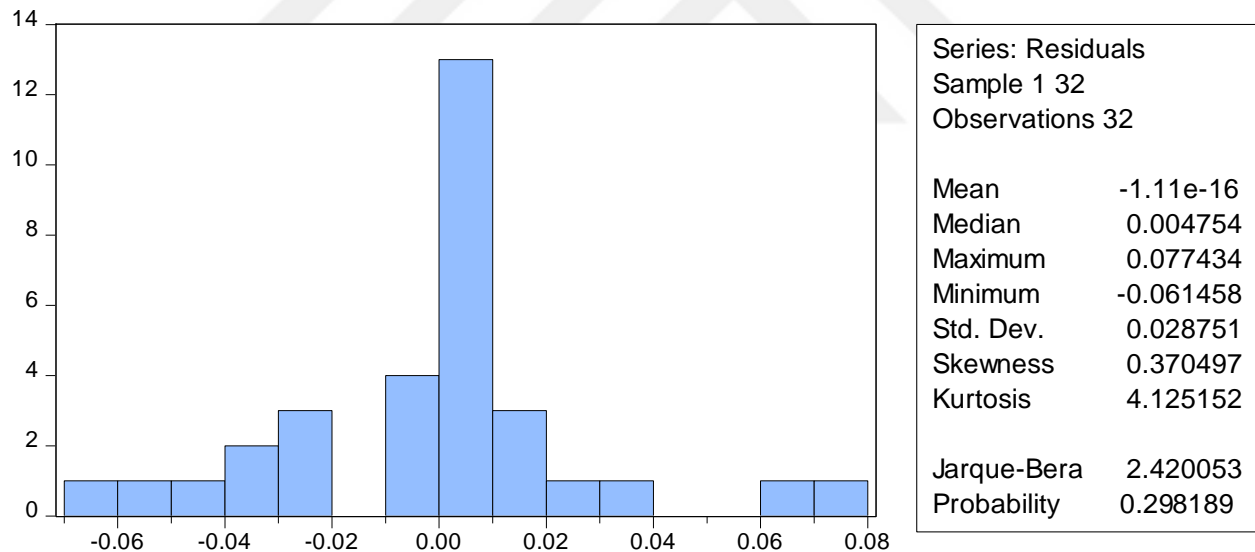
Hypothesis:

H1: The multicollinearity problem does not exist.

H0: Multicollinearity problem exists.

Decision Rule:

If VIF is less than 10, it is assumed that there are no significant multicollinearity issues and the null hypothesis H0 is accepted. Otherwise, if the VIF is greater than 10, the acquisition should be rejected because there is a major multicollinearity issue (Baum, 2006).

4.5.4 Normality test**Conclusion**

The Jarque-Bera normality test probability value (0.298189)'s P-value is displayed in the figure (diagnostic test for normality of residuals), and it is obviously above the accepted relevance threshold (0.05). Because of this, it is not possible to reject the null hypothesis that the residuals are distributed normally. The model is therefore unaffected by the normalcy problem.

Table 4.5.5: Ramsey RESET Test

	Value	df	Probability
t-statistic	0.181893	15	0.8581
F-statistic	0.033085	(1, 15)	0.8581
Likelihood ratio	0.046268	1	0.8297

The following are the Ramsey Reset test's hypotheses:

H0: The model is presented accurately.

H1: The model's assumptions are incorrect.

If the P-value of the F-stat is greater than 0.05, the model is accurately built to demonstrate that it is adequately defined and H0 is significant to accept. Accept to reject any alternate choice if the model's p-value of F-stat is less than 0.05 and shows that the conclusion wasn't accurate (Gujarati and Porter, 2009). The probability value for the F-measurement is 0.8581, which is more than 0.05, for this reason. We, therefore, believe that the model is correctly stated at the 0.05 significant level based on the available information.

4.5.6 Stability Tests

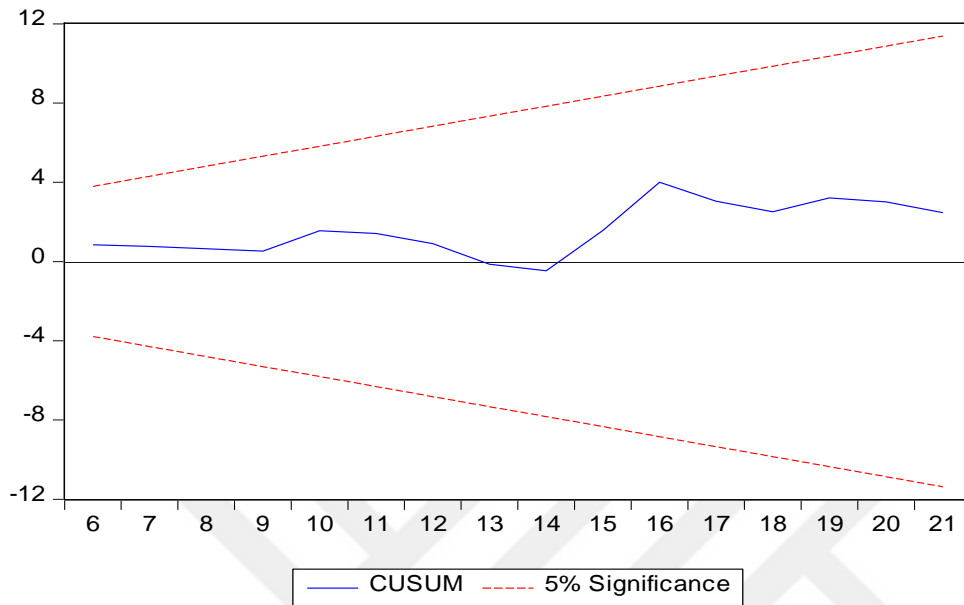
The Cumulative Sum of Squares of Recursive Residuals CUSUM, which is shown in the table, is used to calculate the version's balance. This kind of test is available in this situation thanks to the CUSUM test, which solely depends on the residuals from the recursive estimations.

Hypothesis: 1

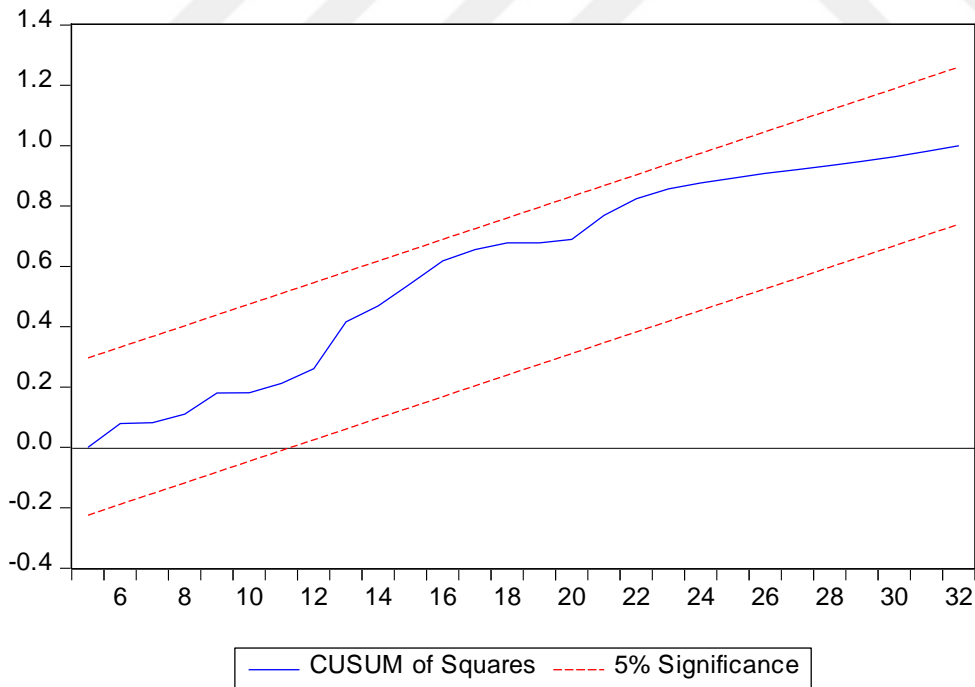
H0: The CUSUM distribution is a distribution that is asymmetric and aims at 0.

H1: The CUSUM distribution isn't always symmetric distributed and has no normal distribution.

CUSUM Test



CUSUM Square



Graphic 1. Stability test

As demonstrated by the accompanying figure, the model has not had any stability issues.

Decision rule.

When the graph of CUSUM information is inside the zone for a check at the 5% level of significance, the null hypothesis of a normal distribution is accepted. Similarly, the opposite. The investigation's findings demonstrate that the critical area's boundaries are within the range of the graph of CUSUM data.



CHAPTER FIVE

CONCLUSION

5.0 Introduction

In this chapter, the study's conclusions and recommendations are provided. The research's result is stated in the first part 5.1, followed by the researchers' recommendations in section 5.2 and a suggestion of policy implications in section 5.3.

5.1. Conclusion

In this analysis, data from 1989 to 2020 are used to assess GDP, GCF, exports, savings, and exchange rates. The broad consensus is that for a country to increase economic growth and become more sustainable, capital accumulation and other explanatory factors are crucial. It is often said that developing countries may increase their long-term growth rates through capital accumulation. For the economy to be more valuable, exports, savings, and exchange rate ratios need to be increased to boost economic growth.5.2

5.2 Recommendation

1. The government of Somalia should concentrate on exports because doing so would allow the nation to greatly widen its market base and reduce its dependence on any particular market. Consequently, the increased output can result in greater economies of scale and better margins.
2. It is demanded that the Ministry of Planning develop initiatives to support regional farmers, such as better markets for them to sell their produce. This encourages them to enhance food production so that the nation can feed its population and boost exports. The farmer also earns more money, which helps Somalia's economy.
3. Good roads, an appropriate supply of electricity, and security must all be considered basic infrastructure. This will lessen the laborious tasks that manufacturers currently have to complete.
4. It is necessary to reduce speculative business and invest in productive areas of the economy.
5. the government should reduce or tie the level of capital inflows that come from out of the country, which will help them to create employment opportunities in the long run.

5.3 Policy Implication

According to the report, capital accumulation significantly boosted Somalia's economic expansion. For high economic growth, the government should devise policies that encourage

long-term capital accumulation. Since doing so will directly create millions of jobs in the near term and millions more indirectly over time, the government should adopt investment-focused initiatives that prioritize government-owned firms and infrastructure. On the other hand, the government should promote private investment sectors as it would have a more beneficial impact and stimulate growth by fostering an environment that is conducive to investment. However, our research demonstrates a long-term link between capital accumulation and economic expansion. This fact suggests that the government must gather sufficient funds and distribute them to the economy for efficient use. They must create a strong project management structure that can satisfy the demands of both domestic and international investors. According to the report, capital accumulation significantly boosted Somalia's economic expansion. For high economic growth, the government should devise policies that encourage long-term capital accumulation. Since doing so will directly create millions of jobs in the near term and millions more indirectly over time, the government should adopt investment-focused initiatives that prioritize government-owned enterprises and infrastructure. Additionally, the Somali government should be aware of and implement monetary measures to prevent rising inflation, which results from a lack of market equality, as failure to do so will restrict investment and ultimately cause the collapse of the economy.

REFERENCE

- Abbas, S. (2012). Causality between exports and economic growth: investigating suitable trade policy for Pakistan. *Eurasian Journal of Business and Economics*, 5(10), 91–98. <http://www.ejbe.org/EJBE2012Vol05No10p91ABBAS.pdf>
- Abdulkadhim, H. H., & Saeed, S. T. (2017). Export and Economic Growth Nexus in the GCC Countries: A Panel Data Approach. *International Journal of Business and Social Research*, 7(12), 01. <https://doi.org/10.18533/ijbsr.v7i12.1084>
- Adeniran, J. O., Yusuf, S. A., & Adeyemi, O. A. (2014). The impact of exchange rate fluctuation on the Nigerian economic growth: An empirical investigation. *International Journal of Academic Research in Business and Social sciences*, 4(8), 224.
- Akindele, O. O. (2010). The causal relationship between capital formation and economic growth: the Nigerian experience.
- Akpan, E. O., & Atan, J. A. (2011). Effects of exchange rate movements on economic growth in Nigeria. *CBN Journal of Applied Statistics*, 2(2), 1-14.
- Aman, Q., Ullah, I., Khan, M. I., & Khan, S. ud D. (2017). Linkages between exchange rate and economic growth in Pakistan (an econometric approach). *European Journal of Law and Economics*, 44(1), 157–164. <https://doi.org/10.1007/s10657-013-9395-y>
- Angermuller, J. (2018). Accumulating discursive capital, evaluating subject positions. From Marx to Foucault. *Critical Discourse Studies*, 15(4), 414-425.
- Asghar, N., Awan, A., & Rehman, H. U. (2012). Human capital and economic growth in Pakistan: A cointegration and causality analysis. *International Journal of Economics and Finance*, 4(4), 135-147.
- Bankole, A. S. (2020). Relationship between savings and economic growth in Nigeria. *ITALIENISCH*, 10(1), 153-168.
- Becker, G. S., Glaeser, E. L., & Murphy, K. M. (1999). Population and economic growth. *American Economic Review*, 89(2), 145-149.
- Bharti, N., & Yang, L. (2021). Human Capital Accumulation in China and India in the 20th Century. *World*.
- Bloom, D. E., & Canning, D. (2000). The health and wealth of nations. *Science*, 287(5456), 1207-1209.
- Boianovsky, M. (2019, May). *Arthur Lewis and the classical foundations of development economics. Including a Symposium on 50 Years of the Union for Radical Political Economics*. Emerald Publishing Limited.
- Bustos, P., Garber, G., & Ponticelli, J. (2020). Capital accumulation and structural transformation. *The Quarterly Journal of Economics*, 135(2), 1037-1094.
- Caselli, F., Esquivel, G., & Lefort, F. (1996). Reopening the convergence debate: a new look at

- cross-country growth empirics. *Journal of economic growth*, 1(3), 363-389.
- Das, D. (2018). Causality between Tax Revenue and Economic Growth in India (1992-2017). *International Journal of Business Insights & Transformation*, 12(1).
- Dawson, P. J., & Tiffin, R. (1998). Is there a long-run relationship between population growth and living standards? In the case of India.
- Easterlin, R. A. (1967). Effects of population growth on the economic development of developing countries. *The Annals of the American Academy of Political and Social Science*, 369(1), 98-108.
- Edwards, S. (2000). Interest rates, contagion, and capital controls
- Eme, O., & Johnson, A. (2011). Effects of exchange rate movements on economic growth in Nigeria. *CBN Journal of Applied Statistics*, 02(2), 1–14.
- Ewubare, D. B., & Ogbuagu, A. R. (2015). Capital accumulation and economic growth in Nigeria “endogenous growth approach”. *IOSR Journal of Economics and Finance*, 6(6), 49-64.
- Fogel, R. W. (1994). Economic growth, population theory, and physiology: the bearing of long-term processes on the making of economic policy.
- Frimpong, J. M., & Marbuah, G. (2010). The determinants of private sector investment in Ghana: An ARDL approach. *European Journal of Social Sciences*, 15(2), 250-261.
- Gamber, E., & Seliski, J. (2019). The effect of government debt on interest rates. Congressional Budget Office.
- GBENGA, A., & JOY, O. A. (2014). the Impact of Exchange Rate on Economic Growth in Nigeria (1980-2012). *Australian Journal of Business and Management Research*, 04(07), 09–19. <https://doi.org/10.52283/nswrca.ajbmr.20140407a02>
- Gidigbi, M. O., & Donga, M. (2020). Impact of savings on economic growth in Africa. *The Economics and Finance Letters*, 7(2), 136-147.
- Gregory, A. W., & Hansen, B. E. (1996). Residual-based tests for cointegration in models with regime shifts. *Journal of Econometrics*, 70(1), 99-126.
- Hanushek, E. A., & Kim, D. (1995). Schooling, labor force quality, and economic growth.
- Headey, D. D., & Hodge, A. (2009). The effect of population growth on economic growth: A meta-regression analysis of the macroeconomic literature. *Population and development review*, 35(2), 221-248.
- Hernandez-Cata, E. (2000). Rising Growth and Investment in Sub-Saharan Africa: What Can Be Done? International Monetary Fund, African Department. IMF
- Hicks, J. R. (1957). A rehabilitation of" classical" economics. *The Economic Journal*, 67(266), 278-289.

- Hicks, U. K. (1957). Learning about economic development. *Oxford Economic Papers*, 9(1), 1-13.
- Isola W.A. (2002): “The Economic Education Linkage: Evidence from Nigeria (1980-1999)” *Lagos Journal of Educational Administration and Planning*, Vol.2, No.1, pp.16-32
- Isola, W. A., & Alani, R. A. (2012). The human capital development and economic growth: Empirical evidence from Nigeria. *Asian Economic and Financial Review*, 2(7), 813-827.
- J.O, A., S.A, Y., & A, A. O. (2014). The Impact of Exchange Rate Fluctuation on the Nigerian Economic Growth: an Empirical Investigation. *International Journal of Academic Research in Business and Social Sciences*, 4(8). <https://doi.org/10.6007/ijarbss/v4-i8/1091>
- Jhingan, M. L. (2003). *Macro-Economic Theory Revised and Enlarged Edition*.
- Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of economic dynamics and control*, 12(2-3), 231-254.
- Karahan, Ö. (2020). Influence of exchange rate on the economic growth in the Turkish economy. *Financial Assets and Investing*, 11(1), 21-34
- Karahan, Ö. (2020). Influence of exchange rate on the economic growth in the Turkish economy. *Financial Assets and Investing*, 11(1), 21-34.
- Kelley, A. C. and W. P. McGreevey (1994), “Population and development in historical perspective”, in R. H. Cassen (ed.), *Population and Development: Old Debates, New Conclusions*, New Brunswick, NJ, and Oxford: Transaction Publishers.
- Kelley, A. C., & Schmidt, R. M. (1996). Toward a cure for myopia and tunnel vision of the population debate: A dose of historical perspective. In the impact of population growth on well-being in developing countries (pp. 11-35). Springer, Berlin, Heidelberg.
- Khan, M. F. H. (2021). Impact of Exchange Rate on Economic Growth of Bangladesh. *European Journal of Business and Management Research*, 6(3), 173–175. <https://doi.org/10.24018/ejbmr.2021.6.3.891>
- Khan, M. S., & Reinhart, C. M. (1990). Private investment and economic growth in developing countries. *World Development*, 18(1), 19-27.
- Kilavuz, E., & Altay Topcu, B. (2012). Export and economic growth in the case of the manufacturing industry: Panel data analysis of developing countries. *International Journal of Economics and Financial Issues*, 2(2), 201–215.
- Korkmaz, S. (2013). the Effect of Exchange Rate on Economic Growth. *Pressacademia*, 9(1), 42–51.
- Kuznets, S. (1967), “Population and economic growth,” *Proceedings of the American Philosophical Society*, 111(3): 170-93.
- Lee, J. W., & Barro, R. J. (2001). Schooling quality in the cross-section of countries. *Economica*, 68(272), 465-488.

- Lin, J. Y., & Li, Y. (2001). Export and Economic Growth in China: A Demand-Oriented Analysis. *China Economic Quarterly*, 53(9), 1689–1699.
- Maitra, B. (2016). Investment in human capital and economic growth in Singapore. *Global Business Review*, 17(2), 425-437. Maitra, B. (2016). Investment in human capital and economic growth in Singapore. *Global Business Review*, 17(2), 425-437.
- Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A contribution to the empirics of economic growth. *The quarterly journal of economics*, 107(2), 407-437.
- Mavrodieva, A. V., Budiarti, D. S., Yu, Z., Pasha, F. A., & Shaw, R. (2019). Governmental incentivization for SMEs' engagement in disaster resilience in Southeast Asia. *International Journal of Disaster Risk Management*, 1(1), 32-50.
- Meier, G. M., & Rauch, J. E. (1995). *Leading issues in economic development* (Vol. 6). New York: Oxford University Press.
- Migliaccio, G., & Pavone, P. (2020, May). Italian innovative start-up cohorts: an empirical survey on profitability. In *INTERNATIONAL SYMPOSIUM: New Metropolitan Perspectives* (pp. 834-843). Springer, Cham.
- Monette, S. (2019). *Classical Growth Theory: Smith, Ricardo, and Marx*.
- Najarzadeh, R., Reed, M., & Tasan, M. (2014). Relationship between savings and economic growth: The case for Iran. *Journal of International Business and Economics*, 2(4), 107-124.
- Ndikummana, L. (2000). Financial Determinants of Domestic Investment in Sub-Saharan Africa: Evidence from Panel Data. *World Development*, 28(2), 381-400.
- Nguyen, T. H. (2016). Impact of Export on Economic Growth in Vietnam: Empirical Research and Recommendations. *International Business and Management*, 13(3), 45–52. <https://doi.org/10.3968/9040>
- Nweze, N. P. (2017). Domestic Investment, Capital Formation and Economic Growth in Nigeria. *International Journal of Research in Social Sciences*, 7(2249-2496), 41-65.
- 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.
- Odhiambo, N. M. (2016). Public and Private Investment and Economic Growth: A Review. *Journal of Accounting and Management*, 2, 25-42.
- Peterson, E. W. F. (2017). The role of population in economic growth. *Sage Open*, 7(4), 2158244017736094.
- Pritchett, L. (2001). Where has all the education gone? *The world bank economic review*, 15(3), 367-391.

- Ramirez, A., Ranis, G., & Stewart, F. (1997). Economic growth and human development (No. 787). Center Discussion Paper.
- Razzaque, M. A., Bidisha, S. H., & Khondker, B. H. (2017). Exchange Rate and Economic Growth: An Empirical Assessment for Bangladesh. *Journal of South Asian Development*, 12(1), 42–64. <https://doi.org/10.1177/0973174117702712>
- Ribaj, A., & Mexhuani, F. (2021). The impact of savings on economic growth in a developing country (the case of Kosovo). *Journal of Innovation and Entrepreneurship*, 10(1), 1-13.
- Rodrik, D. (2018). Populism and the economics of globalization. *Journal of international business policy*, 1(1), 12-33.
- Romm, A. T. (2005). The relationship between saving and growth in South Africa: A time series analysis. *South African Journal of Economics*, 73(2), 171-189.
- Sachs, J. D., & Warner, A. M. (1997). Sources of slow growth in African economies. *Journal of African economies*, 6(3), 335-376.
- Sajid, G. M., & Sarfraz, M. (2008). Savings and economic growth in Pakistan: An issue of causality. *Pakistan Economic and Social Review*, 17-36.
- Saltz, I. S. (1999). An examination of the causal relationship between savings and growth in the third world. *Journal of Economics and Finance*, 23(1), 90-98.
- Shuaib, I. M., and Ndidi, D. E. (2015). Capital formation: Impact on the economic development of Nigeria 1960-2013. *European Journal of Business and Accountancy*, 3(2056-6018), 23-40.
- Siddiqui, D. A. (2020). Conceptual Framework of Sustainable Economic Growth: A Theoretical Review. Available at SSRN 3641573.
- Simon, J. L. (1989). On aggregate empirical studies relating population variables to economic development. *Population and Development Review*, 323-332.
- Simon, J. L. (2014). *Population and development in poor countries: Selected essays* (Vol. 1204). Princeton University Press.
- Startz, R. (2009). Eviews illustrated for version 7. Quantitative Micro Software.
- Stern, N. (1989). The economics of Development: A Survey. *The Economic Journal*, 99(397), 597-685.
- Straub, L. (2019). Consumption, savings, and the distribution of permanent income. Unpublished manuscript, Harvard University.
- Sultan. A & Mesut. M (2018) Capital Formation and Economic Development. *International Journal of Science and Research (IJSR)* ISSN: 2319-7064
- Thirlwall, A. P. (1972). A Cross Section Study of Population Growth and the Growth of Output and Per Capita Income in a Production Function Framework¹. The Manchester

- School, 40(4), 339-356.
- Thomas, V., & Wang, Y. (1996). Distortions, interventions, and productivity growth: is East Asia different? *Economic Development and Cultural Change*, 44(2), 265-288.
- Thornton, J. (2001). Population Growth and Economic Growth: Long-Run Evidence from Latin America. *Southern Economic Journal*, 68(2), 464-468.
- Topcu, E., Altinoz, B., & Aslan, A. (2020). Global evidence from the link between economic growth, natural resources, energy consumption, and gross capital formation. *Resources Policy*, 66, 101622.
- Touitou, M., Laib, Y., & Boudeghdegh, A. (2019, September). The impact of exchange rate on economic growth in Algeria. In *CBU International Conference Proceedings (Vol. 7, pp. 323-330)*.
- Tran, C., & Wende, S. (2022). Dividend Imputation, Investment and Capital Accumulation in Open Economies (No. 2022-687). Australian National University, College of Business and Economics, School of Economics.
- Tsen, W. H., & Furuoka, F. (2005). The relationship between population and economic growth in Asian economies. *ASEAN Economic Bulletin*, 314-330.
- Ugochukwu, U. S., and Chinyere, U. P. (2013). The Impact of Capital Formation on The growth of the Nigerian Economy. *Research Journal of Finance and Accounting*, 4(ISSN 2222-1697), 36-42.
- Usman, M., H. W. K., & . H. K. (2012). Impact of Exports on Economic Growth- A Case of Luxemburg. *Information Management and Business Review*, 4(1), 1-7. <https://doi.org/10.22610/imbr.v4i1.957>
- Van Wyk, B. F., & Kapingura, F. M. (2021). Understanding the nexus between savings and economic growth: A South African context. *Development Southern Africa*, 38(5), 828-844.
- World Bank 'World development indicators' Table 3 "Knowledge and development" Bulletin Vol.8, No.4, pp.1-24 (1997)
- Zhang, Q., Pan, J., Jiang, Y., & Feng, T. (2020). The impact of green supplier integration on firm performance: The mediating role of social capital accumulation. *Journal of Purchasing and Supply Management*, 26(2), 100579.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. Cengage Learning.

APPENDIXES

Appendix A: Table : Pairwise Granger Causality Tests

Pairwise Granger Causality Tests

Date: 01/20/23 Time: 19:02

Sample: 1 34

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOG(GDP) does not Granger Cause LOG(CAPITAL)	30	12.7343	0.0002
LOG(CAPITAL) does not Granger Cause LOG(GDP)		9.35744	0.0009

