



NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF BANKING AND FINANCE

**THE IMPACT OF THE MAJOR MACROECONOMIC VARIABLES ON
ECONOMIC GROWTH IN AN EMERGING/DEVELOPING ECONOMY,
CASE OF CAMEROON, (1990-2020)**

MSc. THESIS

CLAUDIA FOTOH ENIH

NICOSIA

JANUARY 2023

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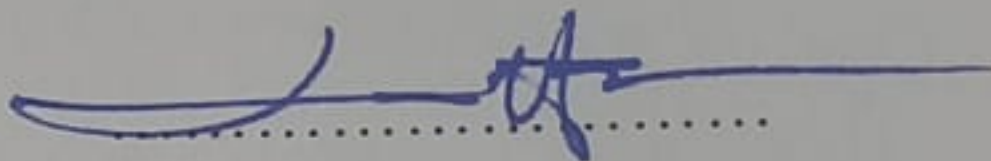
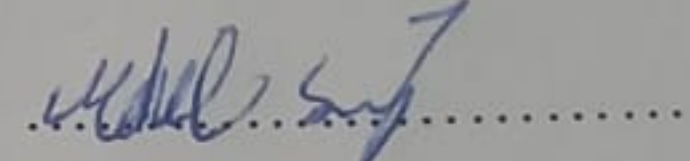
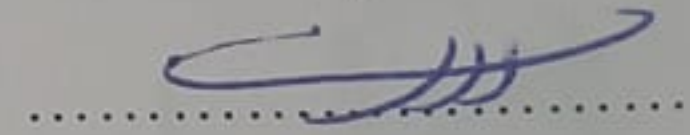
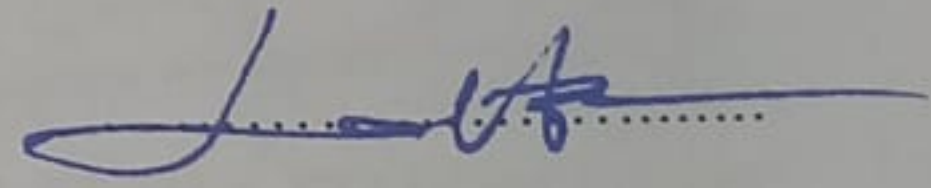
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Approval

We certify that we have read the thesis submitted by **CLAUDIA FOTOH ENIH** titled **“THE IMPACT OF THE MAJOR MACROECONOMIC VARIABLES ON ECONOMIC GROWTH IN AN EMERGING/DEVELOPING ECONOMY, CASE OF CAMEROON (1990-2020)”** and that in our combined opinion it is adequate both in scope and in quality, as a thesis for the degree of Master of Educational Sciences.

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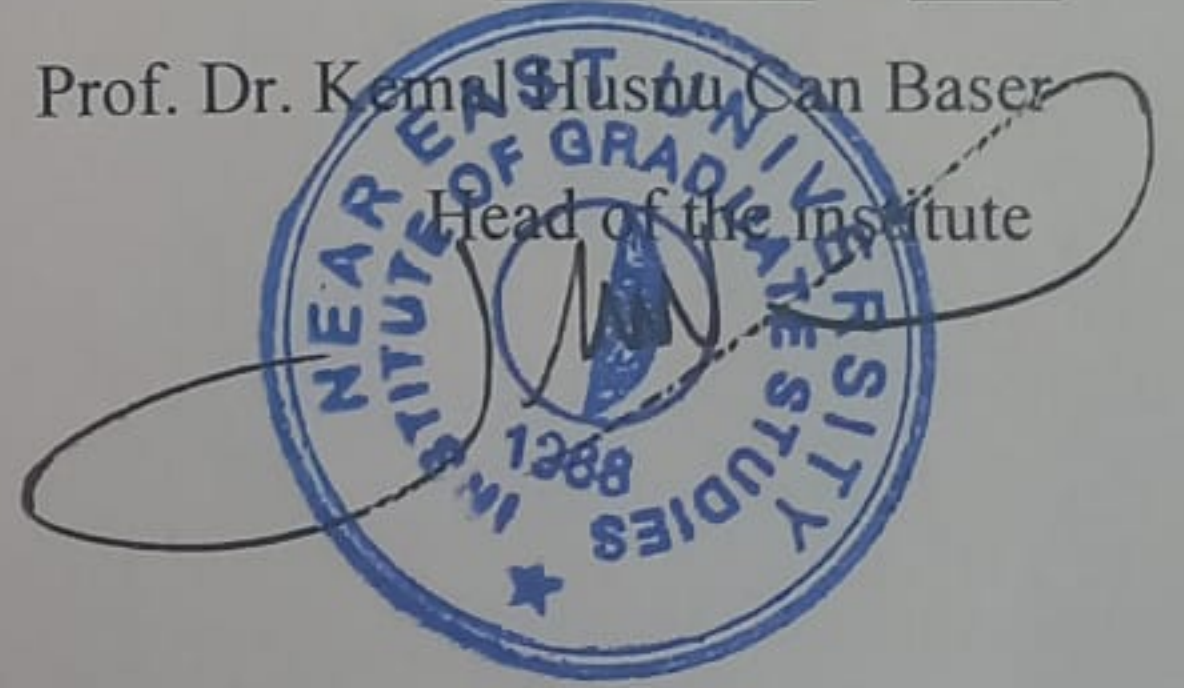
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Declaration

I, the undersigned, hereby certify that all of the materials, documents, analysis, and findings included in this thesis have been gathered and presented in accordance with the academic regulations and ethical principles of the Institute of Graduate Studies at the Near East University of TRNC. I further declare that, in accordance with these rules and conduct, I have thoroughly cited and referenced any material and data that are not unique to this research. This statement was made so that these rules and conduct could be followed.

CLAUDIA FOTOH ENIH

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Abstract

The Impact of the Major Macroeconomic Variables on Economic Growth in an Emerging/Developing Economy, Case of Cameroon, (1990-2020)

Claudia Fotoh Enih

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January 2023 Page 87

The purpose of this paper was to examine the impact of the major macroeconomic variables on the economic growth of Cameroon using yearly time series data for the period 1990–2020. This study examined three major macroeconomic variables that can affect growth. The gross domestic product was the dependent variable meanwhile inflation; foreign direct investment; and the real effective exchange rate were the independent variables. Research questions were developed, and hypotheses were formulated to help answer these questions. The study was limited to secondary data obtained from the World Bank database. The Augmented Dickey-Fuller and Philip Perron unit root tests were used to check the stationarity of the variables and it was found that some variables were stationary at level, that is, $I(0)$, while others were stationary at first difference, that is, $I(1)$. The auto-regressive distributed lag (ARDL) model was used to analyze the data. The ARDL cointegration bounds test was used to check for a long-run relationship between the variables, and the result revealed that there is a long run relationship between the variables. The findings from the long run showed that inflation has a positive but insignificant impact on Cameroon's economic growth. Real effective exchange rate was found to have a significant negative impact on Cameroon's economic growth while foreign direct investment indicated a significant positive impact on the economic growth of Cameroon. Results of the short run showed that foreign direct investment has a significant positive impact on the economic growth of Cameroon while inflation and real effective exchange rate were found to have the negative and significant impacts on Cameroon's economic growth.

Keywords: Economic Growth, Gross Domestic Product, Inflation, Exchange Rate, Foreign Direct investment

Özet

Yükselen/Gelişmekte Olan Bir Ekonomide Başlıca Makroekonomik Değişkenlerin Ekonomik Büyüme Üzerindeki Etkisi, Kamerun Örneği, (1990-2020)

Claudia Fotoh Enih

MSc. Bankacılık ve Finans Bölümü

Ocak 2023 Sayfa

Bu makalenin amacı, 1990–2020 dönemi için yıllık zaman serisi verilerini kullanarak başlıca makroekonomik değişkenlerin Kamerun'un ekonomik büyümesi üzerindeki etkisini incelemektir. Bu çalışma, büyümeyi etkileyebilecek üç ana makroekonomik değişkeni inceledi. Gayri safi yurtiçi hasıla, bu arada enflasyon bağımlı değişkeni; doğrudan yabancı yatırım; ve reel efektif döviz kuru bağımsız değişkenlerdir. Araştırma soruları geliştirildi ve bu soruları cevaplamaya yardımcı olacak hipotezler formüle edildi. Çalışma Dünya Bankası veri tabanından elde edilen ikincil verilerle sınırlandırılmıştır. Değişkenlerin durağanlığını kontrol etmek için Augmented Dickey-Fuller ve Philip Perron birim kök testleri kullanılmış ve bazı değişkenlerin I (0) düzeyinde durağan olduğu, bazılarının ise birinci farkta durağan olduğu görülmüştür. , ben (1). Verilerin analizinde otomatik gerileyen dağıtılmış gecikme (ARDL) modeli kullanılmıştır. Değişkenler arasında uzun dönemli bir ilişki olup olmadığını kontrol etmek için ARDL eşbütünleşme sınır testi kullanılmış ve sonuç, değişkenler arasında uzun dönemli bir ilişki olduğunu ortaya koymuştur. Uzun dönemden elde edilen bulgular, enflasyonun Kamerun'un ekonomik büyümesi üzerinde olumlu ancak önemsiz bir etkiye sahip olduğunu gösterdi. Reel efektif döviz kurunun Kamerun'un ekonomik büyümesi üzerinde önemli bir negatif etkiye sahip olduğu, doğrudan yabancı yatırımların ise Kamerun'un ekonomik büyümesi üzerinde önemli bir pozitif etkiye sahip olduğu tespit edilmiştir. Kısa dönem sonuçları, doğrudan yabancı yatırımın Kamerun'un ekonomik büyümesi üzerinde önemli bir pozitif etkiye sahip olduğunu, enflasyon ve reel efektif döviz kurunun ise Kamerun'un ekonomik büyümesi üzerinde negatif ve anlamlı etkilere sahip olduğunu göstermiştir.

Anahtar Kelimeler: Ekonomik Büyüme, Gayri Safi Yurtiçi Hasıla, Enflasyon, Döviz Kuru, Doğrudan Yabancı Yatırım

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Abbreviations

ADF: Augmented Dickey-Fuller

ARDL: Auto Regressive Distributed Lag

CPI: Consumer Price Index

CUSUM: Cumulative sum of recursive residuals

ECM: Error Correction Model

EXR: Exchange rate

ECCAS: Economic Community of Central African States

FDI: Foreign direct investment

GDP: Gross Domestic Product

GNP: Gross National Product

IMF: International Monetary Fund

INF: Inflation

OLS: Ordinary Least Squares

OECD: Organization for Economic Co-operation and Development

PP: Phillip Perron

VAR: Vector auto-regression

RER: Real exchange rate

REER: Real effective exchange rate

TAR: Threshold auto-regressive

TRNC: Turkish Republic of Northern Cyprus

CHAPTER I INTRODUCTION

Background of the study

A vast range of economists have, in order to get a deeper comprehension of the drivers that complement to the expansion of an economy (economic growth), conducted research that is both theoretical and empirical in nature. The vast majority of works may be traced all the way back to theoretical foundations that were laid down by individuals like Solow, Swann, and Romer. In recent years, several empirical investigations that investigate the variables that drive economic growth in developing countries' rising economies have been published. Empirical research is required to uncover the factors that may be accountable for this expansion because economic growth is so vital to the wellbeing of a nation. As a consequence of this, the core of concern is to analyze the influence that three important "macroeconomic" drivers have on the expansion of Cameroon's economy. Inflation, the actual exchange rate, and direct investment from other countries are all important elements to take into consideration. The term "economic growth" relates to a boost in the quantity alongside quality of economic goods and services produced and consumed by a society over a specific time frame. This growth is assessed in GDP "gross domestic product" terms. Because "economic growth" is a notion that is basic for all economies, it has been the core of the majority of inquiries. This stems from the fact that "economic growth" is a concept that is essential for all economies. Analyses that have been based on situations from several hundred years ago may no longer be as relevant to the present situation as they once were because development is a highly dynamic process. The advancements in technology that have taken place several decades ago have completely disrupted the traditional methods that nations use to boost their economies. The point of interest was to conduct an analysis of the primary macroeconomic factors that have an impact on the economic growth of developing countries and to describe our findings. Both empirical and theoretical growth researchers have shown interest in conducting research about the factors that either promote or inhibit economic growth; however, to this day, there has been very little progress made toward reaching a consensus on this topic. The term "economic growth" is a phenomenon that is used to refer to changes in the quantitative state of economic variables and is ascribed to

the general rise in production. In economics sense, "economic growth" relates to a rise in an economy's capacity to generate products and services over a specific time span in comparison to that economy's capacity during the period of time immediately before the specific period being discussed. The expansion of this capacity is able to be monitored over a certain amount of time. Growth in the economy may be evaluated not only in nominal terms, in which inflation is not considered, but also in real terms, in which inflation is taken into account. Using either method, one can compare the nominal and real growth rates of the economy. When measuring growth, nominal terms are used, but when using real terms, inflation is not taken into consideration. It is a widely held belief that the level of a country's GDP portrays an important primary driver of economic growth experienced by that nation. Economic expansion is the top priority of any nation's macroeconomic policy. The pursuit of "economic growth" has been and will keep being the driving force behind the advancement of human civilization. Even in the highly globalized world we live in today, the primary focus of human concern continues to be the expansion of economic opportunities. The GDP is widely recognized as an essential indicator of expansion of an economy. The expansion of the economy is the primary focus of the macroeconomic policy of any given nation. If a nation's gross domestic product (GDP) grows at a quicker rate than its population, this suggests that the GDP of that nation's inhabitants is increasing on an individual basis, which in turn suggests that their standard of living is getting higher. A nation's GDP is driven by a wide variety of macroeconomic factors, including rates of inflation and interest, exchange prices for currencies, unemployment rate, foreign investment, household spending, government expenditure, taxation, and many others. The question of whether or not macroeconomic policy measures implemented by governments have long-run effects on their nations' economic growth rates have increased in a number of recent empirical and theoretical papers. Through his empirical research on 73 countries covering the years 1970 to 1985, Fischer discovered that huge budget deficiencies and high inflation have a "negative impact" on the growth of income per capita, and he came to the conclusion that microeconomic policies play a significant role in growth (Fischer, 1991). Fischer's findings were published in the journal *Economics Letters*. According to him, huge deficits stunt economic expansion because they discourage private investment. He also claims that

rising inflation will stunt economic expansion because it will have a negative impact on the mechanism that governs currency exchanges and will distort how capital is taxed. Further, Fischer asserts that large deficiencies and rising inflation may be a sign that the government is not doing a good job managing the economy. Because inflation can have a wide variety of effects on an economy, most nations strive to keep inflation rates low while simultaneously achieving high levels of sustainable economic growth. Because inflation drives up prices across the board for a nation's goods, services, and other factors, it makes the nation's economy more difficult to navigate. Because of this, the buying power of money declines, and as a result, the value of the currency also falls at the same moment. The rise in general prices and the accompanying fall in the value of money, both brought about by inflation, have an impact on the expansion of an economy. Rising inflation rates will lead to a rise in the rate of interest of a country, and this will yield a drop in economic development, and vice versa. Rising inflation rates will also cause a country's unemployment rate to rise.

Robert Barro (1996) conducted a panel study of the variables that influence the economic development of nations using data from one hundred countries covering the period from 1960 to 1990. As per his study, the rate of growth in “real per capita GDP” was associated with the maintenance of the rule of law, lower levels of government consumption, and increase in life expectancy, a greater number of males with secondary and advanced levels of education, lower fertility rate, higher investments, lower inflation, and openness to trade. His findings showed a correlation between the growth rate of real per capita GDP and openness to trade. In addition to this, he restated a theory of convergence that also states that the growth rate will decrease as the level of real GDP increases. Barro's sample of research on the 100 countries took into account Sub-Saharan Africa (18 countries), Latin America (22 Countries), and Asia (18 countries). However, the study only included a small number of developing countries. Because there was insufficient data for many of these countries, they were not included in the sample study. Some developing nations, despite receiving assistance and support from the international community, were unable to experience “economic growth” and prosperity. The pitfalls can take the form of wars or other forms of armed conflict, the exploitation of natural resources for financial gain, dependence on a single neighboring nation, and the absence

of a “rule of law” (Collier, 2007). Although the GDP growth of emerging nations was above average growth seen around the world, the amount of socio-economic activity in these countries was relatively low. This was the result of factors like a deficiency in physical and human capital, violence, poverty, a poor productivity level, international trade scarcity, and an undue dependent on outside sources. Direct foreign investment has been a major source of funds from the outside world including both developing and established economies. The impact of this specific factor has gotten a lot of attention in economic growth research. Foreign direct investment's influence on growth has been analyzed both favorably and adversely. The great majority of scholars and policymakers believe that foreign direct investment boosts investment and technological development while also expanding the capital base and employment. In this study, the researcher will concentrate on three key macroeconomic factors to examine the impact of each of those characteristics on Cameroon's overall development. A number of factors, like inflation, the currency rate, and the amount of investment made by other countries, are considered aspects. The extent to which these macroeconomic factors exert implications, as well as the manner in which that impact is exercised, varies from nation to nation, as does the direction in which that impact manifests itself. Also varying from nation to nation is the degree to which these factors exert influence. This study's objective is to verify not only the degree to which the indicated elements affect Cameroon's economic growth but equally the path it takes to get there. To do this, we will investigate not just the breadth of the influence but also the path it takes in order to have an effect.

Economic challenges faced by developing countries

The emerging world has several economic problems. Many emerging countries have various economic growth barriers, slowing their total growth and development. Some of these obstacles include insufficient capital accumulation, a foreign currency shortfall, capital outflows, corrupt activities, weak governance, the impact of civil strife, and demographic concerns. Sustainable and long-term Economic expansion is among the most crucial elements in decreasing poverty and raising living standards. Accelerating economic development will continue to be one of the most pressing issues on the minds of lawmakers in developing countries for the foreseeable future. There are several reasons

that might lead to a poor economy, such as high levels of unemployment, debt, or inflation. Consumers' discretionary expenditure may be reduced as a result of these causes, contributing to an economic downturn. The prevalence of pervasive corruption and incompetent leadership in a nation will function as a severe impediment to economic growth. Mauro concluded after studying the economics of 67 nations that annual economic growth increased by 1.3 basis points while corruption fell by one confidence interval (Mauro, 1995). Corruption's effects are more likely to hurt countries with low “per capita incomes” and a diverse population in terms of history, culture, language, and customs. Empirical models may be used to examine these assumptions and establish whether they are true for both rich and developing nations.

Even though globalization and interdependence have the potential to improve human welfare in every region of the world, one of their most striking characteristics has been their uneven diffusion. Throughout the last two decades, there has been significant variation in the rates of economic expansion and social performance across developing countries. Only a select few developing nations have been able to successfully participate in this process, substantially raise their levels of income and social standards, and successfully adapt to the newly available opportunities for international specialization. Through the incorporation of national economies into a global economic system, which in turn resulted in a remarkable trade expansion between nations and corporations, international trade growth has been a primary factor in the expansion of the world economy. Both advances in technology and concentrated efforts to lower trade barriers between nations are responsible for the expansion of international business. In this regard, a few developing countries have integrated their national economies into the global market, thereby opening their economies to the potential benefits of international trade. On the other hand, the majority of emerging nations have not done so. In light of the information presented above, developing countries face widespread challenges that constitute obstacles to effectively integrating their economies into the global market. As a direct consequence of this, the majority of developing countries are unable, in comparison to other states, to raise their standards of living and profit from the global market.

Overview of Cameroon's Economic Growth

As of 2018, Cameroon's population was estimated to be over 25 million, placing it in the category of a nation with decreased middle-class income. Cameroon is a country in West Africa that is completely surrounded by other African countries, including Equatorial Guinea, Chad, Gabon, and Nigeria. It also has an Atlantic Ocean shoreline. Its two bordering areas, the North West and the South West, are both heavily Anglophone, while the bulk of the country's other regions are Francophone. The Northwest and Southwest are the two border areas. Cameroon is rich in a variety of natural resources, such as oil and gas, mineral ores, wood, and agricultural products like coffee, cotton, cocoa, maize, and cassava. Oil and gas are particularly abundant in the country and are the most important natural resources in the nation, trailed by ore deposits and wood. Cameroon's economic system is "mixed," combining aspects of economic and effective planning control with a broad variety of private market freedoms. Cameroon's economy is very varied and founded on free market principles, with oil and gas, wood, aluminum, farming, mining, and the service industry all playing key roles. Despite a general fall in global oil prices, oil continues to account for about forty percent of Cameroon's total exports. The nation's principal export commodity is oil. Cameroon is a nation that participates in the Economic Community of Central African States (ECCAS). Before 1986, Cameroon's economy maintained a fairly high growth rate, owing in part to the country's large and diverse agricultural foundation as well as its petroleum output. The annual rate of expansion of the gross domestic product was an average of 8%. As a consequence, the nation was able to retain a reasonably high per capita income despite a rather considerable rate of population increase of 3%. After that, Cameroon was placed in the category of middle-income countries. However, beginning in 1986, almost all of the important economic indicators have been showing a downward trend. This is primarily attributable to the fall in global commodity prices as well as problems within the country. The major flaws in the Cameroonian economy were brought to light as a result of an increase in the budget deficit. This occurred even though the government had taken some steps to reduce public spending in the hope that doing so would result in an increase in revenues and a reduction in deficits. These efforts did not appear to produce many positive outcomes, which may be at least partially attributable to the absence of a genuine effort

to systematically control its budget and employ fiscal policy to generate economic growth that is sustainable over time. In addition, there does not appear to be any effort being made to investigate the link among the size of the government's budget and the rate of economic expansion in order to provide better insight into the decisions. Both of these factors contribute to a lack of clarity regarding the best course of action to take.

The era between 1960 and 1977 was marked by rapid growth in the economy, with agriculture serving as the primary origin of growth. Agriculture show for 34% of GDP on average, despite the fact that the majority of the growth in agricultural production may be attributed to the expansion of land (Amin, 1996). Following the discovery of oil offshore in 1975, a new significant export product had emerged by the late 1970s. This commodity was oil. This development took place in the same year. And, from 1978 to 1985, oil maintained the high pace of economic growth, with agriculture's proportion of GDP dropping below 28 percent in the late 1970s, with oil accounting for 17 percent of gross domestic product. This shift occurred as a result of the increased production of oil. In fact, the economy increased at an annual pace of 8% from 1980 to 1985, with the oil sector acting as the primary driver of this growth. By 1984, oil exports comprised around two-thirds of total exports. Cameroon enjoyed a high level of GDP per person in addition to a strong investment growth rate of seven percent, export growth of sixteen percent, and consumption growth of three point three percent. The creditworthiness and reputation of Cameroon on the international stage also contributed to the maintenance of this performance. The variations in Cameroon's economic growth throughout the course of time are shown in the graph below.

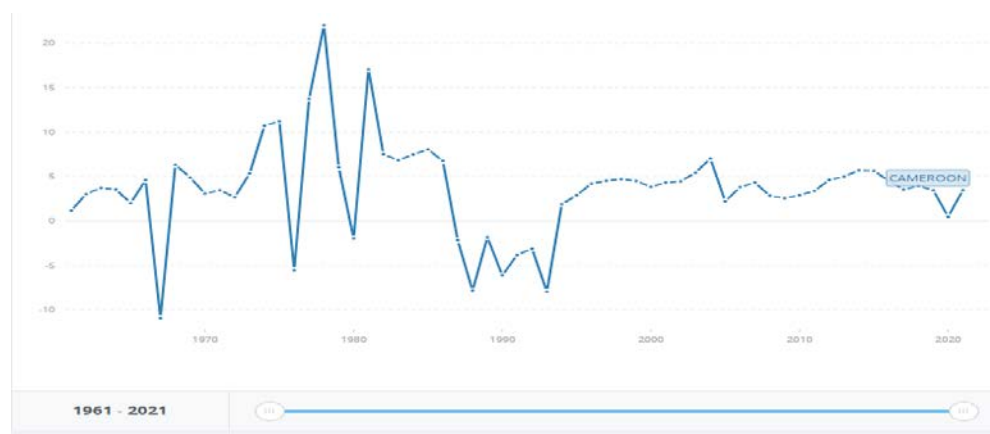


Figure 1: Economic Growth rate of Cameroon

Source: World Bank Database

Figure 1 illustrates the way in which Cameroon's economic growth follows a predictable pattern of cycles. The growth of Cameroon's economy was rather robust in the 1970s and 1980s, and while it slowed somewhat in the early 1990s, it has been almost steady since 2000. Cameroon's economic growth has been virtually constant since the year 2000. The combined effect of the COVID-19 epidemic, the country's political and security difficulties, and the reduction in global oil prices all had a significant impact on Cameroon's economy in 2020. Cameroon was the most impacted of the Central African nations by the devastating COVID-19 virus in 2020, both in terms of health and economics. Following a 3.7% gain in 2019, the latter's real GDP fell by 2.4% in 2020. Global oil price declines are mostly to blame for the 6.1 percent loss in economic activity. The non-oil industry was damaged by consumer spending compression during the COVID-19 outbreak, as well as the consequences of national barrier measures undertaken to control the epidemic. The export categories of services, manufacturing, and agro-industrial goods, notably commerce, all witnessed substantial slowdowns. Growth has also been limited by the country's continuous security and sociopolitical challenges, as well as the underperformance of public sector firms, particularly the National Refining Company (SONARA), which has slowed economic growth. The Central African Economic and Monetary Community has established a convergence target of 3% for inflation, but it has been kept below that level (2.9 percent in 2020, compared to 2.5 percent in 2019). The "Central Bank of the Central African States" in 2020 launched a variety of initiatives with the intention of assisting the economies of its member nations. As a direct consequence of this, the interest rate, which is the principal instrument for monetary control inside this macroeconomic cooperation zone, was decreased by 25 basis points in March 2020, going from 3.50 percent to 3.25 percent. Cameroon is a major producer of cocoa and beans, both of which are farmed predominantly in the country's southern area. Robusta coffee accounts for the majority of the country's coffee harvest. It is cultivated in the country's southern, warm, and humid areas, as well as in the country's western, high plateau, which also grows Arabica coffee.

Economic Challenges in Cameroon

The growing age of Cameroon's plantations, along with a lag in the country's efforts to modernize them, has negatively impacted the country's crop output. Cotton was first brought to the country in 1952, and since then, it has been primarily cultivated inside the grasslands by independent farmers. It is amazing that agricultural production has been systematically diversified into crops like oil palm, rubber, and sugar over the past few decades. Despite the fact that the growth of the petroleum sector in Cameroon since 1980 resulted to a gradual decrease in the significance of the agriculture, forestry, and fishing industries to the gross domestic product, the sector continuously exhibits a remarkable role in the country. Agriculture, forestry, and fishing continue to be the most important contributors to Cameroon's GDP. In the 1970s, the industry employed roughly nine tenths of the working population. However, by the end of the third decade, that share had decreased to barely more than half. Approximately one-third of overall export revenues come from primary agricultural and forest goods, with sawn wood, cocoa, cotton, and coffee being the top agricultural exports. The vast bulk of agricultural products are shipped out of the country by farms of a more modest scale. The economy of Cameroon continues to rely primarily on the sale of its commodities on international markets. However, variations in the pricing of Cameroon's principal exports have rendered the country's economic condition unstable. The continuous issue of corruption in Cameroon, which also impedes the countries for a long time, economic progress has been a source of concern. The country was thrown into a protracted due to bad economic management in the country, the country experienced an economic recession in the middle of the 1980s as well as a reduction in the prices of important export commodities including cocoa, coffee, and oil. These factors combined to put the country into a recession. Cameroon was forced to accept assistance from the IMF (International Monetary Fund) in its programs for structural adjustment as a result of budget deficits that it suffered toward the end of the 1980s. These deficits forced Cameroon to borrow money from other countries. Cameroon's economy continues to rely primarily on the sale of its products on international markets. However, changes in the pricing of Cameroon's principal exports, namely petroleum and cocoa, have rendered the country's economic condition unstable.

Statement of the problem

Even though “economic growth” process is mostly about increasing human productivity, it cannot progress very far without modifications being made to organizational structures. The reorganization of human labor into teams that are more specialized and work together more closely is required in order to make even the most basic conventional activities, such as the production of food, clothes, and shelter, more effective. And while the process must begin with traditional duties, it will quickly incorporate new goods and new types of production companies based on inter-industry linkages that have a tendency to become more complex. The agricultural sector is the oldest and most traditional, making it frequently the most challenging to modify to meet the ever-evolving requirements of developing countries. However, it serves as the primary economic driver in almost all of these nations. Cameroon went through a severe economic downturn between 1986 and 1994, which defined that time period. The years 1986 and 1987 were marked by a severe economic crisis for Cameroon, which, when combined with the implementation of a number of actions made inside the context of the economic and financial reform program, had such a significant influence on the Cameroonian people's standard of living. This phase, which lasted up until 1993/1994, was distinguished by negative rates of growth ranging from 3% to 4%. The government was compelled to implement tough financial measures, which resulted in severe reductions in public expenditure in the social service sectors. These cuts were brought about by the government's adoption of strict budgetary policies. Staff layoffs associated with the closure of reformed governmental, semi-public, and private firms as well as a recruitment freeze imposed by the public service in response to a rise in the number of unemployed individuals during the transition phase

In an effort to cut back on public spending, the government of Cameroon was forced to privatize and dissolve a number of state-owned businesses since these organizations were receiving subsidies or other forms of public funding. There were reductions in spending all around the country, one of which was in the salaries of public employees. The currency of Cameroon, the CFA franc, had a devaluation of fifty percent, which resulted in a string of price hikes that had a significant influence on the economy. There is therefore need, to analyze the era of economic growth and decline, focusing on

macroeconomic influences, as this can provide insight into what ought to be done in an appropriate manner. It is also crucial to have insight into which expenditures should be preserved and supported, as well as which elements could be more seriously impacted and, if possible, by how much. This is especially important since cuts are being carried out across the country. The background information provides an indication of the effort that the country has made to maintain economic stability. There is no doubt that if policymakers had a better understanding of the elements that affect growth, things would have turned out differently. As has been shown in the previous section, there is a significant information gap concerning the macroeconomic variables that impact economic growth. When one examines the swings in economic growth, one gets the idea that governments have generally struggled to drive growth. The core of inquiry here is to examine the elements that contribute to economic expansion in Cameroon, with a focus on the main macroeconomic variables that influence economic growth. As soon as the factors that influence growth are identified, it will be much simpler to devise policies that will boost economic growth and prevent a return to the days when growth was negative. As a result, looking into this concept is going to be an absolute must.

Purpose of the study

An empirical inquiry is required as economic growth is highly important to an economy. In order to determine the variables that could fuel this growth, it is vital to find out what factors may fuel this growth. As a direct consequence of this, the core of inquiry is to evaluate the impact of the significant macroeconomic variables on the expansion of Cameroon's economy (economic growth). These variables are: inflation, the value of the currency exchanged, and investments made directly from outside.

Research Question

The researcher has proposed the following study questions as possible avenues of inquiry:

- 1) How does the rate of inflation in Cameroon affect the country's overall economic growth?
- 2) How does exchange rate in Cameroon affect the country's overall rate of economic growth?

- 3) How does the inflow of direct investment from other countries affect the expansion of Cameroon's economy?

The Research Hypothesis

The core of interest and the researcher's questions served as the foundation for the development of the following hypotheses from each macroeconomic variable:

Inflation

Inflation does not affect Cameroon's growth (Ho) and the alternative hypothesis is H1 if inflation affects Cameroon's growth.

REER

Regarding the exchange rate, the "Null Hypothesis" (Ho) asserts "no significant impact" on Cameroon's economic growth and the opposite of this null hypothesis will be H1.

Foreign direct investment (FDI)

The alternative hypothesis (H1) FDI significantly contributes to the expansion of Cameroon's economy, contrary to the null hypothesis (Ho) of no significant impact.

Limitations

The primary motive here is to examine the ways in which key macroeconomic variables contribute to the expansion of Cameroon's economy. As a direct consequence, this study is limited to the economy of Cameroon and to secondary data from the years 1990 to 2020. This study would have investigated one more variable (the interest rate), which is also an important macroeconomy, lacks data in the World Bank database, thereby limiting the number of independent variables that ought to be studied.

Significance of the study

This research will examine whether these major macroeconomic variables could indeed explain Cameroon's scenario, ("economic growth") and therefore will contribute significantly to the existing body of research to assist policymakers in developing policies

that will enhance economic stability and long-term growth in the country. Understanding a country's growth rate requires an empirical examination of the key macroeconomic variables. This study is one method of assisting policymakers in making growth-oriented decisions for yield improvement, and it will provide legislators with a working document on the variables that best impact economic growth. A thorough examination of the main macroeconomic variables is required to provide insight and informed advice on economic growth strategy. This study will assist lawmakers and the authorities in identifying the causes of volatility in these variables and will also help them in implementing favorable policies that will entice a large portion of the country's local currency appreciation, increase net FDI inflows, and lower inflation rates, all of which will boost economic expansion. This research can assist policymakers in concentrating their attention on the regions and resources needed to create opportunities for growth in Cameroon. This research will help to motivate additional investigation and other research on emerging nations from which other economies can gain knowledge and benefit.

Definition of Keywords

Economic Growth

The term "economic growth" relates to a rise in the amount of economic products and services that are produced over a particular time. Gross national product (GNP) and gross domestic product (GDP) have, over the course of economic history, been utilized as indices of total economic expansion. In spite of the fact that various terms are frequently used, this is still correct. A rise in the overall rate of new products and services being introduced to the market is a common indicator of economic expansion. Estimates of GDP will be applied for the reason in question.

Gross domestic product (GDP)

The term "gross domestic product" refers to the total monetary or current value of all finished products and services that are produced inside the borders of a country during a specified period of time. This value is known as "gross domestic product". The GDP of a nation provides a snapshot of the economic situation of that nation at a certain point in time. It is also regularly used to evaluate the size of an economy in addition to the pace at

which it is expanding. It is an instrument that should not be ignored by decision-makers, investors, or businesses when it comes to making important decisions from a strategic point of view. There are three ways that the total value of the nation's gross domestic product (GDP) can be determined: nominally, realistically, or as GDP per capita.

Nominal GDP

It is an appraisal of the production of an economy that is based on the prices that are currently in effect in that economy. To put it another way, it does not take into account inflation or the pace at which prices increase, both of which may artificially exaggerate growth estimates.

Real GDP

The real GDP is a measure of an economy's production in a particular year that takes inflation into account. The level of prices is maintained at the same level from one year to the next so that fluctuations in either inflation or deflation won't alter the pattern of output over time.

Per Capita GDP

It is a computation of a country's GDP divided by its total population. It suggests that the amount of production or income per person in an economy may be a reflection of the average productivity or quality of life in that economy. The gross domestic product per capita may be calculated using either nominal, real (after adjusting for inflation), or purchasing power parity (PPP) measures.

Inflation (INF)

When economists discuss inflation, they mean a persistent rise in the general price of goods and services as a direct consequence of a decline in the purchasing power of money. The rate of inflation is calculated by determining how much the overall average cost of goods and services has changed. It is presented in the form of a percentage. The decrease in the economy's ability to purchase goods and services is reflected in inflation.

There are three different kinds of inflation: supply inflation, price increases, and built-in inflation.

Deman-pull inflation

Demand is the root driver of inflation. It occurs when the demand for products and services is higher than the capacity for output. When there is a gap between the demand for and supply of a certain commodity or service in a country, there is a greater likelihood that prices will rise in that nation.

Cost-push inflation

A phenomenon known as "cost-push inflation" takes place whenever the cost of manufacturing goes up. If the costs of things like raw goods, labor, and so on go up, it makes sense that the price of the finished product will also go up.

Built-in inflation

When this form of inflation takes place, it means that the cost of living has gone up since there has been an overall increment in price of goods and services. As a consequence, increased wages cause an increase in manufacturing costs, which in turn have an effect on the price of products; this cycle will continue indefinitely.

Exchange rate (EXR)

The amount of one nation's currency relative to the currencies of other countries or economic zones is termed "exchange rate". This value is expressed as a percentage. There are primarily two types of exchange rates in use today: those that are allowed to "freely float" and those that are controlled. As a direct consequence of variations in supply and demand dynamics of the foreign currency market, a free-floating exchange rate will experience both gains and drops in value during the course of its existence. A "fixed exchange rate" refers to a rate of currency conversion that is somehow connected, either directly or indirectly, to the value of other currencies. The "current value" of exchange rate is referred to as its "cash value," and the term "spot rate" is used to refer to the value

of the exchange rate at the moment. The researcher plans to make use of the REER for this study which is an inflation-adjusted rate.

Real effective exchange rate (REER)

The "real effective exchange rate" is a weighted average of the value of a country's currency in relation to a basket of other currencies. When comparing the purchasing power of the currency of one nation to that of currencies used in other nations, the actual effective exchange rate is a valuable instrument to utilize. When a nation's REER goes up, this is a sign that the country's ability to compete in commerce is becoming worse. Adjusting the REER rate such that it takes into account the effects of inflation on each of the currencies in a basket helps to evaluate a currency's "real buying power." (REER) is a tool that may be used to evaluate how well a currency has done in comparison to its own performance as well as to the performance of other currencies over the course of prior years. When examining this aspect of currency rates, one may tell if the value of a currency has increased or decreased in comparison to that of other currencies.

Foreign direct investment (FDI)

The term "foreign direct investment" describes a situation where an investor, firm, or government from another country purchases "a share" in a business or project located in another country. Foreign direct investment is a critical component of international trade relations because it helps economies develop ties that are both stable and sustainable over time. Foreign direct investment (FDI) investors generally accept governing positions inside local companies or create joint ventures with them, and as a result, they are actively involved in the management operations of these companies. The expenditure could include the purchase of a new source of material, the expansion of a company's distribution networks, or the establishment of a presence in other countries. When contemplating foreign direct investment (FDI), any organization or government must take into consideration the planned enterprises or initiatives in trade openness that will provide skilled labor and the potential for above-average economic development to investors. FDI often involves more than just the input of cash; it also includes the supply of managerial services, technology, and equipment. The rules established by the "Organization for

Economic Co-operation and Development” (OECD) state that a minimum ownership holding of 10% is necessary in order to have a controlling interest in a firm with headquarter in another country. This criterion is open to interpretation; in certain circumstances, gaining a controlling stake in a corporation might be accomplished by purchasing less than 10% of the firm's voting shares. The most prevalent kinds of FDI are horizontal, vertical, and conglomerate investments. Conglomerate FDI's are becoming more popular.

Horizontal FDI

A horizontal FDI is an investment in which a company builds a commercial business in a foreign nation that is comparable to the sort of commercial operation that it undertakes in its home country. For instance, the foreign company Y sells cell phones to the domestic company X, which sells services for mobile phones.

Vertical FDI

When a corporation expands its operations by purchasing a subsidiary in another nation, this is an example of vertical FDI. For instance, a manufacturer in the United States may buy a stake in an international firm that supplies the raw materials that are required to make the goods that the manufacturer sells.

Conglomerates FDI

As part of a conglomerate foreign direct investment, a corporation makes an investment in a multinational enterprise that is unrelated to the primary business it does in its home country. Because the investing firm has little to no prior understanding of the area of competence of the foreign company, this kind of FDI will take the form of a partnership.

Research Organization

This investigation is broken up into six chapters: an introduction can be found in Chapter 1, a review of the relevant literature can be found in Chapter 2, the methodology of the investigation can be found in Chapter 3, analysis and discussion of the data can be found in Chapter 4, and an overview, conclusion, and some suggestions can be found in the last chapter, 5.

CHAPTER II

LITERATURE REVIEW

Introduction

Recent research has demonstrated a significant amount of concern on “economic growth”. Numerous academics and researchers have looked into the factors that influence economic expansion in a variety of nations, leading to the development of a number of distinct theories on economic expansion. This chapter is broken up into three parts: the theoretical framework, the examination of empirical evidence, as well as the conceptual framework.

Theoretical Foundation

A theoretical framework discusses theories relevant to the field of study. This study's theoretical framework will include theories about economic growth that have been written. Economic growth models examine how an economy develops when the volume and/or quality of various manufacturing process inputs change. This study will discuss the neoclassical, endogenous, as well as Adam Smith's “economic growth” theories.

The Neoclassical growth theory

This theory of economic development was established in the late 1950s by Robert M. Solow, who was the prominent exponent of the neoclassical school at the time. Solow is also the recipient of the Nobel Prize in Economics, and his model is known as the "neoclassical model of Solow's growth." Solow centered his analysis on these three components: labor, capital, and technology. The same neoclassical theory of economic growth describes how a constant economic growth rate may be accomplished by combining three key driving forces: labor, capital, and technology. This is how it is done, according to the neoclassical theory of economic growth. Robert Solow and Trevor Swan came up with this model to explain the long-run expansion of the economy (Solow & Swan, 1956). The idea behind this hypothesis is that the production function may achieve short-term equilibrium via the use of variable amounts of labor and capital. The idea also maintains that the progression of technology has a substantial bearing on the expansion of the economy and that expansion of the economy is impossible in the absence of

technical progress. It also asserts that the accumulations of wealth within an economy, as well as the manner in which people employ that money, are necessary conditions for the expansion of the economy. In addition, the connection between an economy's capital stock and its labor force is what ultimately defines the output of that economy. Technology has the capacity to raise both the productivity of labor and the capacity of production.

As a result, the production function of the neoclassical growth theory, which is utilized to assess growth and equilibration, is

$$Y = AF(K, L).$$

Y = Gross domestic product.

K = Capital.

L = Unskilled labor.

A = Technology Level

Any shift in the values of the inputs listed below will have repercussions for GDP and, by extension, for the state of economic equilibrium. In spite of this, according to the neoclassical growth theory, a country's rate of return on unskilled labor and capital will go down if the theory's three variables are not completely balanced. Because of this diminishing return, increasing either of these two inputs will result in considerably fewer benefits, but the input that technology makes to growth and output is limitless.

The Endogenous Growth Theory

The field of study known as "endogenous growth theory" has just come into existence (Romer, 1980). After the year 1980, advancements were made in both theoretical and empirical accounts of the process of economic growth, including the formulation of the first examples of "endogenous growth theories." "Endogenous growth" is a word that is used to characterize a wide range of investigations, both theoretical and empirical, that came into being in the 1980s. This strategy differs from the neoclassical theory of growth in that it places a greater emphasis on the relevance of internal economic variables than it does on the effect of external ones.

According to the endogenous growth hypothesis, the expansion of the economy is caused by variables that are already present inside the economy rather than by forces that come from outside the system. On the other hand, the Neoclassical Growth Model asserts that

the primary reasons for economic development are external forces such as labor, capital, and technology. According to the endogenous growth hypothesis, the primary cause of economic development is believed to be endogenous factors rather than external ones. It is of the opinion that increased levels of productivity are directly proportional to increased rates of innovation as well as increased levels of investment in human capital by both public and private organizations.

Adam Smith's Economic Growth Theory

Adam Smith is credited as being the first economist to conceptualize the idea of economic progress (Smith, 1776). He stands for the opinion that the whole accumulation of capital, including human capital, technological advancement, land, and labor, coupled with exports, was what propelled economic success. The most significant contribution that Adam Smith made to the field of economic development theory was the introduction of the concept of "incremental income" in an economy that was founded on specialization and the division of labor. Smith's recognition in his book "The Wealth of the Nation" in 1776 of the importance of worldwide labor exchange and free trade as a strategy of economic advancement was another significant contribution. Smith made this realization in the book. Throughout his book, he discusses the accumulation of wealth, the expansion of populations, and the productivity of workers. He favored unrestricted trade and was opposed to centrally controlled economies. The primary purpose of Adam Smith's book "The Wealth of Nations" is to provide a solution to the issue of "how should national wealth be valued?" Smith asserted that the quantity of goods produced and made available to individuals in markets is the primary driver of global wealth creation. In addition to this, he believed that the output of the country was impacted by the accumulation of capital and the productivity of the workforce.

The mechanisms of capital accumulation are given a significant amount of weight in Smith's economic theory of growth. He holds the idea that the accumulation of money was a factor in the expansion of the market. Earnings may rise beyond the threshold of subsistence if labor is able to participate in more specialized activities that need more capital. The expansion of the market is made possible by the growth of both the population and the associated demand. The concept of an "invisible hand" was one of the most

essential contributions made by Adam Smith's book, "The Wealth of Nations." The idea behind this theory was that wealthy businesspeople who wanted to increase their earnings would participate in activities that would have the most significant impact on the nation. Smith believed that the accumulation of capital serves as a precondition for economic growth. He was of the opinion that investors were adding bid value to the economic growth of a country while also benefiting financially from their activities.

Empirical Review

The field of current macroeconomics has devoted a reasonable degree of research to the study of economic development. As a consequence of this, prior to beginning a new study into the matter, it is required to perform a detailed evaluation of some pertinent empirical studies that have already been done by earlier researchers. These investigations have been carried out in the past. Studies that look at the way economies are growing in a number of different countries at the same time provide research findings that are the most thorough and exhaustive on the subject of growth drivers. They want to examine panel data from a variety of countries to get a better understanding of the factors that contribute to economic growth. Barro (1996) and Arratibel et al. (2007), are two good instances of comprehensive studies that give the most reliable and generally accepted information on growth determination (Barro, 1996 & Arratibel et al., 2007). Both of these studies were published in 2007. This part of the empirical study takes a look at previous studies of the same kind, to illustrate the common macroeconomic markers that are considered to have an influence on economic growth across countries.

Thaddeus and Ngong (2021) conducted research that examined many macroeconomic elements that contributed to Cameroon's growth from 1970 to 2018 (Thaddeus & Ngong, 2021). We looked at time series data and utilized econometric tools to analyze it. The World Development Indicators were the source of the aforementioned information. The auto-regressive distributed lag (ARDL) model was utilized to perform the data analysis because the variables were integrated at many levels. The findings of the study indicate that Cameroon's fiscal policy, trade liberalization, total capital formation, and currency exchange rate all made positive and important contributions to economic expansion. It was shown that this link exists both in the short term and over the long run.

On the other side, there are factors that influence Cameroon's economic growth in ways that are important and negative, such as the growth of human capital, the provision of foreign aid, inflation, and foreign direct investment. A comparative analysis of inflation and economic growth between Cameroon and Ivory Coast was done by Ibrahim Ngouhouo and Guivis Zeufack Nkemgha (Ngouhouo & Nkemgha, 2018). They used secondary data from “World Development Indicators”, for the period 1970-2012. The least-squares method was used to analyze this data and they discovered that Cameroon's inflation has no impact on economic growth while Ivory Coast demonstrated a negative and significant impact on economic growth. The effects of foreign direct investment (FDI), financial growth, and the real exchange rate (RER) on the expansion of the Cameroonian economy were analyzed by Achamoh and Baye (Achamoh & Baye, 2016). They based their findings on the period from 1977 to 2010. In this study, we used the OLS-based Autoregressive Distributive Lag (ARDL) bound test and the maximum-likelihood-based Johansen co-integration strategy. Both of these methods are based on autoregressive models. Despite the fact that the exchange rate is a substantial barrier to economic growth, the findings of the model indicate that both financial development and foreign direct investment (FDI) contribute to economic advancement. Ayyoub et al. (2011) looked at the connection that existed between inflation and economic expansion in Pakistan from the 1972–1973 school years up to the 2009–2010 school years. Using a method known as ordinary least squares (OLS) regression, Academic researchers in Pakistan found a significant and inverse relationship between inflation and the country's GDP growth. Faria and Carneiro (2001) discovered a link between low inflation and economic growth. Beginning in 1980–1981, researchers analyzed the Brazilian economy over the next ten years, up to 1996–1997. It was shown that inflation had no impact on real production over the course of a lengthy period of time, but it did have a negative effect over the course of a short period of time. Mamo (2012) discovered a substantial and negative link between inflation and economic advancement in 13 sub-Saharan African (SSA) countries from 1969 to 2009. This study covered the period from 1969 to 2009. When Agalega and Antwi (2013) looked at the Ghanaian economy between 1980 and 2010, they wanted to know how inflation and interest rates are affected “economic growth”. They found that there is a significant positive association between GDP, interest

rate, and inflation through the use of several linear regressions. They went on to explain that despite the fact that a positive link exists between GDP and inflation, there is a relationship that works in the other direction between GDP and interest rates. Between the years 1979 and 2010, Inyiama discovered that inflation in Nigeria had a negative link with real GDP, while the exchange rate and interest rate had a positive correlation with one another (Inyiama, 2013).

Ndlela (2011) looked at the effects of the RER on emerging countries, concentrating on Zimbabwe's economic growth. Co-integration was examined by utilizing the ARDL approach for the sake of this study. ARDL is useful since it may be used whether the variables are integrated or independent. This is a distinct advantage over other methods. The primary results suggest that trade has a statistically significant adverse effect on economic growth. The research conducted by economists such as Nigh (1986) and Balasubramanyam et al. (1996) demonstrates that FDI has very little to no influence on the growth of GDP (Nigh, 1986 and Balasubramanyam et al., 1996). Bornschieer et al. (1978) conducted their research using an ordinary least squares (OLS) approach. They investigated the effect that FDI and international aid had on the economic growth of 76 developing countries between 1960 and 1975. The study covered the period 1960 to 1975. The findings indicate that both direct investment from overseas businesses and help from other countries have an additive impact on the relative rates of economic development seen by most countries. The effects are not significant in the near term, but they will be significant in the long run. Researchers Mamingi and Borda investigate what factors lead to growth in OECD nations' economies (Mamingi & Borda 2015). One of the aspects they investigate is the influence of FDI in stimulating development. The estimation of the model as well as its validation were both accomplished with the assistance of the ARDL approach. When it comes to the FDI component, the conclusions of the error correction model might vary widely from country to country. Long-term FDI was positively correlated with growth in Antigua and Barbuda but negatively correlated with growth in Saint Lucia and had no effect on development in Saint Vincent and the Grenadines. Chen and Feng (2000) explored the factors that have an impact on China's economic development by using panel data. They focused on liberalizing trade, increasing the number of state-owned companies, lowering inflation, increasing investment, and

increasing student enrollment in higher education. Trade openness and university enrollment were positively and significantly associated with GDP, but inflation and state-owned enterprises were found to have a negative and significant association with GDP. Using the cointegration method, Ismaila and Imoughele investigated the many macroeconomic variables that contribute to Nigeria's "economic growth" (Ismaila & Imoughele, 2015). According to the findings of the study, the growth of "gross fixed capital formation", total government expenditure, and foreign direct investment are all factors that contribute favorably to Nigeria's economic development. According to the data, inflation seems to have a detrimental effect on the growth of the economy. Phiri (2013) investigated the connection between increasing GDP, FDI, and rising prices in Zambia by using the threshold auto-regressive (TAR) approach. According to the data, keeping inflation below 22.5% is connected with increased economic development; overshooting this target has a detrimental effect on economic development, whereas FDI actually boosts expansion. In his research, Caves (1971) established a positive association between business productivity and labor productivity in domestic enterprises. He attributed this to competition and constant development driven by FDI into the home sector. The positive effects of FDI may extend beyond the industry that first gets the funds because of the spillover effect of improved human resources and technology to other local businesses. A country that is the recipient of foreign direct investment benefits in the form of an increase in employment, the introduction of new technology, and the exchange of expert knowledge. Direct investments from outside helps to accelerate domestic investment (Borensztein et al., 1998). It is possible for foreign firms to solely invest their money in ventures where they believe they will be successful. Domestic businesses are occasionally driven out of business as a result, which is detrimental to the overall prosperity of the nation. Despite the fact that previous studies have concentrated on the spillover impact of FDI, Aitek and Harrison found no evidence of favorable spillover effects from foreign companies to local firms in Venezuela between 1979 and 1989 (Aitek & Harrison, 1999). These findings contradict the findings of previous research, which had previously focused on this effect.

Mansfield and Romeo (1980) looked at Morocco, another developing country, they found little evidence that FDI influenced the pace of economic development there.

There are many who have a gloomy outlook on the role that FDI plays in economic growth, while others have a hopeful outlook. As a result of this, having a grasp of the effects that FDI has on the economies of developing countries is essential. Fambon Samuel (2013) performed research to estimate the influence of foreign capital inflows, like foreign assistance and FDI, on Cameroon's economic development. Between the years 1980 and 2008, he analyzed the time-series data using regression, the distributive lag approach, and cointegration. According to the findings of his research, the amount of local capital stock as well as FDI have a significant and positive impact on the rate at which Cameroon's economy expands, both in the short term and over the long run. On the other hand, the size of the labor force carries a significant amount of unfavorable weight in each of these time intervals.

The research on macroeconomic issues and economic development is said to have captured the attention of a number of academics from a variety of countries, as shown by the mentioned literature. However, there is no conclusive evidence that has been discovered to determine the relationship between these qualities. As a direct result of this, there are many different ways to investigate the nature of this connection in more detail. In addition, the purpose of this research is to make the most of this potential by conducting an investigation of the impact that macroeconomic variables have had on the expansion of Cameroon's economy.

Conceptual Framework

A researcher will create a structure that they feel best represents the topic that is the focus of their inquiry and call it a conceptual framework. Researchers typically refer to these models as "conceptual frameworks" in their writings and presentations. It depicts what the researcher anticipates finding as a result of the inquiry that is being conducted. The hypothesis of the research addresses the question of what factors impact the problem and how those factors have an effect on it. With the help of this picture, it is feasible to illustrate the anticipated relationship between causes and effects in the investigation of the factors that have an influence on the issue. There are two types of variables that are distinguished by the model that was utilized in this investigation: factors that can be controlled and those that can't. The value of the independent factor is unaffected by any

of the other components in the experiment since the independent factor is the one that caused the effect that is being considered. In contrast, the value of the dependent variable will be affected whenever there is a variation in the value of the independent variable. Economic growth is regarded as the reliant (dependent) variable, whereas inflation, the exchange rate, and FDI are considered autonomous (independent) factors. The variables of the research were presented in the following figure:

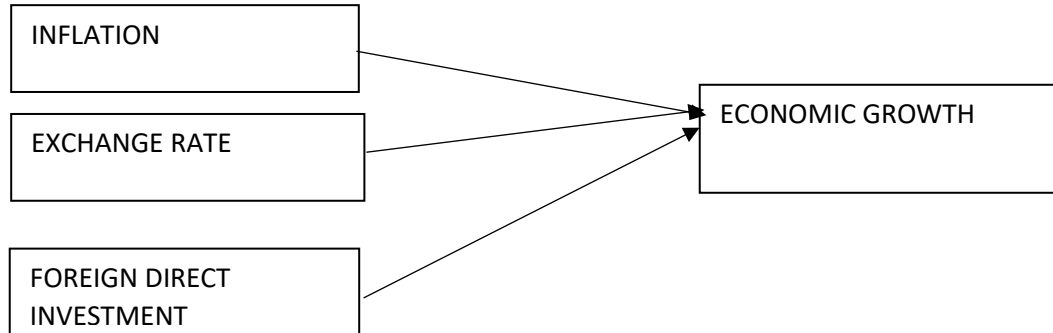


Figure 2: Conceptual model of the study

Source: Researcher

CHAPTER III

METHODOLOGY

Introduction

This chapter focuses on the manner in which the research will be designed. It outlines the data collection techniques in addition to the variables under examination, sample size, and data analysis methodologies. In this research, Cameroon will be used as a case study to analyze how key macroeconomic elements, including inflation, REER, and FDI, contribute to the growth of a rising economy.

Sources of Data

The location from which something may be obtained is referred to as the source of that item. As a consequence of this, the "data source" refers to the location on the internet from which one may get data. There are two distinct kinds of data sources, which are referred to as the main source of data and the secondary data source, respectively. The primary source of data is the most reliable source of information. The construction of research endeavors is able to make use of data obtained from either of these two sources. Primary data sources include data gathered via the administration of surveys, data gained from direct observation or interviews, and data obtained through interviews. Secondary data sources include data obtained from secondary sources such as the internet, journals, and magazines. For this study, which relies heavily on quantitative secondary data, the researcher relied mostly on the World Bank Database as the primary source from which to acquire the necessary information. In addition, a substantial amount of prior research was used in this investigation.

Sample Size

To analyze the major macroeconomic variables' influence on the economic growth of Cameroon, the sample size covering data for a period of 31 years ranging from 1990 – 2020 will be implemented.

Assessment of Variable

This study categorizes the variables into two distinct groups: those that are reliant on the research and those that are not.

The Dependent Variable

A dependent variable is "any variable whose value is dependent on the values of any other variables," according to one definition of the term "dependent variable." The GDP is the component that will be employed to determine the conclusion of the study. The GDP is the metric that will be used since it is the standard by which economic expansion is measured, with expansion being a function of macroeconomic conditions. The GDP of the nation will be the focus of this study, serving as both a dependent and independent variable. The total amount of gross value that is attributed to the economy by all resident producers in a country is regarded as the nation's gross domestic product. Moreover, it is calculated by adding taxes and subtracting any additional advantages that are not included into the product's worth. The actual sum of gross value that is contributed to the economy by all resident producers in a country is termed the nation's gross domestic product (GDP).

The Independent Variable

In order for a shift in one variable to be said to be "independent," it must not be dependent on a comparable shift in any of the other variables. This suggests that the change in one variable has very little to no influence on the change in any other variables that are being considered. The rate of inflation, REER, and FDI are all potential areas of focus for this inquiry. Each of these areas may be investigated in isolation from the others. The consumer price index is a common tool that economists use to measure inflation. **Inflation** is defined as the yearly percentage change in the price of obtaining a variety of goods and services to the average buyer. Inflation can be set or changed at regular intervals such as yearly, semi-annually, or quarterly. The rate of inflation may be kept constant or altered at regular periods such as yearly, semi-annually, or quarterly. The "consumer price index" is the primary variable used to calculate inflation rates.

REER is determined by comparing the weighted average of a nation's currency to a basket of other currencies. This provides a more accurate representation of the value of one currency in relation to another. This rate is used in the process of assessing how much one nation's currency is worth in relation to other countries' currencies. This is accomplished by comparing the value of a nation's currency with that of the currencies of other countries and assessing how powerful its currency is in relation to the currencies of those other nations. The REER is a method that may be used to make an estimate of how well a currency has done in relation to both other currencies and itself over the course of the preceding years. It is a statistic that compares one currency's worth to that of other currencies and shows whether that currency's value has risen or fallen over time.

Foreign direct investment occurs when an individual, firm, or government from another country takes a stake in a company or project situated abroad.

Data Collection

The World Bank is the institution responsible for compiling data on Cameroon's GDP, inflation rate, currency rate, and FDI. Data for these Cameroon-related variables will be downloaded from the World Bank's database, starting from 1990 through 2020.

Data Analysis Procedures

After the quantitative data for the study must have been acquired through the World Bank data source, the data will have to be tested and examined. The data will be analyzed using the "Eviews" statistical package as well as the Microsoft Office Excel and Word.

Descriptive Statistics

This tool is used in the field of research to define the aspects of data that are not readily apparent. They offer concise descriptions of the results of the measurements and the samples. Because they serve as the foundation for the vast majority of quantitative data analysis, descriptive statistics are an important component of any and all research projects. When it comes to arranging and summarizing the findings of a massive research project, descriptive statistics will prove to be of great assistance. Statistics that are

descriptive are beneficial in that they distinguish one data collection from another. This data collection may be an accurate and comprehensive depiction of a population, or it could be a sample of a population. Measures of central tendency, measurements of dispersion, and measures of normality are the three subfields that fall under the umbrella of descriptive statistics. The mean and the median all reflect the central tendency of the data, while the maximum, the lowest, and the standard deviation all show the dispersion of the data. Finally, kurtosis and skewness both represent the normality of the data. The degree to which and the direction in which variables fluctuate over time are together referred to as their variability. In a nutshell, descriptive statistics are used in the field of research to identify and comprehend the characteristics of data gathering through the provision of condensed descriptions of samples and measurements. The mean and the median are the types of descriptive statistics that are most well-known, and they are almost always used at all levels of mathematics and statistics training. When defining variables for descriptive statistics, the mean refers to the average number, whereas the median refers to the value that falls in the middle.

The standard deviation is a statistical measure that indicates how far each measured variable is from the mean and how close it is. A standard deviation that is small indicates that the variables are highly concentrated around the mean, while a standard deviation that is big indicates that the variables are distributed in a more dispersed fashion. A distribution's skewness may be used to evaluate the degree to which it is not symmetrical. It is possible for a distribution to have a right (or positive) skewness, a left (or negative) skewness, or no skewness at all. A distribution is said to be negatively skewed when the right side or tail of the distribution contains more values than the left side, which is also known as a positively skewed distribution. This kind of distribution is also known as a left-skewed distribution. A distribution's peakiness or flatness may be measured using a statistic called kurtosis. A leptokurtic distribution with a high peak is indicated by a kurtosis value of 3, whereas a platykurtic distribution with thinner tails is indicated by a kurtosis value of less than 3. A kurtosis greater than three is considered desirable, whereas a kurtosis of less than three is considered undesirable.

Stationarity Test

The stationarity test is used to ascertain the primary reason behind a unit's functioning. Before any estimate is made, the unit root test is performed since the vast majority of macroeconomic variables exhibit trends and are, for the most part, non-stationary (Wadad, 2011). In statistics, unit root test determines whether a non-stationary time series variable has a unit root issue and, if so, whether the issue can be solved at the first or second difference, depending on the nature of the unit root. If the problem is discovered, the unit root test determines whether it can be solved either at "level: or at "first difference". The assumption that there is no unit root is known as the null hypothesis; stationarity, or trend stationarity are some of the options that might be considered, depending on the kind of test that are being carried out. The Augmented Dickey-Fuller (ADF) and the Phillip Perron (PP) unit root tests shall be utilized in this investigation.

In the fields of statistical analysis and economics, the Augmented Dickey-Fuller (ADF) test is used to determine whether or not the "unit root hypothesis" holds true. The Dickey-Fuller test has been improved so that it may be used with a greater selection of time series models. This opens up more possibilities for its use. The Dickey-Fuller test may be utilized to investigate whether or not an autoregressive data model has a unit root. The null hypothesis might either be trend-stationarity or it could be stationarity. The majority of the time series, trends do not go forward or backward. David Dickey & Wayne Fuller, both statisticians, came up with the idea for the examination in 1979, and it was given their names as a tribute to their work (Dickey & Fuller, 1979).

In honor of Pierre Perron & Peter C. B. Phillips, the Phillip Perron unit root test was created (Phillips & Perron, 1988). While the PP test and the ADF test are comparable, the PP unit root test is more effective with small sample sizes than the ADF test. The Phillip Perron's unit root test's "null hypothesis" states that "there is a unit root," whereas the alternative states that there isn't. As a result, if the "P-value" is greater than 0.05 percent, the null hypothesis that the data may have a unit root problem cannot be rejected; however, if the probabilities values are less than 0.05 percent, the null hypothesis can be denied, and the data does not show a unit root problem.

Model Specification

The autoregressive distribution lag (ARDL) bounds test model shall be used throughout the course of this inquiry. This model was developed by Persaran and Smith (Persaran & Smith,1998). The ARDL model's capacity to tell the difference between the long and short term correlations and to ease challenges brought about by restricted sample sizes are two of the reasons why this model is so significant. The ARDL method displays varying degrees of integration at a number of different levels, including level I (0) and the initial difference, I (1). It is possible to apply the model to “I (0)”, “I (1)” or interwoven variables. Estimating equations by utilizing the technique of ordinary least squares (OLS) is the first step in the ARDL methodology. The OLS equations that has been developed by the researcher to show the relationship between the macroeconomic variables are shown below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \dots\dots\dots (1)$$

In this equation, Y is the dependent variable, which corresponds to the rate of GDP growth; β_0 is the constant; X1, X2, and X3 are the independent variables of inflation, exchange rate, and foreign direct investment; β represent the coefficients of the independent variables; and e is the error term.

By including the variables, the following equation is arrived at.

$$GDP = \beta_0 + \beta_1 IF + \beta_2 EXR + \beta_3 FDI + \varepsilon \dots\dots\dots (2)$$

Where,

GDP = Gross Domestic Product

IF = Inflation

EXR = Exchange

FDI = Foreign direct investment

$\beta_1, \beta_2,$ and β_3 = Coefficients

e = Error term

ARDL Bounds Test

The ARDL method is a method used in econometrics for capturing causal linkages both in the short and long terms. The ARDL Bounds Testing procedure is a useful statistical method for assessing level connections in situations where a time series is

completely I (0), completely I (1), or a mixture of both. You can use this method to determine whether or not there are any level connections. ARDL modeling has an application called "bound testing" that utilizes F and t-statistics to figure out how important the "delayed levels" of variables are in a univariate equilibrium correction system when it is not clear whether the data-generating process behind a time series is trending or first difference stationary. A univariate equilibrium correction system is used for this kind of testing. In this case, ARDL model is used to look at both short run and long run connections between the different variables. In addition, the ARDL limits test may be used to do research on variable co-integration.

The term "co-integration testing" refers to the first stage of the analytical procedure used by ARDL. The majority of the bound test is based on "null hypothesis", which asserts that there is no co-integration. This is because the null hypothesis is the most likely explanation. The unconventional F-statistic value is derived from this premise, which acts as the basis for the calculation. It is not possible to tell from the data collection procedure used to construct a time series whether it is a trend or a first difference; so, in a univariate equilibrium correction system, a stationary bound test is used to assess the relative importance of the various levels of interest. The purpose of this testing is to find out how important different levels of variables are to the system. This is performed because it is unknown what type of data collection is being utilized to generate the time series. This is one of the reasons why this is done. The autoregressive distributed lag model, often known as the ARDL model, is utilized quite frequently in the process of doing analysis for scientific research. It is appropriate to credit Pesaran et al. with making contributions to the development of the ARDL-bounds test for co-integration (Pesaran et al., 2001). The "no co-integration" null hypothesis used in the co-integration test suggests that the "no co-integration" response is the one that should be chosen. This approach was used to ascertain whether or not the data collection under investigation included examples of co-integration. F-statistics that are below lower limit, I (0), cannot be used to reject the null hypothesis because they are too low. This is as a result of critical values for I (0) being predetermined to a particular level. When "F-statistic value" is higher than the upper limit, I (1), then it is reasonable to draw the conclusion that the hypothesis that "there is no co-integration" does not hold true.

After the co-integration was found, the bound testing approach was utilized to estimate the long-run test and the conditional ECM. The conditional ECM illustrates short-run link between the variables in question. The ARDL limits test just tells us whether or not the variables are linked; it does not tell us how strongly or how tightly they are associated with one another. The ARDL long-run form and bounds test illustrates the relationship between variables over the course of an extended period of time, whereas the error correction test illustrates the relationship between variables over a relatively brief period of time. The ECM solves issues associated with non-stationary time series data, such as erroneous connections, and it combines the short-run changes with the long-run equilibrium while maintaining long-run information. In addition, ECM combines short-run changes with long-run equilibrium. The ECM in particular ignores long-run information while at the same time mixing short-run modifications with long-run equilibrium.

The ARDL Model and the ECM equations are written as follows on the bases of equation (2) above.

$$\begin{aligned} & \Delta \ln GDP_t \\ = & \beta_0 + \beta_1 \ln GDP_{t-1} + \beta_2 \ln IF_{t-1} + \beta_3 \ln EXR_{t-1} + \beta_4 \ln FDI_{t-1} + \sum_{i=0}^q \Delta \alpha_1 \ln GDP_{t-k} \\ & + \sum_{i=0}^p \Delta \beta_2 \ln IF_{t-k} + \sum_{i=0}^p \Delta \beta_3 \ln EXR_{t-k} + \sum_{i=0}^p \Delta \beta_4 \ln FDI_{t-k} \\ & + \varepsilon_t \dots \dots \dots 3 \end{aligned}$$

The ECM Model equation has been obtained as follows from equation (3) above

$$\begin{aligned} \Delta GDP_t = & \beta_0 + \sum_{i=0}^q \Delta \beta_1 \ln GDP_{t-k} + \sum_{i=0}^p \Delta \beta_2 \ln IF_{t-k} + \sum_{i=0}^p \Delta \beta_3 \ln EXR_{t-k} \\ & + \sum_{i=0}^p \Delta \beta_4 \ln FDI_{t-k} + \lambda ECM_{t-1} \\ & + \varepsilon_t \dots \dots \dots 4 \end{aligned}$$

The above-mentioned ARDL and ECM statistical equations reflects long run and short run tests that shall be carried out as part of this investigation to determine the influence of significant “macroeconomic variables” on the expansion of Cameroon's economy.

Residual Diagnostic Test

The term "residual" refers to the discrepancy that exists between an observation's actual value and the model's projection of what the mean should be for that observation. This concept is used extensively in statistical modeling. The researcher may more accurately evaluate the appropriateness of the model for the study topic with the assistance of these diagnostic tests. To define the appropriate model for this investigation, we will make use of the serial correlation LM test, the heteroskedasticity test, the normality test, and the Ramsey RESET. The LM test is used to see if a regression model includes autocorrelation problems. In the process of carrying out a regression analysis, a test statistic is computed based on model residuals. According to LM test's “null hypothesis”, no serial correlation exists up to the rank of the probability, which is significant at a significance level of 0.05%. This level of significance is considered very significant. The significance level at this level is 0.05 percent. In addition, an investigation into autoregressive conditional heteroskedasticity will be carried out in order to accurately reflect time-varying financial data series, such as the expansion of the economy. Volatility clustering may occur in ARDL models if the “variance of the current error term” is mistakenly believed to be related to the size of the error terms that came before it. Hoskedasticity is the default assumption for testing the heteroskedasticity null hypothesis. Normality tests are applied to examine how a set of data may be accurately represented as having a normal distribution or whether or not a random variable related to another variable is similarly normally distributed. These tests can also be used to examine whether or not a random variable is normally distributed. At a significance level of 0.05%, “null hypothesis” offers proof that normality does in fact exist. In OLS regressions, the absence of crucial variables is a typical mistake in the specification of the thesis model. Ramsey's RESET test is a generic misspecification test designed to discover missing variables as well as incorrect functional forms (Ramsey, 1969). Variable exclusion may result in wrongly attributing fluctuations in the dependent variable to the factors included in the

research. In this particular study, the search for absent variables will be conducted using the Ramsey RESET test. The Ramsey RESET test is based on the premise that if a regression is adequately defined, no further independent variables should be discovered. The Ramsey RESET test gives conclusive evidence that the model was presented accurately.

The Granger Causality Test

This test is a technique that is used in the field of economics to determine whether or not a variable is able to properly predict another one. When one variable can be used to make a prediction about another variable, we may refer to the outcome of the second variable as being caused by the first variable. If the Granger cause does not contribute to an increased capacity to predict the other variable, it is acceptable to eliminate it as a potential explanation. The Granger causality test was developed after Clive Granger proposed that economic causality could be assessed by looking at how well one-time series variable could be predicted by utilizing data from another (Granger, 1969). He was the first person to suggest that causation in economics could be studied by determining whether or not it is possible to forecast the future values of a time series variable by using the previous values of another time series. His idea was the first of its kind to be put forward. The premise that changes in x-values cannot be used to explain variations in y-values forms the basis for “null hypothesis” in “Granger causality test”. The fact that this is the case demonstrates that it is fair to conclude that $x(t)$ is not the reason why $y(t)$ occurred. In order to explore the structural dynamics of the causal linkages that occur among a range of different macroeconomic variables, the “Granger causality test” shall be employed. This will be done in order to gather data. The “Granger causality test” is used to determine if one-time series data can accurately predict another; statisticians use a procedure. The findings of this test are used to derive conclusions about the two-time series' relationship. Granger, the creator of this exam, was the inspiration for its name. The Granger causality test evaluates whether or not one-time series data can accurately predict another. At that level, the “null hypothesis” is judged incorrect if the probability value is less than 5%. Even though we are exploring whether variable X is to blame for variable Y, we are not interested in the real cause-and-effect connection between the two

variables. This is due to the fact that there are countless occasions in which a correlation does not necessarily indicate causation. Simply put, we want to discover whether a variable "X" may help explain another variable "Y" and so assist us in predicting it. As a consequence, the exact causal relationship between the variables is unimportant to us. As a consequence, instead of just stating "X" causes "Y," we say "X" Granger causes "Y."

Stability Test

Each and every piece of research that is carried out is required to make use of a reliable model (Hansen, 2000). It is very uncommon for nonlinear models to struggle with parameter instability, which may eventually result in the failure of the model. The CUSUM test will be used to determine whether or not the data parameters have remained consistent throughout the multiple linear regression analysis that will be performed. As a consequence of this, stability test of the estimated model is a must, to determine how accurate the results are. This endeavor, which aims to accomplish the aforementioned goal, will make use of the CUSUM stability test, which was established by Brown and his colleagues in 1975. On the graph, the two red lines reflect the degree of stability and significance achieved at 5%, while the blue line shows the mobility of the data. Considering the 5% significance level, the variables are considered stable when the blue line is located in the middle of the two red lines.

CHAPTER IV

FINDINGS AND DISCUSSIONS

Introduction

Here, the researcher will explain the findings of this piece of work as well as how these findings relate to the that of other researchers. The researcher will also provide responses to the research questions, as well as to the proposed hypotheses that were presented previously in the work, which will be found in the subsequent section of this chapter.

Findings of the Study

Descriptive Statistics

The descriptive statistics for this research study were generated using EViews. The data for the study consists of 31 observations. The table below summarizes the results.

Table 1: Descriptive Statistics

<i>Description</i>	<i>GDP</i>	<i>Inflation</i>	<i>REER</i>	<i>FDI</i>
<i>Mean</i>	2.775	3.311	105.323	1.210
<i>Median</i>	3.832	2.059	99.881	1.387
<i>Maximum</i>	7.049	35.094	156.2147	4.069
<i>Minimum</i>	-7.932	-3.207	90.205	0.916
<i>Std Dev.</i>	3.447	6.279	17.417	1.098
<i>Skewness</i>	-1.838	4.356	2.118	0.278
<i>Kurtosis</i>	5.637	22.695	5.923	2.754
<i>Jarque-Bera</i>	26.430	599.091	34.208	0.476
<i>Probability</i>	0.000	0.000	0.000	0.788
<i>Sum</i>	86.017	102.632	3264.997	37.513
<i>Sum Sq. Dev</i>	356.386	1182.697	9100.441	36.156
<i>Observations</i>	31	31	31	31

Source: This study

Cameroon has an average GDP of \$2,210, an average FDI net flow of \$1,210, a total average inflation rate of \$3,310, and an average REER of \$105.323, according to the figures that have been gathered during the course of this 31-year period. This suggests that Cameroon's overall growth rate is 1.210 percent per year on average. GDP, inflation,

REER, and FDI all have median values of 3.832, 2.059, 99.881, and 1.387, respectively. This means that these values represent the center of the collection of statistics. As shown by the maximum and minimum statistics, the research came to the conclusion that the highest level of economic growth for Cameroon is 7.049, while the lowest level is -7.932. This is demonstrated by the maximum and minimum data.

The standard deviation is a metric that is used in statistics that measures how distant each measured variable is from the mean as compared to how close it is. When the standard deviation is low, it depicts data and variables moving closer to the mean value, whereas a high standard deviation indicates that the data are more dispersed. It may be deduced from the fact that the standard deviation is near zero, meaning that values are very close to the mean. If, on the other hand, the standard deviation is either high or low, this indicates that the variables are now clustered disproportionately far above or below the mean, respectively. If the standard deviation is 5, this indicates that the performance was exceptional; if it is 4; this indicates that the performance was good; if it is 3, this indicates that the performance was medium; if it is 2, this indicates that the performance was poor; and if it is 1, this indicates that the performance was extremely poor. This indicates that Cameroon's pace of economic development is typical for the region.

The degree to which a distribution is not symmetrical may be quantified using "skewness." If Supposed skewness is equal to zero, then the distribution is symmetric. However, if the skewness is greater than zero, then the distribution is positively skewed and has a greater proportion of values that are lower; If the distributions with skewness less than zero are negatively skewed, with a disproportionately high number of larger values, the distributions with skewness equal to zero are symmetrical. According to the descriptive data that was shown earlier, the GDP has a negative skew, whereas all of the other variables have positive skews. A distribution's peakiness or flatness may be measured using a statistic called kurtosis. The value of kurtosis for a normal distribution is 3, a leptokurtic distribution is shown by a distribution with a high peak, and a platykurtic distribution is shown by a distribution with thinner tails when the value of kurtosis is less than 3. The data shown above indicate that GDP, REER, and INF are all leptokurtic, which means that they will have high peaks; however, FDI is platykurtic, meaning that its kurtosis value is smaller than 3, and as a consequence, it will have thinner tails.

Stationarity Results

The unit root outcome will help determine the model type that is best suited for the research, which makes it crucial. The unit root test of this study will be carried out using ADF and PP tests to ascertain the stationarity of the elements under observation. If the elements are stationary at the level or at the first difference, these tests will prove. Table 2 below displays the outcomes of the tests.

Table 2: ADF and PP Unit Root Tests

No	Variable	ADF Unit Root			PP Unit Root		
		Level	First Difference	Decision	Level	First Difference	Decision
1	GDP	0.9760	0.0000	I (1)	0.3037	0.0000	I (1)
2	FDI	0.8039	0.0000	I (1)	0.0005	-	I (0)
3	Inflation	0.0002	-	I (0)	0.0008	-	I (0)
4	REER	0.1103	0.0002	I (1)	0.1401	0.0007	I (1)

Source: This study

If the variable's probability is more than 0.05 percent, we can accept the “null hypothesis” that there is unit root. The null hypothesis claims that the unit root is flawed. We decide to reject “the null hypothesis” if the probabilities the variable is lower than 0.05 percent. Variables that are stable at level are denoted by the notation I (0), while variables that become stable after the first difference are denoted by I (1). The only variables that may be called stationary are those whose probabilities are lower than 5%.

The results of the ADF and PP unit root tests indicate that the variables are stable both at level and at first difference. The ADF findings show that inflation is stationary at level, that is, I (0) while GDP, FDI and REER are stationary at first difference, that is, I (1). On the other hand, the results of the PP test show that inflation and FDI are stationary at level, that is, I (0) while GDP and REER are stationary at first difference, that is, I (1).

These discoveries on the unit root justify the choice to use the ARDL model, which is applicable for I (0) variables, I (1) variables, or a combination of the two types of variables. Because this investigation includes mixed variables, the ARDL model served as an excellent choice for analyzing the data.

ARDL Co-Integration Bounds Test

We use the ARDL cointegration technique to experimentally investigate the long-run correlations that exist between the variables (inflation, foreign direct investment, real exchange rate, and GDP). The co-integration result is shown in the table below.

Table 3: ARDL Bounds Test Results

<i>Model</i>	<i>Lag.</i>	<i>F-Statistic</i>	<i>Decision</i>
<i>GDP, INF, REER, FDI</i>	<i>(1,0,0,3)</i>	<i>17.12537***</i>	<i>Co-Integration Exist</i>
<i>Bond Critical Value</i>			
		<i>I (0)</i>	<i>I (1)</i>
<i>Sign.</i>	<i>10%</i>	<i>2.37</i>	<i>3.2</i>
	<i>5%</i>	<i>2.79</i>	<i>3.67</i>
	<i>2.5%</i>	<i>3.15</i>	<i>4.08</i>
	<i>1%</i>	<i>3.65</i>	<i>4.66</i>

Source: This study

The co-integration test is what is meant when people talk about “the ARDL Bound Test”. Testing co-integration is the first step in analytical approach for the ARDL model. The assumption that there is “no co-integration” is known as “null hypothesis” of the ARDL bound test. This method was utilized in order to ascertain whether or not the data set that was the focus of the inquiry had “co-integration”. Supposed the “F-statistic value” is lower than the lower limit, which is the crucial value for I, then we cannot reject alternative hypothesis, which says “there is co-integration”. (0). If, on the other hand, the “F-statistic value” is greater than the upper limit, I (1), then “null hypothesis” that there is no co-integration is rejected and draw the conclusion that co-integration exist. The F-statistic value, which is 8.632896, is greater than all the critical values of I (0) and I (1) at 1%, 5%, and 10% significance levels, respectively, as shown in Table 3, which allows us to conclude that there is co-integration between the variables.

ARDL Long run Test

The ARDL long-run form and limits test was applied in order to evaluate the nature of the connection that exist between amongst the dependent and independent variables. The findings of the long-run connectivity are presented in Table 4 below.

Table 4: ARDL Long Run Results

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistics</i>	<i>Probability</i>
<i>C</i>	<i>16.006</i>	<i>7.289</i>	<i>2.196</i>	<i>0.040</i>
<i>D(FDI(-2))</i>	<i>0.781</i>	<i>0.265</i>	<i>2.949</i>	<i>0.008</i>
<i>INF</i>	<i>0.148</i>	<i>0.109</i>	<i>1.363</i>	<i>0.188</i>
<i>REER</i>	<i>-0.153</i>	<i>0.061</i>	<i>-2.532</i>	<i>0.020</i>

Source: This study

According to the findings which are presented in Table 4 above, it appears that a significant connection exists between the variables. As evident by the coefficient of 0.148 and a probability of 0.188 percent, inflation has an “insignificant positive” impact on Cameroon's growth. This implies that, any 1% increment in Cameroon's inflation rate leads to an increase in its economic growth by 0.148 amount. This result is consistent with that of Ibrahim Ngouhouo & Guivis Zeufack Nkemgha who made a comparative analysis of inflation and economic growth between Cameroon and Ivory Coast was done by (Ngouhouo & Nkemgha, 2018). By using secondary data from “World Development Indicators”, for the period 1970-2012 and by applying the least-squares approach, they discovered that Cameroon's inflation has no impact on economic growth, as it showed a positive and insignificant connection with growth, while Ivory Coast demonstrated a negative and significant impact on economic growth.

According to the findings, Cameroon's “economic growth” is positively and significantly influenced by the country's reception of direct investments from other countries. According to the results presented in the table above, FDI has a coefficient of 0.781 and a significant probability of 0.008 percent. This indicates that there would be a rise in Cameroon's economic growth of 0.781 coefficient points if there were a one percent increase in FDI. This conclusion is consistent with the findings of Samuel Fambon (2013), who investigated the effect of incoming foreign capital on the development of Cameroon's economy. These influxes of foreign capital comprised both subsidies from other countries

and direct investments from other countries. Between the years 1980 and 2008, he evaluated cointegration and time-series data using an approach called the autoregressive, distributive lag approach. According to the findings of his investigation, the size of Cameroon's work force has both a short-term and long-term effect that is significantly detrimental to the country's overall economic expansion. On the other hand, domestic capital stock and FDI have a positive and considerable influence on Cameroon's economic development in both the short and long run. The findings of the investigation done by Mamingi and Borda (2015) are also in line with this observation. They researched the elements that drove “economic growth” in the OECD (Organization for Economic Cooperation and Development) countries, including FDI, and came to the conclusion that a number of factors contributed to economic expansion. The elements' short-term effects differ greatly from their long-term consequences. Estimation and validation of the model were both performed using the ARDL methodology. The conclusions that were derived from the error correction models varied from country to country in terms of the FDI component. The long-term association between economic growth and FDI was favorable in Antigua and Barbuda, but it was negative in St Lucia, and no major impact on economic growth in St Vincent and the Grenadines.

The REER exert a “significant negative” association with Cameroons growth, as shown by the coefficient of -0.153 and a probability of 0.020 percent. Because of this, any one percent increment in currency exchange will yield a 0.153 amount decline in Cameroon's “economic growth”. This finding is congruent with that of Achamoh and Baye (2016), who used annual data from 1977 to 2010 to investigate the effects of financial development, FDI, and the real exchange rate (RER) on economic growth in Cameroon. They discovered that FDI portrays a significant trait on economic growth, followed by regulatory economic reform and financial development. They used the “residual-based Engle-Granger test”, OLS-based ARDL limit test, and the Johansen cointegration technique in order to accomplish these goals. All three of these tests are based on the likelihood of an event occurring. All series featured unit roots at the very first difference, as shown by the “unit root test” results. the results of the model reveal that both financial development and FDI have a favorable influence on economic growth.

ARDL Short Run Test (ECM)

The short-run relationship of the variables was demonstrated by means of an error-correction regression model (ECM) testing. The term "error correction model" (ECM) refers to a type of time series regression model based on the assumption that "an equilibrium relationship between two or more-time series data determines the long-run and short-run behavior of variables". The objective of the error correction model is to provide a quantitative description of the rate at which a system returns to long-run equilibrium following a departure from its original condition of short-run equilibrium. A negative sign is always used when writing the coefficient of the rate of change. The outcome of this test may be found below.

Table 5: ARDL Short Run Results (Error Correction Regression Method)

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistics</i>	<i>Probability</i>
<i>D(GDP(-2))</i>	<i>0.801</i>	<i>0.266</i>	<i>3.010</i>	<i>0.017</i>
<i>D(INF)</i>	<i>-0.560</i>	<i>0.220</i>	<i>-2.726</i>	<i>0.026</i>
<i>D(INF(-1))</i>	<i>0.909</i>	<i>0.216</i>	<i>4.211</i>	<i>0.003</i>
<i>D(INF(-3))</i>	<i>-0.118</i>	<i>0.045</i>	<i>-2.620</i>	<i>0.031</i>
<i>D(FDI(-1))</i>	<i>2.035</i>	<i>0.496</i>	<i>4.106</i>	<i>0.003</i>
<i>D(FDI)</i>	<i>-0.559</i>	<i>0.205</i>	<i>-2.725</i>	<i>0.026</i>
<i>D(FDI(-2))</i>	<i>1.488</i>	<i>0.369</i>	<i>4.029</i>	<i>0.003</i>
<i>D(REER)</i>	<i>-0.148</i>	<i>0.047</i>	<i>-3.131</i>	<i>0.014</i>
<i>D(REER(-2))</i>	<i>-0.393</i>	<i>0.089</i>	<i>-4.430</i>	<i>0.002</i>
<i>D(REER(-3))</i>	<i>-0.278</i>	<i>0.085</i>	<i>-3.249</i>	<i>0.012</i>
<i>CointEq(-1) *</i>	<i>-0.398</i>	<i>0.116</i>	<i>-3.434</i>	<i>0.009</i>

Source: This study

Inflation has a chance of 0.026 percent and a coefficient of -0.560, according to the statistics provided in Table 5 above. As observed from the statistical significance of the connection, this finding implies that Cameroon's inflation rate has a considerably negative link with the country's overall economic growth. This finding is backed by the research conducted by Thaddeus and Ngong (2021), which looked at the relationship between important macroeconomic parameters and Cameroon's prosperity from 1970 to 2018. The

World Bank Development Indicators provided the data that was used in the study, and econometric methods were used to conduct the analyses of this data. ARDL technique was implemented since the variables were integrated at several different levels. The research came to the conclusion that there are positive and robust correlations among “Cameroon's economic growth” as well as government spending, trade openness, gross capital formation, and currency rate in both terms. These connections were discovered to exist in both the long and short term. These correlations were also found to be significant. Both in the short term and over the course of a longer period of time, “human capital development”, foreign aid, money supply, inflation, as well as FDI all demonstrated a substantial and negative influence on economic growth. Furthermore, the first lag of inflation, represented by $D(\text{INF}(-1))$ portrayed a positive and significant impact on growth with a coefficient of 0.909 and a probability of 0.003 percent, while the third lag, denoted as $D(\text{INF}(-3))$ revealed a “significant negative” with a coefficient of -0.118 and a likelihood of 0.031 percent.

The rate of expansion of Cameroon's economy (economic growth) is significantly influenced in a favorable direction by FDI. This is shown by a coefficient of 2.035 and a significant probability of 0.003, respectively. This means that any 0.01 percent (1%) increase in FDI would enhance Cameroon's GDP by 2.035 amount. This conclusion is in line with the findings of Samuel Fambon (2013), who investigated the influence of inflows of foreign capital on economic development in Cameroon. Both aid money and FDI were included in the total amount of capital brought in from abroad. He used ARDL method to examine cointegration and time series data from 1980 to 2008. According to the findings of his investigation, the size of Cameroon's work force has both a short-term and long-term effect that is significantly detrimental to the country's overall economic expansion. On the other hand, domestic capital stock as well as foreign direct investment have a “favorable and considerable influence” on economic development in Cameroon in both of these areas. To explain more, $D(\text{FDI})$ reveals a substantial negative impact on Cameroon's economic growth as indicated by the coefficient of -0.559 and a probability of 0.026 percent, while the second lag of FDI ($D(\text{FDI}(-2))$) also revealed a significant positive impact on growth as justified by the coefficient of 1.488 and a “P-value” of 0.003 percent.

A negative and significant trend in the short term is seen in the exchange rate, as indicated by the -0.148 coefficient, and the 0.014 percent probability. Assuming a 0.01 percent (1%) rise in the exchange rate, the Cameroon economy would see a contraction of 0.148 in growth. These results are consistent with those found by Achamoh and Baye (2016), who used annual data from 1977 to 2010 to disentangle the contributions of FDI, financial development, and the real exchange rate to Cameroon's GDP growth. They discovered FDI and financial development to both have beneficial positive effects on economic growth, but the "exchange rate" showed a considerable negative affect on economic growth in the short run. To further expatiate on REER, it was found that the second lag of REER, that is, $D(\text{REER}(-2))$, also exhibit a significant association with Cameroons growth rate as indicated the coefficient of -0.393 and a "P-value" of 0.002 percent. The third lag of REER has a coefficient of -0.278 and a likelihood of 0.012 percent which also confirms a significant negative impact.

The rate of adjustment is represented by the number -0.398 as demonstrated by the above table. The term "speed of adjustment" refers to the total amount of time that must pass for Cameroon's economy to recover from the long-term effect that was caused by the short-term influence of a variable. This leads to the conclusion that the rate of adjustment in this circumstance is 39.8 percent. This value demonstrates that the economy of Cameroon adjusts at a sluggish pace, which suggests that shifting from the short run to the long run effect of a variable would take up to 60.2% of time.

Residual Diagnostic Tests

Because they determine whether or not the findings acquired by the model in question can be trusted, residual diagnostic tests are an essential component of every investigation. During this examination, "Breusch-Godfrey" test was used to carry out the leftover diagnostic tests. When conducting this study, in order to analyze the residuals, we used the serial correlation LM tests, heteroscedasticity, normality, as well as the "Ramsey RESET" (for model specification). The LM test is as well employed to determine whether or not, residuals generated by a regression model exhibit any autocorrelation. When referring to the degree to which the same variables are linked over two different time periods, the term "autocorrelation" is the term that is used. Determining

whether or not the data is random is an important step in determining whether or not a time series model can be applied to the data. During a regression analysis, the model's residuals are deducted from the total to provide a test statistic. In the absence of evidence to the contrary, it is reasonable to assume that there is no such thing as a serial connection, at least not within the range of the probability rankings. This is what is known as the null hypothesis. It was also possible to use autoregressive conditional heteroskedasticity to accurately characterize time-varying financial data series, such as the expansion of the economy. Volatility clustering may take place in ARDL models in the event that the false assumption that the variance of the present error term is proportionate to the magnitude of the error terms in the past.

In a regression model, “the variance” of the residual or error term is said to be heteroskedastic if there is a significant amount of variation in it, while it is said to be homoskedastic if there is no change in it at all. A normality test is a statistical procedure that can be used to determine whether or not a particular data set has “a normal distribution”, or it can be used to estimate the probability that a random variable is normally distributed given its association with another variable. Both of these purposes can be accomplished through the use of the normality test. The Ramsey RESET procedure examines the model to ensure that a poor fit is not due to the absence of necessary data. The outcomes of the remaining diagnostic exams can be found in the table that follows and is referred to as "Table 6."

Table 6: Residual Diagnostic Tests Results

<i>No</i>	<i>Description</i>	<i>F-Statistics/Value</i>	<i>Probability</i>
1	<i>Breusch-Godfrey Serial Correlation LM test</i>	1.504	0.243
2	<i>Breusch-Peagan-Godfrey Heteroskedasticity test</i>	1.529	0.276
3	<i>Jarque Bera Normality test</i>	1.887	0.389
4	<i>Ramsey RESET</i>	2.430	0.996

Source: This study

According to the LM test, the “null hypothesis” of “serial correlation” asserts that there is no such thing as a serial correlation. The diagnostic tests that are shown in Table 6 above

show that the LM test for serial correlation has a probability of 0.243. This probability is higher than the significance level of 0.05 percent, which means that the null hypothesis that there is no serial correlation can be rejected. This permits “the null hypothesis” to be rejected. As a result of this discovery, the null hypothesis is verified, and we are free to draw the conclusion that neither serial correlation nor autocorrelation are problematic in the present investigation. The homoskedasticity assumption is made under the null hypothesis when subjected to the heteroscedasticity test at a certain level of confidence. The results show that the probability value of 0.276 is greater than the threshold of 0.05 percent. This indicates that we can accept the null hypothesis with confidence, which states that the data are homoskedastic and does not contain any heteroskedasticity issues. The histogram normality test was employed to figure out whether or not everything was normal. The normal distribution may be inferred from the data using the null hypothesis for the normality tests when using a significance threshold of 5%. According to the normality test's null hypothesis, the distribution is assumed to be normal in the study. Because the likelihood of “Jarque-Bera” is 0.389 percent, which is higher than the confidence threshold of 0.05 percent, we have decided to accept “the null hypothesis” and come to the conclusion that the residuals in this research follow a normal distribution. This information is displayed in the table that is located above.

In order to verify the model that was implemented based on its specifications, the Ramsey RESET was utilized. The Ramsey RESET test ensures that the absence of certain variables in the study does not lead to a misspecification of the model. By using the reset null hypothesis, one may be certain that the appropriate model was stated in the proper manner. As can be seen in Table 6, the chance of a Ramsey RESET is 0.996%, which is much higher than the significance threshold of 0.05 percent that is required for rejecting a null hypothesis. As a direct consequence of this, we are unable to conclude with certainty that the model does not include a valid specification. As a consequence of this, we accept “the null hypothesis”, which states that the model used is correctly specified and does not include any gaps due to the absence of variables. The probability of success with the Ramsey RESET is 99.6%, which is quite near the maximum of 100%. This very high probability hints that the model is well represented, even if it isn't completely accurate.

Granger Causality Test

The “Granger causality” model was utilized in this investigation to investigate the structural dynamics of the causal links that exist between a multitude of macroeconomic variables. If the probability value is lower than 5%, it is reasonable to conclude that the null hypothesis is incorrect at that level. Even though we are looking into whether variable X is to blame for variable Y, the actual cause-and-effect link between the two variables is not the primary focus of our study. Instead, we are looking into whether or not variable X is to blame for variable Y. This is because there are several occasions when a correlation does not necessarily imply causation. We just examine if X (and X delays) can help explain Y and help us forecast it. As a consequence, we are unconcerned with the real causal relationship between the variables. As a result, rather than just stating "X is the cause of Y," we say "X gene causes Y." This investigation’s granger causality findings are shown in Table 7.

Table 7: Granger Causality Test Results

Description	Observations	F-statistics	Probability
Null hypothesis:			
INF does not Granger Cause GDP	29	2.319	0.120
GDP does not Granger Cause INF		11.591	0.000
REER does not Granger Cause GDP	29	6.950	0.004
GDP does not Granger Cause REER		7.247	0.003
FDI does not Granger Cause GDP	29	0.281	0.758
GDP does not Granger Cause FDI		0.864	0.434
REER does not Granger Cause INF	29	6.806	0.004
INF does not Granger Cause REER		2.859	0.077
FDI does not Granger Cause INF	29	1.334	0.282
INF does not Granger Cause FDI		0.022	0.978
FDI does not Granger Cause REER	29	0.247	0.783
REER does not Granger Cause FDI		1.832	0.182

Source: This study

As can be seen in Table 7, there is evidence suggesting that there is a relationship between the variables that operates in both a unidirectional and a bidirectional fashion. This link

among INF and GDP is “statistically significant” at the 1% level. The facts reveal that economic expansion does not create inflation at a significant level of 1%, despite the notion that it may cause inflation. However, economic growth did not cause inflation. Both the statistically insignificant likelihood of GDP (0.120 percent) and the statistically significant likelihood of INF (0.000 percent) provide credence to this link. The researcher found that there is a bidirectional causality between REER and GDP. The GDP and the exchange rate are both sensitive to changes in the other component. Because of this, Since the F-statistic for REER-to-GDP causation is 0.004%, which is lower than the 1% significance level, we decide to reject the null hypothesis that the REER “does not” cause GDP, and accept the alternative that the exchange rate causes GDP. This is due to the fact that the significance level for this finding is 1%. As a result of the fact that the likelihood of GDP-to-REER causality is 0.003%, which is also less than 1%, we get to the conclusion that GDP causes REER.

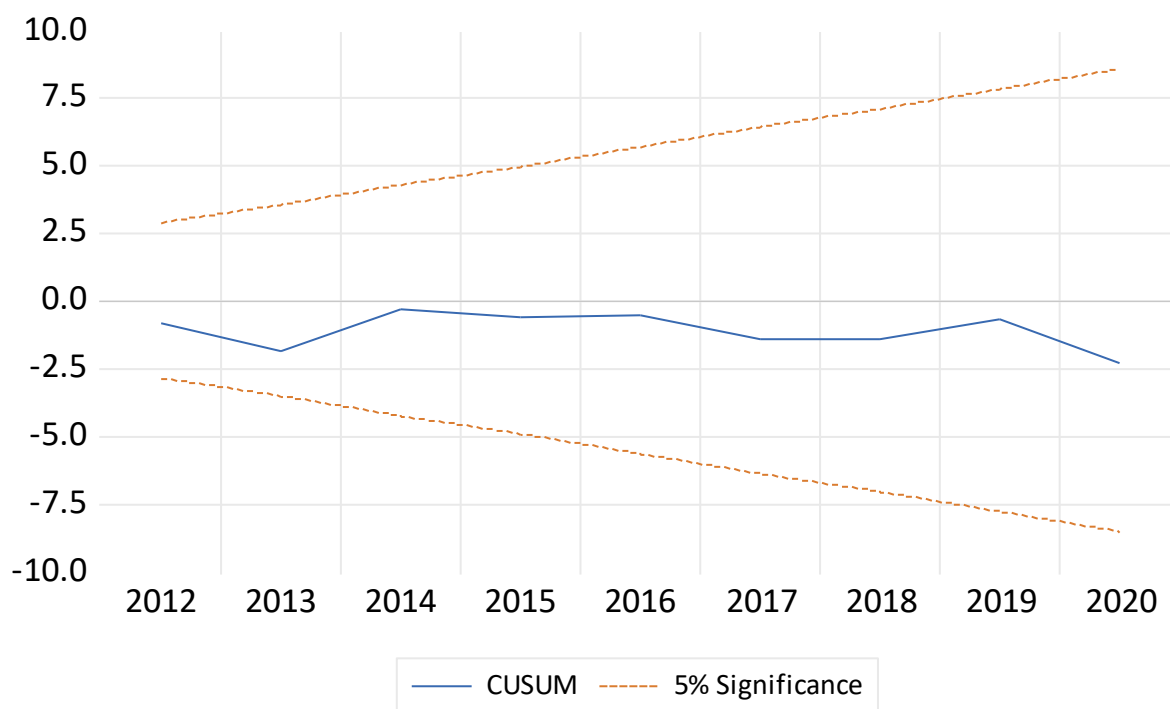
At the 10% significance level, no correlation exists among GDP and direct investment from other countries. In light of this, neither GDP nor FDI can satisfactorily explain Cameron's rise in GDP. There is only a relationship between REER and INF in one direction at the 5% significance level. This link is limited in one direction. We come to the conclusion that the alternative hypothesis that REER does not cause FDI in general and that REER does cause FDI in Cameroon is incorrect. In spite of this, we have reached the conclusion that the null hypothesis stating that INF does not produce REER is correct. This is due to the fact that the negligible likelihood of 0.077 percent is more than the limit of 0.05 percent. The F-statistic for FDI-INF causation is 0.282 percent, and for INF-FDI causation, it is 0.978 percent. We are unable to reject “the null hypothesis”, which states that “FDI does not cause INF” and that “INF does not because FDI”, using a significance threshold of 10%. This suggests that FDI and INF have no causal link. The findings also show that, at a 10% level of significance, there is no causal link between FDI and REER.

Stability Test

Instability in the values of parameters is a phenomenon that often occurs in nonlinear models. As a direct result of this, the stability test of the estimated model that was used has to be carried out in order to validate the results that were obtained. In order

to accomplish this, “the cumulative sum” (CUSUM) and “the cumulative sum of squares (CUSUMQ) stability tests developed by “Brown and colleagues (1975)” are utilized in this study (Brown et al., 1975). Any research study really has to use a model that is consistent (Hansen, 2000). In multiple linear regression analysis, the CUSUM test is utilized to evaluate and confirm that the data are consistent with one another. If null hypothesis that the parameters are stable is accepted, then we can consider the numbers to be stable if they lie inside the range shown by the blue line. On the other hand, numbers that fall outside the range predicted by the sequence are consistent with the alternative hypothesis of unstable parameters. The results of the CUSUM stability test are shown in the image that can be seen below.

Figure 3: CUSUM



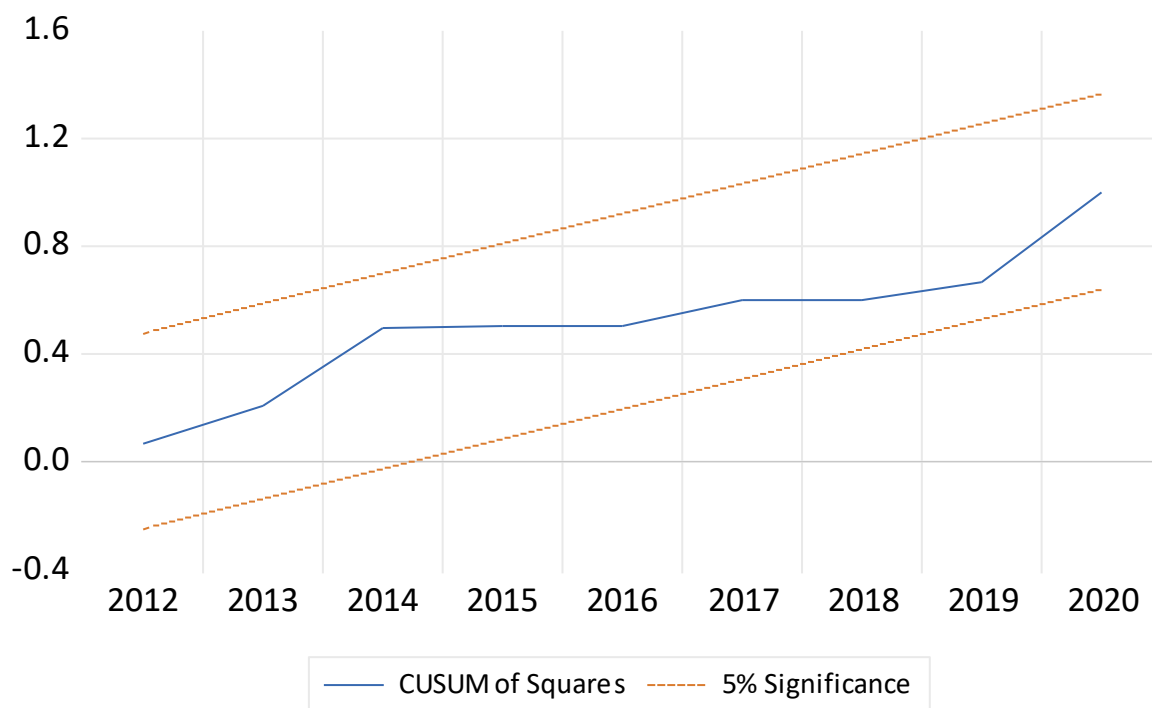
Source: This study

According to the assumptions of the null hypothesis, the parameters of the study are thought to be stable if and only if the blue line is found to be positioned inside the red lines. In the event that this is not the case, the null hypothesis proposes that the parameters are unreliable. If any of the lines are found to be broken, then we will consider it plausible rejecting the “null hypothesis” of consistent coefficients at the 5% level of significance. This will be done since the null hypothesis predicts that coefficients will be consistent.

We have chosen to embrace the null hypothesis, which claims that the research's parameters are stable, because the blue line is contained within the red line (as shown in figure 3 above).

Using “the CUSUM SQUARE”, the short-run dynamics of the linkages between the primary macroeconomic determinants and economic development in Cameroon were compared to long-run stability of CUSUM as anticipated by the ARDL model. This comparison was done so as to get a better insight of long-term implications of these findings. This step was taken to validate the result reached by the ARDL model. The image below depicts “the CUSUM of SQUARE test”.

Figure 4: CUSUM of Squares Test



Source: This study

The parameters are thought to be stable if the blue line can be located between the two red lines. As shown by the outcome of the CUSUM square test in Table 5 above, the fact that the blue line lies in the middle of the two red lines indicates that the model's parameters are stable at a significance level of 5%. This was demonstrated by the fact that the blue line lies in the middle of the two red lines. This was also true for the CUSUM test, as shown in Figure 4 above. As a consequence of this, we are able to claim

categorically that the residual variances in the model used in the research are stable rather than unstable.

Discussion of findings

During the first stage of the inquiry, we were able to see a wide range of outcomes. The outcomes of the study are going to be discussed in the next portion of this chapter by the researcher. The researcher is obligated to provide a description of the findings while also connecting them to the research objectives and hypotheses.

Discussion of results in relation to research questions

After looking through the outcomes of the study, the research concerns that were brought up before could now be solved. The study made significant contributions to research on three (3) separate topics related to macroeconomic determinants and economic growth in Cameroon. The foundation of the research questions is comprised of the effects that the independent factors have had on the variable that is being studied. Research issues about the consequences of these variables will be examined in both the short and long terms, as their affects were studied in both time frames.

The first question that has to be answered by this piece of study is, "How does Cameroon's inflation rate effect the overall growth of the country?" This question is going to be answered both in the long run and in the near term. According to the findings, inflation has a long-term "F-statistic value" of 0.148 and a probability of 0.188 percent, which is far above the 0.05 percent limit. The fact that the F-statistic has a positive but insignificant value suggests that inflation has no significant impact on Cameroon's "economic growth" over the long run. According to the findings, the F-statistic for inflation in the short term is -0.560, and there is a likelihood of 0.026 percent that it will occur. This will mean that inflation has a detrimental impact that is also statistically significant on the expansion of the Cameroonian economy. In conclusion, we are able to provide an answer to this research question by stating that, while inflation does significantly influence Cameroon's economy in in the long term, it has affects the economy significantly in the short term.

The second study issue will be investigated using a similar manner. The second issue that has to be answered is the following: how does the strength or weakness of Cameroon's

currency exchange rate affect the country's overall GDP growth rate? Given that the F-statistic coefficient for the long-term exchange rate is -0.153, and the probability of it happening is 0.020 percent, we can confirm that Cameroon's economic expansion is significantly impacted in the long run in a negative way by the value of the currency exchange rate, and this influence is “statistically significant” at 5% level. The currency value's F-statistic is -0.148, and the probability of a change in the exchange rate in a short while is 0.014 percent. It can therefore be concluded that REER exert a detrimental influence on the expansion of Cameroon's economy in both terms.

The third research question will be answered using the same situation as questions one and two. It seeks to find out how FDI from other countries affects the expansion of Cameroon's economy. With an F-statistic of 0.781, and the probability of attracting FDI from outside over the long run of 0.008 percent, FDI contributes significantly to Cameroon's economic development. An F-statistic of 2.035 and a likelihood of 0.003% in the short run suggest it will continue to have a favorable effect on Cameroon's economy in the foreseeable future. This scenario therefore brings the conclusion that FDI positively and significantly impacts the growth rate of Cameroon in both terms.

Discussion of results in relation to Research Hypothesis

Specifically, the goal of the study was to determine whether or not there is a link among the three major macroeconomic factors that drives “economic growth” in Cameroon. In this section, we will investigate whether or not the aforementioned macroeconomic variables have any discernible impact on the expansion of Cameroon's GDP. The purpose of the research was completed via the use of ARDL-bound testing, and the validity of the model that was applied was investigated through the utilization of diagnostic tools. In the next part, a summary of the results is presented, taking into consideration the study hypotheses that were first provided for this examination. A null hypothesis, indicated by H_0 , and an alternative hypothesis, designated by H_1 , had each been formulated by the researcher for each of the macroeconomic variables. We'll resolve this debate by determining which of the opposing theories for each variable may be safely disregarded.

According to the findings, inflation over the short term has “F-statistic” value of -0.560 and a probability of 0.026 percent, which gives it a “significant negative” influence. Whereas inflation over the long term has an F-statistic coefficient of 0.148 and a likelihood of 0.188 percent, which means it exhibit an insignificant positive impact on growth. In this case we cannot reject the null of “no significant impact” in the long term, while in the short term it is possible to reject the null since there is “no significant” impact in the long finding but there exists a significant impact in the short term.

In the long run, REER coefficient is -0.153, which corresponds to a likelihood of 0.020 percent. On the other hand, the REER value in the short run is -0.148, which corresponds to a probability of 0.014 percent. The degree of evidence required to reject “the null hypothesis”, known as the 0.05 percent level, is insufficient. which is also a lower threshold than that at which to consider it unlikely. Because of this, rather than accepting “the null hypothesis”, which states that there would be no effect in either the long or short run, we have decided to go with the alternative hypothesis, which states that there will be an effect in both the long and short runs.

FDI's long-term F-statistic is 0.781, with a probability of 0.008 percent, while its short-term F-statistic is 2.035, with a chance of 0.003 percent. The long-term and the short-term F-statistic probabilities for FDI are both lower than the 0.05 percent threshold. This indicates that the alternative hypothesis proposing a considerable influence is accepted in both senses.

After reviewing the research's results and the comments based on the findings, the next chapter will provide a short overview of the study, a study conclusion, and any relevant suggestions.

CHAPTER 5

OVERVIEW, CONCLUSION, AND RECOMMENDATION

Introduction

This section includes brief review of our study, a discussion of the results, and some suggestions for further research.

Overview

Using Cameroon as a case study, this study used quantitative secondary data to investigate the effects of macroeconomic forces on economic growth in an emerging or developing economy from 1990 to 2020. The time period covered was from 1990 to 2020. The researchers in this study set out to learn how various factors affected Cameroon's GDP growth. Inflation, the currency rate, and FDI are among the primary macroeconomic indicators studied. The expansion of the economy was evaluated by looking at the GDP. The GDP was labeled a dependent (reliant) variable, whereas the conversion (exchange) rate, FDI, and inflation were designated autonomous (independent) variables. This research aimed to develop many hypotheses on the causes of economic growth and relied heavily on a synthesis of existing empirical literature.

The World Bank has proven to be a major source of data collection for our study. The quantitative data for the variables under examination were therefore extracted from the aforementioned source. In regards to testing as well as analyzing our data with respect to our inquiry, the software applications Microsoft Word and Excel, in addition to the statistical application EVIEWS, were utilized. We began with some descriptive data as a means of laying the groundwork for the subsequent discussion of the findings and as a means of offering a sneak peek at the final product. For the purpose of determining whether or not there was stationarity at the level of unit root, the ADF and PP unit root tests were utilized. It was done to ensure that the unit root level remained stationary. Our investigation arrived at a conclusion that the variables were stable at $I(0)$ and $I(1)$. An ARDL approach was applied to the data investigation because the components exhibited stationarity both at level and at first difference. This was done in order to fully comprehend the information. The researcher utilized the ARDL bound test for cointegration to establish the long-term connection between the variables. A long-term

connection was found to prevail among the elements. Because cointegration existed between the variables, long-run and short-run dynamics were examined.

It appears from the data analysis that while the investigation was being conducted, Cameroon's exchange rate was a significant factor that worked to inhibit the country's economic progress. The value, which is -0.153 in the long run, and the likelihood of 0.020% indicate that the two variables have a bad correlation with one another. The coefficient of 0.781 and the likelihood of 0.008% point to the fact that Cameroon's economic growth is positively correlated with direct investments from other countries. The coefficient for inflation in Cameroon in the long run is 0.148, and the likelihood of it occurring is 0.188 percent. This indicates that INF has a strong insignificant influence on "economic growth" in the country.

According to the information gathered in the short term, REER has a statistically significant impact that is negative. This is based on the coefficient of -0.148 and a likelihood of 0.014%, indicating a negative association between the variables. It was evaluated that FDI as well as GDP growth in Cameroon demonstrated a statistically significant positive association, as indicated by the coefficient of 2.035 and a probability of 0.003%. The data showed that a negative correlation existed between growth in Cameroon and inflation in the short term. The F-statistic coefficient for the link between Cameroon's inflation rate and growth in GDP is -0.560, which equates to a probability of 0.026 percent. This suggests that there is a detrimental connection between the two variables.

Conclusion

In the ADF and PP unit root findings, it was found that some variables remained "stationary at level" while other variables were determined to be stationary at the first difference. The co-integration test is performed using the ARDL technique, which is distinct from the standard Johansen co-integration (Johansen, 1988). It was found that the critical value of "F-statistic" was 17.12537, which is more than both the lower and upper limits' critical values. This was found to be true at three distinct levels of significance, 1%, 5%, and 10%, respectively. For the sake of this test, the "no co-integration" hypothesis will serve as the "null hypothesis."

The hypothesis of "no co-integration" must be adopted if the "value of F-statistic" is lower than the critical values of the lower limit. But if F-statistic value is higher than the critical values of the upper limit, the "no co-integration" hypothesis has to be rejected. As a result of the fact that the F-critical statistic in this investigation had a value that was higher than each of the critical values for the upper limit, the researcher arrived at the conclusion that null hypothesis was incorrect, and found evidence of a relationship over a longer period of time.

The results of the cointegration test indicated a likely long-term link amongst the variables. This therefore leads us to the next stage which was to evaluate the long term and short term trends. Despite the fact that the co-integration test demonstrates a long term connection between the variables, it does not provide any further details regarding nature of such connection or the path it will take in the future. The results of both the long term and short term tests will give more insight on the dynamics of the connection that exist between the variables.

In the long term, REER demonstrated a negative impact on the Cameroonian economy, with coefficients of -0.153 and -0.020 percent likelihoods. The likelihood of inflation having a long-term impact on the Cameroonian economy was found to be 0.188 percent associated with a coefficient of 0.148 and this concludes a INF has an "insignificant positive" impact on Cameroons economic growth. FDI is found to possess a coefficient of 0.781 and a "P-value" of 0.008 percent, giving it a "statistically significant positive" influence on growth in the Cameroon's economy.

It may be deduced from the coefficient of 2.035 and the likelihood 0.022 percent that Cameroon's economy benefits positively from its participation in the FDI market. The short term findings revealed the value of FDI to be 2.035 and the probability of short-term economic growth can be determined to be 0.003%. This coefficient of FDI reveals a strong positive relationship with short term economic growth. Inflation and REER are impeding the country's progress toward its economic development goals. There is a connection between these two elements and Cameroons growth rate. As shown by the coefficients of -0.560 and -0.148 and the 0.026 and 0.014 percent likelihoods respectively, inflation and REER all exercise a "statistically significant" negative impact on economic growth in Cameroon in the short run.

Recommendations

Policy recommendations

The findings of the study, in conjunction with an analysis of the significant macroeconomic variables that influence economic growth in Cameroon, make it possible to formulate a few recommendations. According to the available evidence, there is a negative association between the inflation rate in Cameroon with overall economic performance of the country over the short and in the long term it is positive but not substantial. This leads one to believe that inflation is stifling Cameroon's economic progress. Inflation can be described as a continuing increase in the price of goods and services in general. Cameroon's economic growth would be hampered if the country's inflation rate increased. Under these conditions, the Cameroonian government and its policymakers have an obligation to take the necessary actions in order to maintain a rate of inflation that is within a reasonable range and to foster economic growth throughout the country. Foreign direct investment (FDI) boosts infrastructure and human capital by improving education opportunities for residents of the host country and fostering the creation of new jobs. This, in turn, leads to higher incomes per person, increased savings by families, and ultimately, more economic growth.

If foreign investors corner the market and drive out indigenous manufacturers, they might have a detrimental impact on native businesses via FDI. As a consequence of a high outflow of investor profits or extensive imports of inputs, the payment balance of the host nation might worsen. It is assumed in the neoclassical theory of economic growth that an exogenous increase in FDI would provide a short-term gain in "per capita GDP" without impacting the long-term growth rate (Solow, 1956). This research found that FDI contributes to Cameroon's economic development, both in absolute terms and as a percentage of GDP. As a result, an increment in the amount of net FDI inflows would benefit Cameroon's economy. If Cameroon is serious about achieving rapid economic development, I would advocate for measures that encourage the entry of FDI. There is a need for the government of Cameroon to create advantageous policies in order to entice foreign investment. Tax breaks, lower tax rates, subsidized infrastructure, and other investment incentives should be adopted to entice investors to return to their home nations and foster economic development in the long term. The concept of an exchange rate

becomes relevant when FDI (foreign direct investment) occurs between nations. Trading currencies must be converted at the market exchange rate before any investment in a nation may be made or returned. The exchange rate is a critical macroeconomic variable because of its effect on economic expansion. Given its central role in international money transfers, the exchange rate is a crucial factor in this set of variables. This study makes it clear that an adverse relationship exists between the economic expansion of Cameroon and the currency exchange rate of the country. If the exchange rate between A and B has a negative value, then A is more valuable than B. Cameroon's negative impact on the exchange rate occurs when its currency is more valuable than those of other countries. Because of the inverse nature of this relationship, a rise in the FCFA "exchange rate" spikes an intense effect on economic growth, whereas a fall in the exchange rate has the opposite effect. The increase in the country's exchange rate will attract a corresponding deceleration in the rate of expansion of the Cameroonian economy. If the exchange rate between A and B has a negative value, then A is more valuable than B. Cameroon's negative impact on the exchange rate occurs when its currency is more valuable than those of other countries. The increase in the country's exchange rate will yield a reduction in the rate of economic growth in Cameroon by the same amount. If exchange rate continues to climb, the growth of the Cameroonian economy will slow down by the same amount. As a result of the decrease in purchasing power that comes about as a direct result of an increase in the exchange rate, consumers will shift their spending away from the domestic economy and toward imports, resulting in a slower GDP growth rate. As a result, I believe it is in the best interest of the Cameroonian government and policymakers to adopt exchange rate policies that maintain a higher value in its currency over foreign currencies. This will encourage consumers to buy more domestic products, which in turn will increase the GDP and, in turn, economic growth. Inflation rates in countries that import heavily can be boosted by a weak domestic currency because of the increased cost of imported goods. Currency depreciation can be avoided, and inflation can be stymied, if the central bank decides to raise interest rates in response to this situation.

Recommendation for Further Study

Regarding the inquiry into the primary macroeconomic determinants and the impact those elements have had on the expansion of Cameroon's economy, I would like to make a suggestion that more study be carried out on the interest rate variable. The researcher did not investigate this variable due to a lack of data, as Cameroon did not make this variable accessible in the World Bank database. Despite the fact interest rates are one of the primary macroeconomic factors that influence economic development, the researcher did not investigate this variable. As a consequence of this, once Cameroon delivers the relevant data, I strongly advise doing a study on the variable in question.

General Recommendations

In closing, I'd want to offer a broader perspective than the macroeconomic elements that impact economic development in Cameroon. In addition, I will urge the Cameroonian government to crack down on corruption so that scarce resources aren't diverted into private pockets when they might have been utilized to spur the economy's expansion. The economic growth of a nation is considerably stunted when there is widespread corruption and ineffective leadership. In light of the substantial material and financial harm brought on by the current socio-political crisis and the resulting slowing of economic development, I urge the administration to take all necessary steps to resolve the crisis as soon as possible.

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Apendices

Appendix I: Data for GDP, INF, REER and FDI

Year	GDP growth (annual %)	Inflation, consumer prices (annual %)	Real effective exchange rate	FDI, net inflows (% of GDP)
1990	-6,105697646	1,099381284	156,2147212	-0,916249145
1991	-3,808599373	0,060051331	149,0490322	-0,122447752
1992	-3,100003211	-0,016055046	149,9183854	0,24191782
1993	-7,932066574	-3,206554569	139,462934	0,031644989
1994	1,876809226	35,09446185	90,20545732	0,041273156
1995	2,894001377	9,069690719	96,95306031	0,139033988
1996	4,21507215	3,924063727	98,04023175	0,941242049
1997	4,527313766	4,786238819	97,04935697	1,386672981
1998	4,725534848	3,170751854	100,4369429	0,488852786
1999	4,511304221	1,871745007	99,38463592	0,302700366
2000	3,832417795	1,22719013	93,69537652	1,511444782
2001	4,324261192	4,419772459	96,85163959	-0,106526709
2002	4,477026829	2,834422601	100,3314785	4,068984432
2003	5,453153691	0,623163557	103,5613947	2,096943737
2004	7,048862823	0,23364738	102,9406467	0,361118019
2005	2,228270206	2,013539502	99,88098701	1,248608401
2006	3,809583273	5,11757816	101,5218498	0,282739542
2007	4,327589013	0,921402246	102,127469	0,792290636
2008	2,847677889	5,337806276	105,0382928	0,075754661
2009	2,579251775	3,043618479	106,4822364	2,671669371
2010	2,899024724	1,275380462	100	1,949524017
2011	3,379211288	2,939699463	100,22084	2,132703795
2012	4,625978719	2,742534075	96,45198896	1,748840346
2013	4,995529159	2,05908684	98,95232364	1,622967984
2014	5,719818144	1,834130781	99,74652549	1,994843156
2015	5,666952991	2,685982772	93,56816466	2,155640218

2016	4,535794236	0,861740258	95,66495072	1,963349385
2017	3,541176549	0,642673522	96,55782222	2,256209564
2018	3,95551424	1,074299452	97,93472284	1,913981821
2019	3,475059979	2,452802141	96,87214568	2,583196349
2020	0,491914742	2,437608822	99,88164629	1,654689619

Source: Data from World Development Indicators Database

Appendix II: Descriptive statistics

Date: 12/21/22 Time: 10:58

Sample: 1 31

	GDP	INF	REER	FDI
Mean	2.774766	3.310705	105.3225	1.210117
Median	3.832418	2.059087	99.88099	1.386673
Maximum	7.048863	35.09446	156.2147	4.068984
Minimum	-7.932067	-3.206555	90.20546	-0.916249
Std. Dev.	3.446667	6.278792	17.41689	1.097817
Skewness	-1.837546	4.356191	2.117917	0.277708
Kurtosis	5.637294	22.69536	5.922587	2.754478
Jarque-Bera	26.42960	599.0914	34.20825	0.476325
Probability	0.000002	0.000000	0.000000	0.788075
Sum	86.01774	102.6319	3264.997	37.51361
Sum Sq. Dev.	356.3855	1182.697	9100.441	36.15606
Observations	31	31	31	31

Appendix III: ADF Unit Root Test of Variables

GDP Unit Root test at level

Null Hypothesis: GDP has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.329137	0.9760
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

GDP Unit Root test at First Difference

Null Hypothesis: D(GDP) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.556952	0.0000
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

REER Unit Root test at level

Null Hypothesis: EXCHANGE_RATE has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.571003	0.1103
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

REER Unit Root test at First Difference

Null Hypothesis: D(EXCHANGE_RATE) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.204487	0.0002
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

FDI Unit Root test at level

Null Hypothesis: FDI has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.800917	0.8039
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

FDI Unit Root test at First Difference

Null Hypothesis: D(FDI) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.498456	0.0000
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

INF Unit Root test at level

Null Hypothesis: INFLATION has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.110333	0.0002
Test critical values: 1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Appendix IV: PP Unit Root Test of Variables

GDP Unit Root test at level

Null Hypothesis: GDP_GROWTH__ANNUAL___ has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 0 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=5)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-2.550385	0.3037
Test critical values: 1% level	-4.296729	
5% level	-3.568379	
10% level	-3.218382	

*MacKinnon (1996) one-sided p-values.

GDP Unit Root test at Fird Difference

Null Hypothesis: D(GDP_GROWTH__ANNUAL___) has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 0 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=5)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-7.416535	0.0000
Test critical values: 1% level	-4.309824	
5% level	-3.574244	
10% level	-3.221728	

*MacKinnon (1996) one-sided p-values.

FDI Unit Root test at level

Null Hypothesis: FOREIGN_DIRECT_INVESTMENT__NET_INFLOWS___OF_GDP_ has a uni...
 Exogenous: Constant, Linear Trend
 Lag length: 0 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=7)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-5.565171	0.0005
Test critical values:		
	1% level	-4.296729
	5% level	-3.568379
	10% level	-3.218382

*MacKinnon (1996) one-sided p-values.

INF Unit Root test at level

Null Hypothesis: INFLATION__CONSUMER_PRICES__ANNUAL___ has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 0 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=7)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-5.317942	0.0008
Test critical values:		
	1% level	-4.296729
	5% level	-3.568379
	10% level	-3.218382

*MacKinnon (1996) one-sided p-values.

REER Unit Root test at level

Null Hypothesis: REAL_EFFECTIVE_EXCHANGE_RATE has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 6 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=7)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.034128	0.1401
Test critical values:		
	1% level	-4.296729
	5% level	-3.568379
	10% level	-3.218382

*MacKinnon (1996) one-sided p-values.

REER Unit Root test at First Difference

Null Hypothesis: D(REAL_EFFECTIVE_EXCHANGE_RATE) has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 0 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=7)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-5.421814	0.0007
Test critical values:		
	1% level	-4.309824
	5% level	-3.574244
	10% level	-3.221728

*MacKinnon (1996) one-sided p-values.

Appendix V: ARDL Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	17.12537	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Appendix VI: ARDL Longrun Test

ARDL Long Run Form and Bounds Test
 Dependent Variable: D(GDP)
 Selected Model: ARDL(1, 0, 0, 3)
 Case 2: Restricted Constant and No Trend
 Date: 01/17/23 Time: 10:58
 Sample: 1990 2020
 Included observations: 28

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.00607	7.289040	2.195909	0.0401
GDP(-1)*	-0.273809	0.232939	-1.175455	0.2536
INF**	0.148176	0.108738	1.362692	0.1881
REER**	-0.153454	0.060595	-2.532453	0.0198
FDI(-1)	-0.167268	0.419631	-0.398609	0.6944
D(FDI)	-0.027990	0.270544	-0.103458	0.9186
D(FDI(-1))	0.626499	0.355948	1.760085	0.0937
D(FDI(-2))	0.780973	0.264839	2.948855	0.0079

Appendix VII: ARDL Shortrun Test

ARDL Error Correction Regression
 Dependent Variable: D(GDP)
 Selected Model: ARDL(3, 4, 4, 4)
 Case 2: Restricted Constant and No Trend
 Date: 12/21/22 Time: 10:35
 Sample: 1 31
 Included observations: 27

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	0.421014	0.266695	1.578635	0.1531
D(GDP(-2))	0.800503	0.265939	3.010104	0.0168
D(FDI)	-0.558954	0.205088	-2.725439	0.0260
D(FDI(-1))	2.034982	0.495600	4.106094	0.0034
D(FDI(-2))	1.488258	0.369354	4.029357	0.0038
D(FDI(-3))	-0.383325	0.246745	-1.553524	0.1589
D(INF)	-0.599652	0.219956	-2.726239	0.0260
D(INF(-1))	0.908959	0.215860	4.210882	0.0030
D(INF(-2))	0.056298	0.069947	0.804866	0.4442
D(INF(-3))	-0.117882	0.044996	-2.619849	0.0307
D(REER)	-0.148172	0.047327	-3.130837	0.0140
D(REER(-1))	-0.133651	0.082894	-1.612313	0.1456
D(REER(-2))	-0.393108	0.088733	-4.430218	0.0022
D(REER(-3))	-0.277951	0.085538	-3.249440	0.0117
CointEq(-1)*	-0.398283	0.115995	-3.433623	0.0089
R-squared	0.944149	Mean dependent var		0.311999
Adjusted R-squared	0.878991	S.D. dependent var		2.346556
S.E. of regression	0.816283	Akaike info criterion		2.732069
Sum squared resid	7.995809	Schwarz criterion		3.451978
Log likelihood	-21.88293	Hannan-Quinn criter.		2.946136
Durbin-Watson stat	2.298325			

* p-value incompatible with t-Bounds distribution.

Appendix VIII: Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:
 Null hypothesis: No serial correlation at up to 2 lags

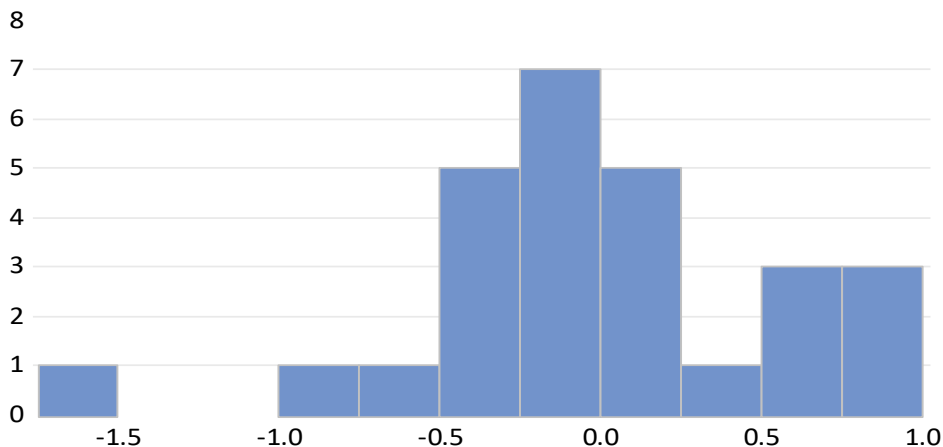
F-statistic	1.504271	Prob. F(2,23)	0.2432
Obs*R-squared	3.470255	Prob. Chi-Square(2)	0.1764

Appendix IX: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey
 Null hypothesis: Homoskedasticity

F-statistic	1.529488	Prob. F(18,8)	0.2760
Obs*R-squared	20.92077	Prob. Chi-Square(18)	0.2834
Scaled explained SS	2.659120	Prob. Chi-Square(18)	1.0000

Appendix X: Normality Test



Appendix XII: Ramsey RESET Test

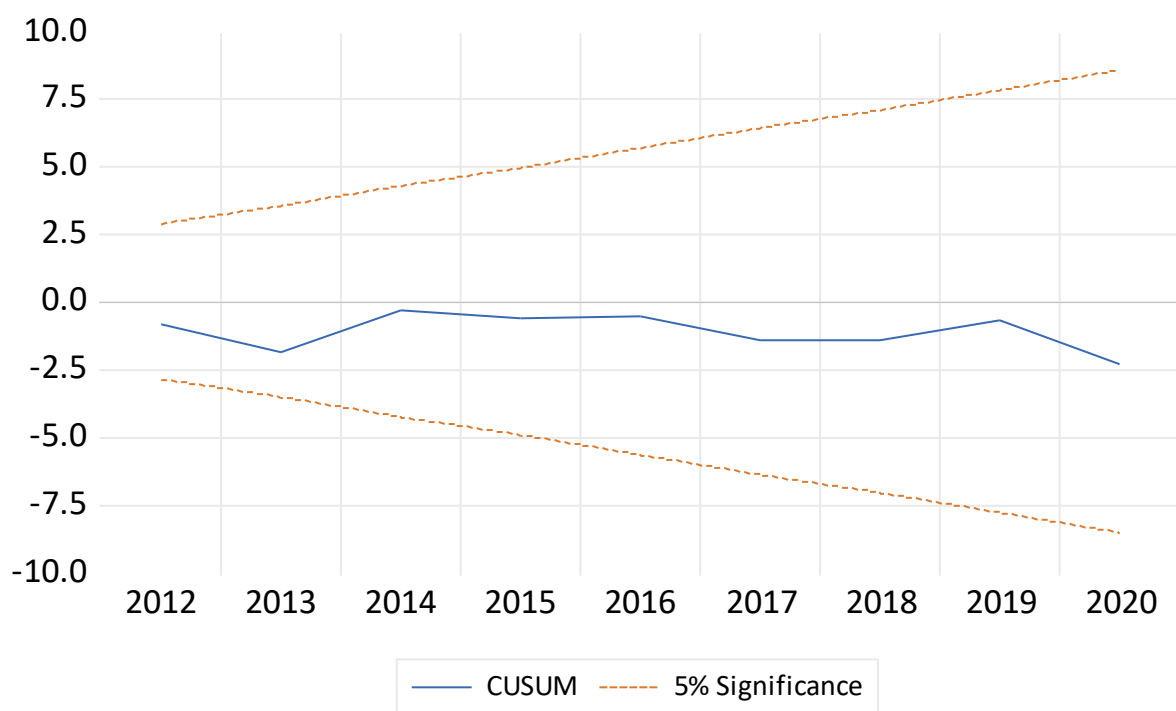
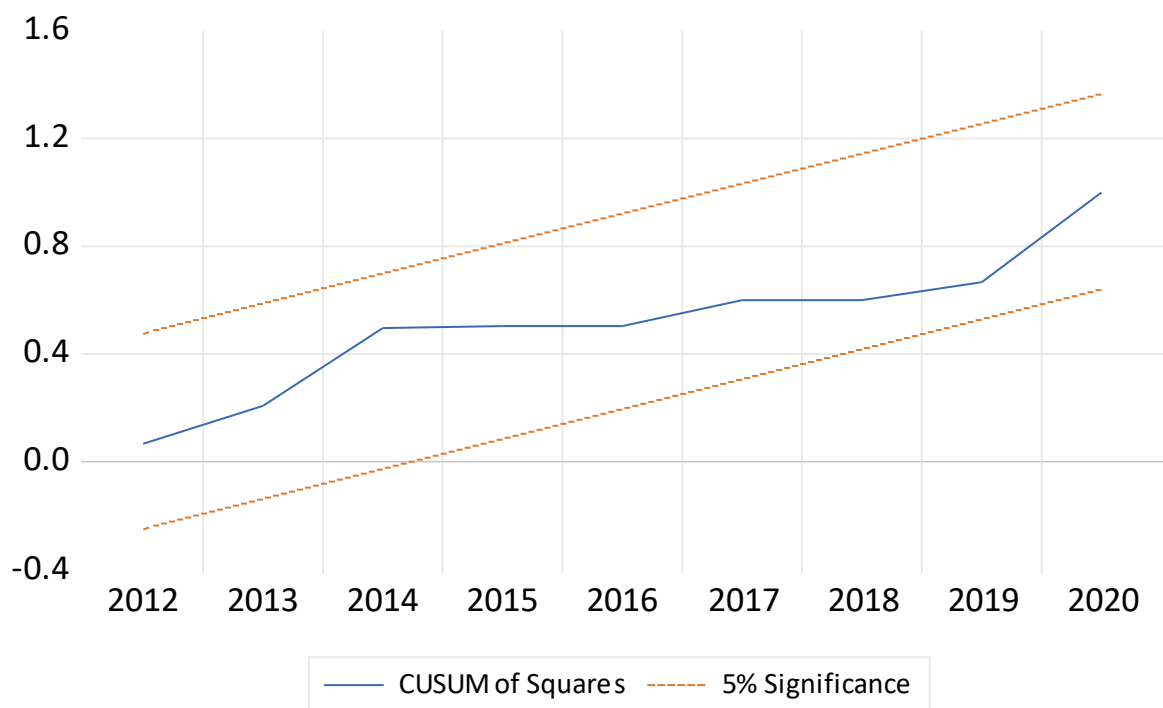
Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: GDP GDP(-1) FDI INF REER C

	Value	df	Probability
t-statistic	0.004931	24	0.9961
F-statistic	2.43E-05	(1, 24)	0.9961
Likelihood ratio	3.04E-05	1	0.9956

Appendix XII: Granger causality Test

Pairwise Granger Causality Tests
Date: 12/21/22 Time: 11:00
Sample: 1 31
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INF does not Granger Cause GDP	29	2.31874	0.1200
GDP does not Granger Cause INF		11.5912	0.0003
REER does not Granger Cause GDP	29	6.94961	0.0042
GDP does not Granger Cause REER		7.24726	0.0034
FDI does not Granger Cause GDP	29	0.28065	0.7577
GDP does not Granger Cause FDI		0.86446	0.4340
REER does not Granger Cause INF	29	6.80566	0.0046
INF does not Granger Cause REER		2.85855	0.0770
FDI does not Granger Cause INF	29	1.33475	0.2821
INF does not Granger Cause FDI		0.02234	0.9779
FDI does not Granger Cause REER	29	0.24675	0.7833
REER does not Granger Cause FDI		1.83186	0.1818

Appendix XIII: CUSUM Test**Appendix XIV: CUSUM of squares Test**

Appendix XV: Originality Report

Thesis

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