



NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT BANKING AND FINANCE

**THE EFFECT OF INFLATION, EXCHANGE RATE AND COMSUMER
PRICE INDEX ON NIGERIA ECONOMIC GROWTH (1980-2020)**

MSc. THESIS

GLADYS YANWALA KPANGBALA

Nicosia

FEBRUARY, 2023

GLADYS YANWALA KPANGBALA

**THE EFFECT OF INFLATION, EXCHANGE RATE
AND COMSUMER PRICE INDEX ON NIGERIA
ECONOMIC GROWTH (1980-2020)**

MSc. THESIS

FEBRUARY, 2023

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

**THE EFFECT OF INFLATION, EXCHANGE RATE AND
COMSUMER PRICE INDEX ON NIGERIA ECONOMIC
GROWTH (1980-2020)**

MSc. THESIS

GLADYS YANWALA KPANGBALA

Supervisor

TURGUT TURSOY

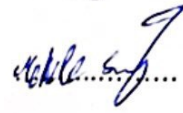
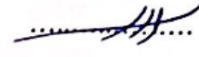

Nicosia

FEBRUARY, 2023

Approval

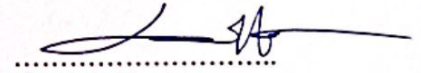
We attest to have read the thesis submitted by **GLADYS YANWALA KPANGBALA** TITLED **“THE EFFECT OF INFLATION, EXCHANGE RATE AND CONSUMER PRICE INDEX ON NIGERIA ECONOMIC GROWTH (1980-2020).**

In addition, we are of the view that it fulfils all of the requirements, both in terms of its breadth and its level of quality, to be a thesis for the master of social sciences degree.

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

Approved by the Head of the Department

17.12.2023



Assoc. Prof. Dr. Turgot Tursoy

Head of Department

Approved by the Institute of Graduate Studies

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


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

Declaration

I certify that all data, sources, analyses, and conclusions contained in this thesis were collected, analyzed, and presented in full compliance with the rules and guidelines set forth by the Near East University Institute of Graduate Studies. In accordance with these guidelines, I have properly cited and thanked all information and material that was not generated by me.

GLADYS YANWALA KPANGBALA

...../...../.....

Acknowledgment

Firstly, I would like to recognize and give thanks to my supervisor and Chairman Assoc. Prof. Dr. Turgut Tursoy who made this work possible. His guidance and advice carried me through all my school journey and the stages of writing my project.

I would like to show gratitude to my professors in persons of Aliya Isiksal, Ahmet Ertugan and Ahmeh Samour for their remarkable efforts. I would also like to thank Mr. Ali Mumtaz for his assistance with my project.

A special thanks to my Father Mr. Joseph D. Kpangbala and Mother Mary V. Kellie for their prayers, emotional, moral, and all other support they have given me through my life and educational sojourn.

I would like to give thanks to my little sister Esther D. Kpangbala for being the driving force behind everything I do because she told me am her role model which means there are many footprints I need to make for her to step in, I love you.

I would also like to show courtesy to a veteran comrade Clarence D. M. Zoker for the listening ears and tireless effort aiding in my research

Lastly, I would like to acknowledge and give praise to the Almighty God for affording me this great opportunity from the start and completion of this study through all the difficulties you have been the one leading me. I will not stop trusting him “for what God cannot do does not exist.

Thanks to the Department of Banking and Finance and the Near East University at large, I was able to complete my studies and got the help I needed. Their enthusiasm and desire to provide opinion made my stay and study’s completion less stressful and much more delightful. **GLADYS YANWALA KPANGBALA**

Abstract

This thesis examines the impact of inflation, the exchange rate, and the consumer price index from 1980 to 2020. The consistent growth in demand might be attributed to a variety of sources, including, but not limited to, increases in the money supply and government spending; greater exports; and so on. Inflation occurs when demand rises without a corresponding rise in supply.

Higher production-cost inflation, also known as "cost-driven inflation" or "supply-driven inflation," may be attributed to factors such as increased raw material prices, salary increases, and other analogous variables. A rise in the total cost of production across all sectors would raise the overall price level of products and services (Raza et al. 2013). In this thesis, the ARDL bound and Granger causality are utilized to examine the relationship between the variables. In light of this, the data imply that, at the 5% level of significance, GDP and the exchange rate are the only variables having a unidirectional causal link. The rise in GDP has an impact on the exchange rate, while the exchange rate has no effect on GDP growth. According to the results, inflation, the currency rate, and the consumer price index all have a significant and negative impact on Nigeria's growth. The policy implications of this study's results are beneficial to policymakers, governments, and monetary authorities since the exchange rate is a fundamental economic indicator in attaining economic growth and development. Based on the study's results, it was proposed that the Naira exchange rate be increased in order to encourage economic development. Because of the naira's current volatility, the Nigerian government should endeavor to stabilize the naira exchange rate so that the economy can move ahead.

Keywords: Inflation, Exchange rate, Consumer price index, economic growth, granger causality

Özet

Bu tez, 1980'den 2020'ye kadar enflasyonun, döviz kurunun ve tüketici fiyat endeksinin etkisini incelemektedir. Talepteki tutarlı büyüme, para arzı ve hükümetteki artışlar dahil ancak bunlarla sınırlı olmamak üzere çeşitli kaynaklara bağlanabilir. harcama; daha fazla ihracat; ve benzeri. Enflasyon, arzda karşılık gelen bir artış olmaksızın talep arttığında meydana gelir. "Maliyet odaklı enflasyon" veya "arz odaklı enflasyon" olarak da bilinen daha yüksek üretim maliyeti enflasyonu, artan hammadde fiyatları, maaş artışları ve diğer benzer değişkenler gibi faktörlere bağlanabilir. Tüm sektörlerde toplam üretim maliyetindeki bir artış, ürün ve hizmetlerin genel fiyat seviyesini yükseltecektir (Raza ve diğerleri, 2013). Bu tezde, değişkenler arasındaki ilişkiyi incelemek için ARDL sınırı ve Granger nedenselliği kullanılmıştır. Bunun ışığında, veriler, %5 anlamlılık düzeyinde, GSYİH ve döviz kurunun tek yönlü bir nedensel bağlantıya sahip tek değişken olduğunu ima etmektedir. GSYİH'deki artışın döviz kuru üzerinde bir etkisi varken, döviz kurunun GSYİH büyümesi üzerinde bir etkisi yoktur. Elde edilen sonuçlara göre, enflasyon, döviz kuru ve tüketici fiyat endeksi Nijerya'nın büyümesi üzerinde önemli ve olumsuz bir etkiye sahiptir. Döviz kuru, ekonomik büyüme ve kalkınmaya ulaşmada temel bir ekonomik gösterge olduğundan, bu çalışmanın sonuçlarının politika çıkarımları politika yapıcılar, hükümetler ve para otoriteleri için faydalıdır. Çalışmanın sonuçlarına dayanarak, ekonomik kalkınmayı teşvik etmek için Naira döviz kurunun artırılması önerildi. Naira'nın mevcut oynaklığı nedeniyle, Nijerya hükümeti ekonominin ilerleyebilmesi için naira döviz kurunu istikrara kavuşturmaya çalışmalıdır.

Anahtar Kelimeler: Enflasyon, Döviz kuru, Tüketici fiyat endeksi, ekonomik büyüme, granger nedensellik

Table of Contents

Approval	i
Declaration	ii
Acknowledgment	iii
List of Tables	ix
Abbreviations	x

CHAPTER I

Introduction.....	1
Statement of The Problem	10
Purpose of The Study.....	11
Research Questions	12
Research Hypothesis.....	12
Significance of Research	13
Limitation.....	13
Definition of terms.....	14

CHAPTER II

Literature Review	20
Introduction.....	20
Theatrical literature.....	20
Classical Growth Theory	21
Keynesian Theory	22
Money & Monetarism.....	23

Inflation, Economic Growth, and Central Banks.....	23
Empirical Literature.....	24
Inflation-Economic Growth.....	24
Exchange Rate- Economic Growth.....	33
Consumer Price Index-Economic Growth.....	38

CHARPTER III

Methodology.....	40
Introduction.....	40
Data.....	40
Variables.....	41
Variables Description.....	45
Model specification.....	45
Descriptive statistic.....	46
Stationary.....	46
ADF And PP Unit Root Test.....	48
ARDL Model.....	48
ARDL Bound.....	49
Residual Diagnostic.....	50
Granger Causality.....	51
Stability test.....	51

CHAPTER IV

Results and Interpretations.....	53
Introduction.....	53
Descriptive statistics test.....	53
ADF Unit Root Test.....	54
ARDL Bound Test	55
Residual Diagnostic tests	58
Granger Causality	58
Stability Test	59

CHAPTER V

Overview, Conclusion and Recommendation.....	61
Overview.....	61
Conclusion	66
Recommendations.....	68
References.....	69
Appendix.....	80
Turnitin Report	93

List of Tables

Table 1.1: Variable Description-----	45
Table 2.1: Discriptive Statistics Test-----	53
Table 3.1: Unit Root Test-----	55
Table 4.1: ARDL Bond Test-----	56
Table 5.1 ARDL Long-Run Test-----	56
Table 6.1: Residual Diagnostics Test-----	58
Table 7.1: Granger Causality Test-----	59

List of Figures

Figure 1.1: -----	59
Figure 2.1: -----	60

Abbreviations

ADF: Augmented Dickey-Fuller

ARDL: Autoregressive Distributed Lag

BLS: Bureau of Labor Statistics

CBN: Central Bank of Nigeria

CPI: Consumer Price Index

CUSUM: Cumulative Sum

CUSUMQ: Cumulative Sum of Squares

DBER: Division of Business and Economic Research

ECM: Error Correction Model

ER: Exchange Rate

FDI: Foreign Direct Investment

FEER: Fundamental Equilibrium Exchange Rate

GDP: Gross Domestic Product

GDPA: Gross Domestic Product Annual

GMM: Generalized Method of Moments

GNP: Gross National Product

HICP: Harmonized Index of Consumer Prices

OLS: Ordinary Least Square

PP: Philip-Peron

PPI: Producer Price Index

PPP: Purchasing Power Parity

REER: Real Effective Exchange Rate

RER: Real Exchange Rate

RGDP: Real Gross Domestic Product

RIR: Real Interest Rate

SAP: Structural Adjustment Program

VAR: Vector Auto-regression

CHAPTER I

Introduction

The majority of nations' primary economic ambition is to achieve quick and sustained economic development. Due to the many factors that affect how the economy grows, it has been hard to reach this goal.

Discussing macroeconomic policy typically revolves around the rate of economic growth and inflation. Inflation is just one of several factors that might be considered a determinant of the rate of economic growth (Barro, 1995). On the other hand, there is not a single piece of evidence that can definitively establish either a negative or positive relationship between a booming economy and rising prices. Several studies have been conducted, and the results have produced evidence that contradicts numerous ideas relating to the association between economic growth and inflation. This is a topic that has been heavily discussed in academic settings as well as in the real world, and there are many different points of view regarding what the most effective next step should be. Demand-pull inflation and cost-pull are the two primary types of inflation that can be distinguished from one another. When consumer demand is the primary factor behind price increases, an inflationary trend known as "demand pull" occurs.

The consistent rise in demand may be attributed to a variety of variables, including but not limited to: increases in money supply and government spending; growth in exports; and so on. When there is a rise in demand that is not matched by an equal increase in supply, the result of this will be inflation when the general price level rises.

Inflation that is caused by increased production costs, also known as cost-driven inflation or supply-driven inflation, may be attributed to factors such as an increase in the value of raw materials, an increase in the payment rate, and other similar factors. (Raza et al. 2013) says that when the total cost of production goes up in all parts of the economy, there will inevitably be a general increase in the cost of living and consumer items.

This is the first heated discussion about the correlation between economic expansion and price increases. Inflation and economic growth may not be related at all (Sidrauski, 1967); these two variables may have a negative link (Fisher, 1993; Barro, 1995); or these two variables may have a positive association (Mallik & Chowdhury 2001).

These conclusions are based on previous hypotheses and research. It's not just that there's a link between the two; at issue is how much inflation might limit growth in the economy. In terms of how inflation affects the growth of the economic, there are two competing theoretical perspectives: monetarists, who hold that inflation slows growth, and structuralists, whose hold that inflation actually promotes development. Both proponents and detractors of inflation have valid arguments for why it could help or hurt economic growth. For instance, inflation is thought to promote economic growth by neoclassical economists because it shifts the income distribution in favor of capitalists who save more of their money. Because of this, people are able to save more money, which boosts the economy. Furthermore, Keynesians argue that inflation may enhance economic growth since it increases the rate of profit, which in turn encourages private investment.

Economic growth is stunted by inflation, which can be explained by theories or empirical research. That's because inflation often pushes up consumer costs at a quicker clip than GDP expansion. For example, Barro (1995) argues that when inflation rates rise above a certain threshold, investors become wary and cut back on spending, which slows the economy. In his work from 1983, Gultekin gave another reason why inflation and economic growth go in the opposite direction. According to Gultekin, inflation reduces the rate of return, which in turn reduces the growth rate. Inflation stunts development in this way because it distorts pricing.

The second contentious issue is the question of whether or not there is a cause-and-effect link between inflation and economic expansion. There has been some discussion about whether or not inflation may serve as a reliable indicator of future economic expansion, and vice versa. The concept of Granger causality involves determining whether or not there is any possibility for one indication to predict the other indicator. For example, the fact that Granger's inflation hypothesis generates economic growth indicates that inflation itself carries information about the direction the economy will take in the future. There is empirical evidence for a direct correlation (from expansion to price increases or vice versa) between inflation and growth, a two-way causality (from inflation to economic growth), and no causality at all between inflation and growth. According to studies completed in 1997 by Paul, Kearney, and Chowdhury, there are three main hypotheses about how inflation affects economic expansion.

About 20% of the countries were found to have a causal association between economic growth and inflation in both directions. Both inflation and economic growth were shown to be related in the remaining countries.

However, when it comes to the topic of the strength of the association between economic growth and inflation, there is a vigorous discussion. There are no supporting or refuting arguments for such a relationship to be found in the existing literature. The research presents both positive and negative evidence about inflation and economic development. Based on their research, Malik and Chowdhury (2001) concluded that in India, Pakistan, Bangladesh, and Sri Lanka, inflation contributes to economic expansion. There are, however, many more studies that have found inflation to have a detrimental effect on the growth of the economic. The study's authors, Levine et.,al, (1993), concluded that moderate inflation would not slow economic expansion. If the inflation rate is over 80%, as it is currently, they say it has a devastating effect on the growth rate.

Because of the impact that it has on emerging economies, the topic of exchange rate fluctuation, which is referred to as "continual changes in exchange rates," has received a lot of attention in the published literature in recent years. Concerns about changes in exchange rates have mostly surfaced in established countries and developing economies owing to the influence that these fluctuations have on exports, employment growth, international commerce, inflation, investments, and economic development. The unpredictability of exchange rates may have a variety of effects on investment and economic development. In principle, the sign of the connection may be different based on the assumptions made about it. Numerous studies lend credence to the concept that greater exchange rate volatility contributes to a slowdown in the volume of international commerce and in overall economic expansion. Because the currency of the nation that is doing the exporting or importing is used to pay for the exchanged items in the majority of international transactions. As a result, unanticipated shifts in exchange rates and volatility are predicted to have a negative influence on the flows of international commerce as well as economic growth owing to the impact that they have on earnings. The empirical research conducted by Obstfeld et.,al, (1995) demonstrates that changes in the value of the currency have a depressing effect on the domestic economy because of the harm done to households and companies. The first impact is predicated on the idea that families would continue to be dissatisfied with

changes in exchange rate conditions due to the difficulties in expenditure smoothing as well as the volatility in leisure spending. But the indirect effect is based on the idea that companies set higher values in the form of risk premiums to try to protect themselves against the risk that comes with changes in exchange rates (Alagided et.,al, 2016).

Research, however, suggests that exchange rates fluctuations contribute positively to the growth of economic activity and international trade. Proponents of this theory argue that economies benefit from greater growth when their exchange rates are more flexible and volatile because they can better absorb the effects of asymmetric shocks. They also think that more volatility can help stop financial disasters by making it less likely that speculative attacks will happen. Low economic output in Latin America, Asia, and Africa may be traced back to poor performances of real exchange rate, according to research by Cottani, Cavallo, and Khan (1990) on the correlation between economic performance in LCDs and real exchange rate behavior. Because local industries are becoming more competitive on the world stage, people are spending less on imported goods as their prices go up and more on goods made in the United States. Consumers are showing this by shifting their money away from imported items (whose costs have increased) and towards domestic ones. A rational exchange rate policy and competent management of exchange rates are therefore potentially crucial conditions for improving a country's overall economic performance. Since attaining independence in 1960, Nigeria's economic performance has been dismal.

Despite the availability and use of enormous sums of foreign currency, financial growth has been weak, and the numbers of poor people in the world has increased, the vast bulk of which originates from the country's oil and gas resources. However, due to the cyclical nature of poverty, resource scarcity, and the law of comparative advantage, countries rely on one another to stimulate economic growth and achieve sustainable economic development. The value of one currency stated in terms of another is called the exchange rate, and it plays a crucial role here. To improve the living conditions of its citizens and foster development and economic growth is the purpose of every sovereign nation, Nigeria is making strides in the right direction (Mordi, 2006). According to Fahrettin (2001), one of the most crucial prices in an open

economy is the currency exchange rate, which displays the value of one currency in terms of another currency. It has a significant effect on the circulation of goods, services, and capital within a country, as well as on the balance of payments, inflation, and other macroeconomic indices of that country. In order to run the economy well, it is important to choose and keep a good exchange rate regime. This helps with competitiveness, macroeconomic stability, and economic growth.

Since the deregulation of the economy in July 1986, when the Structural Adjustment Programmed was established, the government of Nigeria has implemented a variety of exchange rate policies over the course of the years. These policies have either resulted in a rise or fall of the country's currency. The goal of these policies is to encourage economic growth and commerce. According to Aliyu (2011), when the value of one currency rises relative to another, imports increase and exports fall, while a depreciation would result in an increase in exports and a reduction in imports. Another effect of a weakening currency is that consumers are more likely to buy indigenous products rather than those made in other countries. Therefore, it leads to a diversion of money from countries that are importing goods to countries that are exporting goods via a change in terms of trade, and this tends to have an influence on the economic balance of payment and growth of both exporting and importing nations. There have been a variety of exchange rate adjustments implemented by different administrations throughout the years. However, the degree to which these policies have been successful in increasing exports has not been determined. This is because the Nigerian economy has shown very slow growth despite the government's best efforts. Despite the exchange rate reform and the theoretical belief that it aids a country's developmental effort, Nigeria's economy has been plagued by low manufacturing capacity utilization, high inflation, heavy debt burdens, high unemployment rates, high levels of income inequality, and poverty, to name a few (Uniamikogbo et al., 1998). Ogunjuyigbe and et.,al, (2010) research also showed that Nigeria is one of the countries that has fallen behind and This is why the study set out to investigate not only the policy issues raised by this correlation of both the relationship between the exchange rate and economic performance in Nigeria before and after the SAPs (1986–2012), this section turns to the latter.

Maintaining quick economic growth and low inflation is one of Fiji's most important objectives in terms of economic policy, which is similar to the goals of macroeconomic

policy in many other nations, both industrialized and developing. To no one's surprise, there has been a lot of talk regarding whether or not inflation affects growth and what kind of effect it might have. A growing body of research suggests that low inflation, a subset of macroeconomic stability, is beneficial to economic expansion.

The costs that are associated with high and volatile inflation have often been emphasized by macroeconomists, central bankers, and policymakers. When inflation impedes an economy's ability to function efficiently, it creates what are known as "negative externalities" for the economy. At the very least, on a theoretical level, it is not difficult to identify examples of these types of inefficiencies.

Inflation may cause investors to be wary of the long-term returns on their investments, and this is particularly true in situations when high inflation is also accompanied by greater price unpredictability. This eventually results in lower levels of investment and economic development due to the adoption of investment methods that are more risk averse than would have been the case under normal circumstances. As a result of inflation, a nation's exports may become comparatively more costly, which may have repercussions for the country's overall balance of payments. Inflation may also make a nation less competitive on the world stage. Inflation may have an effect on the way choices are made about borrowing money and lending money by interacting with the tax system. Inflation can have a negative impact on businesses, and companies may need to dedicate extra resources to counteract this. They may, for instance, keep a closer eye on the prices set by their rivals so they can tell if price hikes are due to the economy as a whole or to factors unique to their own sector.

There is a possibility that a positive economic impact will occur in an economy that is encountering an inflation rate of between 3 and 6 percent. Because inflation drives investment and production, it also contributes to a rise in wage growth and consumer spending. On the other hand, there is the possibility that an inflation rate in the double-digit range will have a detrimental impact on the economy. This will lead to a negative impact on the consumer's ability to make purchases. Borrowers, lenders, buyers, sellers, and everyone in between could all be affected by the potential for muddled profit and loss reporting (Abdul, et.,al, 2007). In addition, a greater degree of inflation generates uncertainty, which discourages individuals from saving money and investing. Because inflation brings down the actual rate of return on financial assets, saving money is discouraged as a result. This, in turn, contributes to low levels of

investment and a slowdown in economic development. A high inflation rate reduces the benefits of economic expansion and makes life more difficult for those who already have the fewest resources, thereby widening the gap between the wealthy and the rest of society. The poor suffer the most from a high inflation rate because of their high marginal propensity to spend, which is caused by a rise in food costs.

Keeping the inflation rate low and stable has always been a key objective for monetary and fiscal policymakers, regardless of whether a country is highly developed or still developing. Metwally and Al-Sowaidi (2004) state that stable economies are the basis for accomplishing macroeconomic goals. Inflation in Nigeria's gas market has assumed many shapes during the past two decades and has accelerated significantly. An unstable pricing path is bad for economic efficiency and consumer welfare because it adds uncertainty to the goal functions of economic actors. Recent interest in inflation as a macroeconomic indicator or phenomenon can be attributed in part to the fact that it is frequently the outcome of the interaction of numerous causes. After the end of the civil war in Nigeria in the early 1970s, the country's economy saw a huge boost from the influx of petrodollars brought on by the crude oil boom. The rapid growth in investment spending, made possible by the abundance of petrodollars, increased the purchasing power of many people throughout the economy (Kuijs, 1998). There was a noticeable increase in consumer spending power as a result of pay increases in 1975. By 1980, Nigeria had become a middle-income nation thanks to its oil industry's meteoric rise to prominence. Nonetheless, inflation, deficit financing, imbalances in the balance of payments, and corruption have surfaced as major problems.

As a result of its pervasive effects on prices across the board and rising capacity to push the economy to the margins, inflation is the most important of these macroeconomic variables. Oil output and the production quota fell in the 1980s, which lowered oil prices and reduced revenues. It was necessary for the government to take out loans in order to meet its financial obligations. It was unavoidable for the government to pursue a policy that pays for spending via the creation of money due to the economy's weak performance and insufficient tax initiatives (Onwioduokit, 2002). The recent financial tsunami and widespread drought around the world have combined to generate a supply calamity, exacerbating the general positive tendencies in food prices (Durmus, 2008). The Nigerian economy is heavily reliant on imports. Slow economic growth in developed nations, impending financial crises, and increasing

tariffs are all contributing factors to Nigeria's high marginal propensity to import. Thus, it is evident that Nigeria is responsible for the influx of inflation.

Money is an object that is commonly acknowledged as being suitable for use as a medium of exchange for the transactions involving the acquisition of merchandise and the meeting of monetary commitments in a nation. In general, money serves many purposes, including a standard for deferred payment, unit of account, store of value, and measure of value. The value of money determines the pace at which products are traded for one another since money is the essential component of exchange; more specifically, money makes exchange possible. In a similar vein, money is the deciding element in the trade that takes place between two nations, which likewise relies on the value of the currency used in each country. This is due to the fact that the economic climate of each nation, in addition to the other macroeconomic variables that are present, affects the value of that nation's currency. It is important to compare the different currencies used in different countries because of the currency exchange that happens across international borders because of business.

A currency's exchange rate is its quoted price in terms of another currency's value. Additionally, it may be seen as a conduit via which the prices of goods in two distinct economies are brought together and related to one another. The extent to which the external sector engages in international trade is influenced by the exchange rate, according to research by Obansa et al. (2013).

The issues with the interest rate regime and the exchange rate regime have been major points of contention in international finance and among emerging economies. Increasing numbers of nations see trade liberalization as a means to, or perhaps a prerequisite for, achieving economic success. One of the most significant and valuable macroeconomic variables is the exchange rate, which can be used to achieve macroeconomic objectives such as economic development (as practiced by China, Japan, and South Korea to promote exports), decreased unemployment, stable prices, and a higher quality of life. This is due to the fact that the exchange rate is a major tool for countries to achieve their macroeconomic goals. According to the classic school of thought, depreciated currencies would boost trade balances, reduce payment balance concerns, and increase employment and production if the Marshall-Lerner conditions were met. This is true, however, only if these other conditions are met as well. The

assumption that a currency depreciation will increase output rests on whether or not the total of the import and export demand elasticity at prices is higher than one. There is a necessary condition for this to hold true. The objective behind the direct impacts is to boost domestic production of exportable goods, make export industries more globally competitive, and encourage domestic industries to make greater use of domestic raw materials. According to Iyoboyi and et.,al, (2014), increasing production of locally marketable commodities is the key to achieving all three objectives.

Macroeconomic policy aims, among other things, to boost a country's economy by large amounts, which can be quantified by a rise in the GDP over time. Macroeconomic policy aims to achieve this in large part. The increase in a country's overall productive capacity is often seen as evidence of economic development (Akpan, 2008). Expansion of exports and, on occasion, the need for imports (of raw materials) both involve monetary transactions in foreign currencies, which arise from the real process of creating goods and services. This has been shown to be true (Oyovwi, 2012). According to research by Jin (2008), an over-reliance on oil exports makes Nigeria's economy extremely vulnerable to outside shocks. This is due to the fact that if oil prices suddenly dropped, the country's foreign exchange profits would drop significantly, causing the currency's value to plummet because there wouldn't be enough foreign currency reserves to protect it on the foreign exchange market. An example sentence: [reference needed] This is due to the fact that foreign exchange profits will decrease considerably in the case of a significant drop in oil prices. Because of the dramatic shift in relative pricing (the exchange rate), the way a country utilizes its own resources would shift nearly proportionally. It may also cause a structural change in the economy, away from the manufacturing of commodities for export (agricultural) and toward the provision of services. The introduction of the structural adjustment program, often known as SAP, became required as a result of the negative economic climate that prevailed in the 1980s, leading Nigeria to pursue a strategy of devaluation. Increasing national productivity and the revenue it creates is central to this policy, as its implementation was motivated by a desire to reduce imports and increase exports. The policy was implemented, but exports have not increased noticeably. The rising exchange rate between the Nigerian naira and the US dollar, for example, and the rising volume of imports were not the primary factors in the decision to adopt a devaluation policy.

Furthermore, Nwosu (2016) argues that the system's ability to successfully support economic development is being questioned because of the unstable exchange rates that have developed since the collapse of the Bretton Woods System. In 1987, the naira was worth about N4 to the dollar, while the country's GDP was closer to N204.8 billion. In 1995, the real GDP was N281.4 billion, the worth of the currency had fallen to N21 to the dollar due to international financial crises. When compared to its 2014 high of N168 to the dollar, the 2017 low of N365 is a severe decline. Given the foregoing, it's critical to design a study to investigate the interplay between Nigeria's currency value, inflation, consumer price index, and GDP expansion. This research addresses a knowledge vacuum by analyzing how changes in the naira/dollar exchange rate, inflation, and consumer price index affect GDP growth in Nigeria. Policymakers can use this research to set goals for economic growth that take inflation and the currency rate into account.

Statement of The Problem

Economists don't always agree on what causes inflation from one period to the next, but when they do, it's typically one of two factors: cost push or demand pull. Whenever the price of a commodity, such as oil, goes up, the price of nearly every other basic good and service also goes up. When aggregate demand grows at an unsustainable rate, an economy is said to be undergoing demand-pull inflation. To a lesser extent, this could occur if a government quickly increases the money supply without corresponding increases in output. Because there is more demand than supply, the price of products and services has risen.

The Price Index for Consumables, or PCE, is a measure of inflation based on purchases. This is so because the PCE considers a wider range of expenses than the CPI does. The government uses the Consumer Price Index (CPI), also known as the Harmonized Index of Consumer Prices, to estimate the rate of increase in consumer prices in the UK (HICP). The official measure of inflation in the UK is the Consumer Price Index (CPI), sometimes known as the Harmonized Index of Consumer Prices

(HICP). In rare cases, people will talk about the HICP when they mean the primary metric employed in the Eurozone.

This is inflation's most fundamental and ubiquitous consequence. Rising prices have a depressing effect on consumers' ability to buy things because, even if their income is constant, they may be able to buy less and less as prices rise. Whether inflation is 2% or 4%, consumers' purchasing power is diminishing. Nonetheless, when the higher rate is in effect, the fall occurs twice as fast. With compounding, a long-term increase in inflation of just 1% results in a price increase that is more than twice as large. If the whole price level grows by more than twice as much, this is true. Price changes in a sample basket of products and services are compared to an aggregate estimate of total consumer spending to calculate inflation. The most popular indicator of inflation is the Consumer Price Index (CPI). In contrast, the Federal Reserve utilizes the PCE Price Index as the primary indicator in its inflation-targeting Federal Reserve System. We shall know more about Nigeria's economic growth and inflation concerns once the study results are made public.

Purpose of The Study

Customers with lower incomes are less protected from the erosion of buying power caused by inflation since they devote a greater part of their money to basic necessities. The economists' claim that lower salaries suggest a greater desire to spend can be understood in this context. Policymakers and financial market participants often focus on "core" inflation, which excludes food and energy costs because of their volatility and is therefore less indicative regarding the general upward trajectory of prices over time. Those with lesser incomes in the developed world and the vast majority of those living in developing economies spend a disproportionate amount of their weekly or monthly budgets on food and energy, both of which are difficult to substitute for or do without when prices rise. Assets like real estate, which have been used as a hedge against inflation traditionally, are less likely to be owned by those in financial hardship. This thesis sets out to learn more about the effect of inflation, currency exchange rate, and consumer price index on the economy of Nigeria.

Research Questions

What sort of link exists between the country's GDP growth, inflation, exchange rate, as well as the consumer price index?

How does inflation affect the growth rate of the economy in Nigeria?

In the context of the economy in Nigeria, what function does the currency exchange rate serve?

Research Hypothesis

A declaration of an expectation or prediction that will be put to the test by means of research is known as a "research hypothesis. Read up on the subject that you're interested in before you try to formulate a research hypothesis about it. In the next few lines, I'll talk about the alternative hypothesis and the null hypothesis for this thesis.

H0: There is no relationship between inflation and GDP growth in the Nigerian economy.

H1: There is a relationship between inflation and GDP growth in the Nigerian economy.

H0: There is no relationship between exchange rate and GDP growth in the Nigerian economy.

H1: There is no relationship between exchange rate and GDP growth in the Nigerian economy.

H0: There is no relationship between consumer price index and GDP growth in the Nigerian economy.

H1: There is no relationship between consumer price index and GDP growth in the Nigerian economy.

Significance of Research

Every aspect of the economy is negatively impacted by inflation, including consumer spending, company investment, unemployment, tax policy, and interest rates. It is vital for each investor to be aware of how the effects of inflation might lessen the value of their investment returns. As a result of inflation, interest rates, unemployment rates, tax policies, and even consumer spending can all change. Inflation is a factor that investors should keep in mind because it has the potential to reduce investment returns. After a period of relative peace, inflation has recently climbed to its highest level in four decades, prompting investors to reevaluate their investment strategy in light of the changing investing climate. Following a period of stability lasting several years, this increase reached its greatest point in four decades. In a flourishing economy, firms and individuals alike may more easily afford to make purchases of products and services with their newly acquired disposable money. During the expansionary phase of the business cycle, when demand is higher than supply, prices tend to rise. Inflation accelerates as a direct result of this situation.

Inflation refers to a widespread and sustained rise in prices. Inflation in the moderate range is consistent with an expanding economy, whereas high inflation may signal that growth is happening too quickly. Producers will likely continue to increase prices if there is a strong acceleration in economic expansion, as this would lead to even greater demand. "Runaway inflation" or "hyperinflation" occurs when the rate of price increases rapidly and steadily. In the end, the research will shed light on the effects of inflation on the Nigerian economy. Inflation can be kept in check with the support of future plans made possible by this information, which will be used by policymakers.

Limitation

Additional economic factors contribute to inflation in every economy; however, for the purposes of this study, we were only able to cover a few of those factors, such as the exchange rate and consumer price index, from 1980 to 2020. This was because we wanted to focus on the period of time between 1980 and 2020. Due to the fact that we were unable to cover all of those aspects, we were only successful in covering some of those factors. For the sake of this thesis, this study is restricted to the ARDL model.

Definition of terms

Inflation: A gradual reduction in the amount of money that can be spent by customers is one possible interpretation of price inflation. If you look at the average price growth of a specific basket of products and services over a given time period, you can get a sense of how quickly your purchasing power is eroding. This increase can be used as a measure of inflation. Inflation, which is measured in percentage terms, causes one currency unit to buy less than it did in the past. Price declines and increased purchasing power are hallmarks of deflation, on the other hand. One may draw parallels between this and inflation to describe this occurrence. Although it is simple to examine how the prices of individual commodities have changed over time, human needs are far more complex. People need not only access to a wide variety of items but also to a vast variety of services in order to lead a life that is free from anxiety and tension. Some examples of commodities are food, metals, and fuel; some examples of utilities are power and transportation; and some examples of services are medical care, entertainment, and manual labor. Economists may be able to acquire a better familiarity with the financial market as a whole if they monitor the rate of average price change across a wide selection of products and services. The usage of a single metric is made possible to indicate the overall rise in the cost of living in a given economy.

GDP growth: Gross Domestic Product (GDP) is a method for calculating the aggregate value of a nation's ultimate output over a specified time period. Gross domestic product is shortened to GDP. It factors in domestic and international demand, including exports, imports, consumption, investment, and the gap between the two. If you want to know how well an economy is doing, look no farther than the gross domestic product (GDP), the most popular indicator of economic activity. "GDP growth," short for "economic growth," is the percentage rise in real GDP that results from subtracting inflation from the nominal GDP. Inflation-adjusted GDP or GDP at constant prices are other names for real GDP. This is so because a factor of inflation is subtracted from real GDP.

Exchange rate: The value at which one currency can be exchanged for another is referred to as the "exchange rate." Some currency exchange rates are pegged, or set, to the value of a specific nation's currency, while other exchange rates are "free floating," meaning they rise and fall with market forces. Changes in exchange rates affect companies because they affect the cost of supplies and how much demand there is for their products in international markets.

Local variations in exchange rates are possible even within a single country. There are countries whose currencies are restricted to only being used within their borders. Onshore and offshore rates are common in such situations. When a country's government sets the value of its currency, it's usually best to do business within the country rather than seek a better exchange rate outside. The People's Republic of China is representative of the type of nation that maintains a standardized currency and regime of fixed exchange rates. The Chinese government sets a midpoint for the yuan each day and allows it to fluctuate by as much as 2% on either side of that point.

Consumer price index: Monitoring how quickly prices are rising or falling as measured by the CPI is one method for measuring inflation. It's a tool for calculating and estimating the average rate of change in the prices paid by private households for commodities between two dates of interest. It's an exhaustive analysis of the way that costs have evolved through time while maintaining constant standards. Inflation and the cost of living are not the same thing, and you should know that the CPI is not either. When calculating the consumer price index, economists try to figure out how price shifts affect how much it costs for consumers to stock up on the things they need. The purpose of the cost-of-living index, on the other hand, is to analyze how fluctuations in the cost of living affect a household's capacity to maintain a given standard of living.

The Consumer Price Index measures the average monthly percentage change in prices paid by urban consumers for a market basket of goods and services purchased by individuals and families across the United States. In the United States, inflation is tracked by the Consumer Price Index (CPI), which is calculated as the weighted average of the prices of a representative sample of consumer products. The BLS is responsible for establishing this benchmark (BLS). The Consumer Price Index is widely used as a proxy for the effects of price changes (CPI). The Consumer Price

Index measures how much goods and services cost consumers, whereas the Producer Price Index measures how much producers make. U.S.-made products and services see their respective price increases and decreases recorded each year by the PPI.

Economic development: When a country's economy undergoes economic development, it moves from a primitive, low-income state to a more advanced, industrial one. Although the term is often used interchangeably with "economic growth," its primary meaning is to indicate a qualitative and quantitative shift in a country's economic situation. The idea of economic development, which refers to the means by which simple and impoverished economies might become complicated and moderately prosperous, is essential for countries that are still in the process of developing, and conversations about issues related to economic development are common in this environment. Following World War II, many nations placed a high priority on activities that would encourage economic growth. It's no secret that many countries with low living standards, including many former colonies, who have struggled since the end of European colonization. were labeled as "underdeveloped" in order to differentiate them from the economies of the "developed countries," which were generally understood to include the United States of America, Canada, Western Europe, the majority of Eastern Europe, the Soviet Union, Japan, South Africa, Australia, and New Zealand. This was done in order to differentiate the economies of the "underdeveloped countries" from the economies of the "developed countries." As the standard of living in formerly undeveloped nations rose over the subsequent decades, this label was applied to them.

The characteristics of a developing nation and the factors that contribute to economic progress are both poorly understood and debated. By tracking changes in GDP per capita, economists can get a sense of whether or not a country is developing economically. Per capita income is a convenient proxy for the value of a country's annual output of goods and services per person. This pattern can be used to infer whether or not the country is economically developing. To calculate the value of a country's annual output of goods and services per person, all you need to do is look at its per capita income, which is the same thing as its per capita production. The growth rate and the per capita income of a country are useful metrics for gauging the state of

its economy. Before diving into what causes underdevelopment, it's important to address some of the statistical and conceptual challenges of utilizing the commonly accepted meaning of the term. The difficulties in gathering reliable statistics are widely known. For starters, there are the awkward, tense situations. Even if we only look at poor countries in Asia, Africa, and Latin America in terms of their overall economic aspects, we can see that some of them have far greater per capita incomes thanks to their oil reserves. As a second point, due to technological limitations, the per capita incomes of many developing countries (stated in terms of a global currency like the US dollar) are an oversimplification of their genuine per capita income. Problems arise when trying to convert national incomes expressed in a variety of local currencies into the common denominator of the US dollar using official exchange rates that are inadequate, and when estimating the value of noncash components of real earnings in developing nations. Last but not least, it is challenging to grasp the significance of variations in per capita income from one region of the world to another.

Statistics on longevity, infant mortality, and education levels are all markers of economic well-being that seem to correspond rather well with measurements of per capita income, despite the difficulties of income measurement being widely acknowledged. High levels of per capita income are also associated with improved nutrition rates and more access to medical care, medical professionals, and educators. While a 10% gap in per capita income between two countries might not seem like much, the reality is that there is a much wider gap than that.

By 1985, experts estimated that India's per capita income would have reached \$270. A total of \$1,640 was predicted for Brazil, while \$6,520 was projected for Italy. While economists have pointed to a number of possible sources of bias in the claim that Italy's standard of living is 24 times that of India's, no one can disagree that it was much higher than the one in Brazil, which itself was far higher than the one in India.

The use of a low per capita income as an indicator of material poverty can be tolerated with two important qualifications. First, per capita consumption, not per capita income, is the key indicator of living standards. When a sizable amount of a country's disposable income is redirected from consumption to other uses, as in a mandatory savings program, there may be a large discrepancy between the two. As a second point, the average standard of living in a country is a better indicator of its poverty level than

any one statistic. If wealth is not distributed fairly and affluent and poor people live significantly differently, the average per capita income or consumption may be far lower than what would be calculated using simple mathematics. Britannica Premium subscribers have access to exclusive content.

In 1985, the World Bank classified countries as "low-income developing nations" if their per capita income was less than \$400 and as "middle-income developing nations" if it was between \$400 and \$4,000. Some countries with similar per capita incomes may get much of their wealth from capital-intensive sectors like oil extraction, while others with similar per capita incomes may make up for a lack of resource richness by making extensive use of their labor force. For instance, in 1985, it was predicted that each Kuwaiti would bring in \$14,480; however, half of that sum would come from oil sales.

There was a significant gap between Kuwait and other countries with a similar per capita GDP in major economic and social indicators. As a result, despite the widespread agreement that both China and North Korea are developing countries, centrally planned economies are often treated as a separate subset. One big problem is that prices in centrally planned economies don't show relative scarcity as well as they do in market-based economies. As a result, prices in centrally planned economies aren't as good of an indicator of how many goods and services are available per person as they are in market-based economies.

Multiple factors necessitate research into not only what causes underdevelopment but also what policies and actions might help speed up development. And then there are some who care about poor countries because it's the right thing to do to help their citizens improve their quality of life in terms of basic necessities like food, clothing, shelter, and health care. Their low standard of living is a visible sign of the poverty problem. The objective of economic growth is to increase per capita income so that people can enjoy higher material living standards. Every government in a developing country has made increasing per capita income a priority. Therefore, it is essential for policymakers and economists working to achieve governmental goals to have a firm grasp on economic development, especially with regard to its policy components. Last but not least, there are others who care about economic growth, either they think that's what the people in developing countries want, or they think that's the only way to

ensure political stability. These causes do not compete with one another. Many industrialized nations have provided aid to less developed nations since the end of World War II for both humanitarian and political reasons.

Those who value political stability tend to support a relative comparison between the high per capita incomes of developed nations and the low per capita incomes of developing nations. Some people think that even if a developing country raises its per capita income, its citizens may still be unhappy because of the growing difference in their standard of living compared to that of wealthy countries. The significant gap between affluent and developing countries' incomes at the outset is the input into the mathematics of growth that has led to this effect. One may easily see the difference between a developed nation with a per capita income of \$1,000 and an underdeveloped nation with a per capita income of \$100. A gap in starting salaries of \$900 existed between the two. Let the economies of both countries grow by 5% every year. In comparison to the developed nation's income of \$1,050 after a year, the poor nation's income is \$105 after a year of development. Currently, there is a \$945 gap between the two amounts. To keep the same absolute deficit of \$900, the poor country's revenues would need to increase by 50%. There used to be a discussion in the field of development economics over whether or not the primary objective of policy should be to increase living standards generally or to reduce inequality in living standards. Between the years 1960 and 1980, however, it was widely acknowledged that, with the appropriate policies in place, developing nations might expand at fast enough rates to quickly improve their citizens' standard of living and begin to narrow the gap.

CHAPTER II

Literature Review

Introduction

In this part of the thesis, the relevant theoretical and empirical literature will be covered in depth. The theoretical literature review is useful for determining what theories are already in existence, how they are related, how much research has been done on previously established notions, and for developing new hypotheses to be tested. When dealing with new or developing research questions, this method is often used to show that there are no good theoretical frameworks or that the ones that are there are not good enough. The analytical unit could be a single idea from a theory or framework, or the entire theory or framework, whereas empirical literature is documented in such a way that other investigators understand exactly what was done and what was observed in a given research study in order for them to duplicate the study and see if the results are replicated when repeated. The results of the original study and its copy may be different, but the steps and stages that led to each study's conclusions are easy to understand.

Theatrical literature

The degree to which GDP growth is susceptible to inflation is a point of contention among economic theories. An important function of theories is to provide an explanation for a phenomenon. Prior to "persistent inflation," historically, cyclical data was used by early inflation-growth theorists. It has been hypothesized that persistent inflation began after World War II. In the past, inflationary times were always followed by deflationary ones. Since inflation showed no discernible trend in either direction, it was dubbed a "lazy dog." Until anything changes the status quo, it will continue to be the same. It drops to a lower level and eventually stops moving. Therefore, the theory makes an effort to clarify the link between rising prices and a booming economy and the effect they have on one another. The AS-AD hypothesis likewise assumed that inflation and economic expansion went hand in hand, with both variables expected to rise in tandem with GDP expansion. However, the concept of

stagflation gained traction in the 1970s, casting doubt on the veracity of the aforementioned positive correlation. However, the correlation between the Phillips Curve and actual outcomes did not appear to hold, despite widespread belief to the contrary at the time. As evidence, consider the long stretches of stagnant or negative GDP growth and sky-high inflation rates. At the same time that prices were rising fast, unemployment was at an all-time high throughout most of the world's economies. The next sections will discuss the contributions of classical economics, monetarism, neo-Keynesianism, neo-classicism, and endogenous growth to our understanding of the inflation-growth connection. Classical economics looks back to supply-side notions, such as the need for saving and investing incentives and the interconnectedness of a country's economy with its land, capital, and labor, for its success. As part of the AD-AS framework, the Neo-Keynesian and Keynesian schools of thought developed a more comprehensive model for correlating inflation with economic expansion. By highlighting the relationship between monetary expansion and inflation, monetary theory provides a more up-to-date version of quantity theory. However, Neo-classical and Endogenous Growth Theories attempted to explain inflation's impact on growth by considering the monetary inflation's effect on saving, spending, and capital growth.

Classical Growth Theory

Consistent increases within the market pricing range across all products and to the goods and services that make up a certain economy are a common definition of inflation. Note that one-time price increases are explicitly excluded from this criterion. Thus, economists refer to an increase in the equilibrium level of price in a domestic market for services and goods that is the result of sustained surplus demand conditions as "demand-pull inflation." The "pushing" upward of prices can be explained by the fact that in this situation, aggregate demand grows at a quicker rate than aggregate supply. However, some economists use the term "cost-push inflation" to narrate a situation in which companies' expenses continue to rise due to factors such as rising salaries, interest rates, taxes, imported ingredient prices, or currency exchange rates. Smith argued that rising economies of scale made growth inevitable. In addition, he believed that income distribution was a major factor in how fast (or slowly) a country grew because savings were the source of investment and development. Additionally,

he suggested that firms' bottom lines decline not due to diminishing marginal productivity but rather as a result of wage inflation caused by fierce capitalist competition for workers. Inflation's "tax" effect on profits and output wasn't fully articulated in classic growth theories. Companies are seeing declining earnings as a result of rising labor costs, suggesting a dismissive correlation linking the two.

Keynesian Theory

The Link between price increases and expansion of the economy is represented fairly well by the AD and AS curves of the classic Keynesian model. Its primary distinguishing feature is that, it's important to note that the short-term ed curve has a rising trend rather than a flat line, as proposed by the model. The AS curve is vertical if and only if changes in demand in the economy have no effect on output. However, if AD is on the rise, it will affect both prices and production (Dornbusch et al., 1996). This makes sense given that several factors influence both the rate of inflation and the volume of short-term production. A few examples are shifts in the availability of resources, the number of workers, the cost of inputs, and the monetary and fiscal policies in place. Short-term fluctuations in these factors and the effects of their "shock" on the economy's "steady state" are assumed to cancel out over the hypothetical long-term. To put it another way, in this "steady state" scenario, there is no changes. The short-run "dynamic adjustment" of the AD and AS curves results in a path of modification where Inflation and growth are first positively associated but thereafter deteriorate later in the adjustment process. However, in reality, most costs have gone up. Therefore, the producer keeps making more, and output increases. Positive correlations have been linked by Blanchard and Kiyotaki (1987) in accordance with agreements signed by some businesses to deliver commodities at a later date at a set price. Since the producer is obligated to supply the needs of the consumer with whom the contract was made, the rising cost of commodities in the economy will not have an effect on output.

Money & Monetarism

Monetarism has several valuable characteristics, such as emphasizing the economy's long-term supply side rather than its immediate dynamics. As part of his grand economic theory, Milton Friedman developed the term "monetarism" and pushed for the Quantity Theory of Money and Money Neutrality. In the quantity theory of money, deflation is linked to expansion as measured by the size of the economy relative to the total amount of currency in circulation. Inflation, in Friedman's view, arises when the growth of the money supply and the growth of credit exceed the growth of the economy. In addition, Friedman cast doubt on the reliability of the Phillips Curve. His entire premise hinged on the assumption that economic costs would double. People's salaries have doubled, but it doesn't phase them too much because they're happy to spend twice as much on goods and services.

Inflation rates in the future are anticipated and considered by individuals. Because of this, neither production nor employment will suffer. This idea is known as "money neutrality" in the field of economics. There is long-run monetary neutrality if the equilibrium values of real variables like GDP are unaffected by changes in the money supply. Superneutrality occurs over the long run when real variables, such as GDP growth, are unrelated to the rate of increase in the money supply. It wouldn't hurt anything if inflation worked this way. However, inflation actually has a major bearing on a variety of other macroeconomic indices. Reduced growth rates may result from inflation's impact on capital accumulation, investment, and exports. In a nutshell, the central tenet of monetary theory is that inflation has little short-term effect on prices but significant long-term effects on the money supply. When the expansion of the money supply outpaces the expansion of the economy, we have inflation.

Inflation, Economic Growth, and Central Banks

As an external factor, the actions of central banks are typically ignored in conventional economic analysis. Inflation is currently understood to be a monetary phenomenon in that it would not exist if the money supply did not increase consistently. Long-term price stability can be best achieved by linking monetary policy

expansion to the economy's long-term real growth rate. However, monetary expansion has been permitted to outpace real expansion by central banks worldwide. Over the past two decades, monetary policy theory and practice have overwhelmingly favored a commitment to price stability. This commitment has been made by central banks from New Zealand to Finland, whether under direct orders from their governments or of their own volition. However, if monetary policy is only concerned with maintaining price stability, it may appear as though unemployment, real GDP, and growth rate are of little consequence. Most central banks appear to ignore or vastly undervalue them as a means to an end. Once the central bank is confident that it has achieved its goal of maintaining price stability, only then will the actual results become a policy concern.

Most people involved in monetary policy, after explaining the central bank's overarching mission, would agree that the bank's actions may and do affect economic activity indicators, especially in the short term. Monetary policy and economic activity have time-consuming two-way interactions. The results of some central bank initiatives are long-lasting, while others have little more than a short-term effect. The short-run inflation-output trade-off is just one example of how difficult it is for monetary planners to do their jobs because of these complex and little understood dynamics. Inflation, policymakers and central bankers agree, is bad for the economy. Transparency in transactions and activities is being increased by central banks throughout the world to convince the economy that they are serious about preserving price stability. Inflation targeting was first used by the Reserve Bank of New Zealand in 1990, and since then, at least 19 other central banks have followed suit. Many individuals have assumed that lower or steady inflation will lead to improved economic growth.

Empirical Literature

Inflation-Economic Growth

Using the co-integration test and the Toda-Yamamoto technique, Erbaykal et al. (2008) looked at the link between inflation and economic growth in Turkey from

1987 to 2006. According to the results of the study, inflation in Turkey is unaffected by the country's economic growth over the long run. As the Toda-Yamamoto model demonstrates, inflation has a unidirectional impact on economic growth. Saaed (2007) used a co-integration method to investigate the relationship between inflation and economic development in Kuwait between 1985 and 2005. The findings indicate that real GDP in Kuwait has a historical correlation with CPI.

Between 1980 and 2005, Ahmed et al. (2005) used a co-integration test and an error correction model to analyze the relationship between inflation and economic growth in Bangladesh. Both GDP and CPI were used in the study's analysis (GDP). Inflation and economic expansion are shown to be linked over the long term. Results demonstrated that inflation slowed economic expansion in Bangladesh over the research period.

Sweidan (2004) used the chow breakpoint test to examine how inflation influenced Jordan's economic growth between 1970 and 2003. The findings show that inflation has an impact on economic growth in Jordan in a positive and significant way, with a structural tipping point at an inflation rate of 2%. Economic expansion is stunted by inflation rates above 2%.

Using a quarterly data series, Mohanty, et.,al, (2011) looked at the connection between inflation and growth in India, found that a rate of inflation between 4% and 5.5% may be considered a ceiling for the economy. The data concluded that a rate of inflation for India that is lower than 5.5% would be beneficial for the country's economic development, while a rate of inflation that is higher than 5.5% would be detrimental. Fakhri looked at data from 2000 to 2009 to figure out what effect inflation might have on economic growth in Azerbaijan at the threshold level in 2011. The projection threshold model estimates that a rate of inflation of 13% is necessary to sustain GDP growth in Azerbaijan. Because of this, inflation below this point will have a big and good effect on GDP growth, but inflation above this point will hurt Azerbaijan's growth. Economists Frimpong et al. (2010) looked at how inflation affected Ghana's economic growth from 1960 to 2008. They used threshold regression models to do this. According to the findings, there is a tipping point for inflation in Ghana at 11%, after which it begins to stunt the country's progress economically. Low inflation

(below 11%) helps the economy of Ghana grow, while high inflation (above 11%) slows it down.

To further investigate the effect of inflation on economic growth in Tanzania from 1990 to 2011, Faraji et al. (2013) employed the co-integration strategy, the ordinary least square (OLS) method, and correlation coefficient analysis. Based on the co-integration test's findings, inflation and economic growth are not positively associated. It is clear from the data on the correlation coefficient that inflation and GDP in Tanzania are closely linked. According to the results, inflation also stunts Tanzania's economic growth.

Quartey (2010) used the Johansen co-integration approach to evaluate the influence of inflation on the Ghanaian economy from 1970 to 2006. The research discovered that inflation had a detrimental influence on Ghana's economy.

From 1955 to 2009, Marbuah (2010) analyzed data on inflation and economic growth in Ghana. The study found that there is a high threshold impact of inflation on economic growth, both with and without a structural break. Our research indicated that there should be no less than a 6% inflation barrier and no more than a 10% inflation criterion. The research also indicated that the impact of inflation on GDP is boosted by almost 81% at a robust threshold level of 10% when structural breaks in the model are included.

Omoke (2010) used co-integration and Granger causality tests to look at how inflation affected economic growth in Nigeria from 1970 to 2005. The Consumer Price Index (CPI) and Gross Domestic Product (GDP) were employed as stand-ins to investigate the connection between inflation and economic expansion. We used the ADF and PP tests to make sure our initial discrepancies weren't moving around (PP). In addition, the study used the Johansen-Juselius co-integration method, which revealed no evidence of co-integration between inflation and economic growth in Nigeria. The VAR-Granger causality analysis found that inflation causes economic growth, but it did not find the inverse.

Using quarterly time series data from 1981–2009, Sani et al. (2011) calculated a Nigerian inflation threshold. A threshold inflation rate of 13% was calculated for

Nigeria using the threshold regression model developed by Khan and Senhadji in 2001. If inflation is below a certain threshold (currently set at 13%), it helps the economy thrive; if it's beyond that level, it hurts the economy. There is still a substantial inverse relationship between inflation and economic growth, and this is true regardless of the econometric techniques used to measure it. Inflation rates below and beyond the cutoffs have the same effect.

Inflation's impact on Nigeria's GDP growth was examined by Osuala et al. (2013), who looked at the period between 1970 and 2011 using the Augmented Dickey-Fuller (ADF) and Philip-Perron (PP) tests, as well as the Granger causality test. The study's primary variables are the real GDP and the inflation rate. Inflation and GDP growth were found to be related in Nigeria.

From 1970 to 2010, Umaru et al. (2012) analyzed the impact of inflation on Nigeria's economic growth and development using the Augmented Dickey-Fuller (ADF) technique and the Granger causality test. There was a correlation between GDP growth and inflation, as shown by the causality results, and the empirical data demonstrated that all variables were stable at the difference in the beginning points. Inflation and economic growth in Nigeria were studied by Inyama (2013) utilizing the Johansen-Juselius co-integration method, ordinary least squares (OLS), and the Granger causality method from 1979 to 2010. Inflation is shown to have a negative relationship with GDP and a positive but weak relationship with interest and exchange rates. Granger causality studies find no connection between price increases and actual GDP growth. However, there is only a single direction of causality from the exchange rate to actual GDP.

Aminu et al. (2013) examined the impact of unemployment and inflation on Nigeria's economic growth from 1986 to 2010 by employing the Augmented Dickey-Fuller (ADF) technique, the Johansen co-integration test, and the Granger causality test. The stationarity test showed that at the first difference, all of the variables were stable. The economy, unemployment, and inflation all have a long-term connection, as shown by the Johansen co-integration test. Granger causality study indicates that unemployment and inflation are the two primary contributors to RGDP.

From 1986 to 2011, Aminu et al. (2012) studied the impact of inflation on Nigeria's economic growth and development using the Augmented Dickey-Fuller (ADF) test, the Ordinary Least Squares (OLS) technique, and the Granger causality test. The statistics showed a connection between inflation and GDP expansion in Nigeria. The inflation coefficient is not statistically significant, but it does line up with what one would predict theoretically. Granger causality studies show that GDP drives inflation rather than the other way around.

Between 1970 and 2009, Nigeria experienced high inflation and budget deficits, therefore Ozurumba (2012) utilized an autoregressive distributed lag (ARDL) model and a Granger causality test to analyze the relationship between the two. The Granger causality test shows that the government deficit as a percentage of GDP affects consumer prices. The ARDL test confirms the intuitive sense that a larger budget deficit is associated with lower GDP growth and higher inflation.

Muhammad, Hazoor, et al. (2014) investigated the link between economic expansion, household savings, and inflation to determine Pakistan's inflationary threshold. In this study, simultaneous equations were employed as a model. We analyzed the expansion of GDP, inflation, savings, currency depreciation, total debt service, interest, unemployment, and indirect taxes. There were three equations used; the 2SLS method was employed; and the OLS model was used to forecast the optimal rate of inflation for economic expansion. Unemployment, the rate of depreciation, FDI, total debt service, total debt, real interest rate, indirect taxes, total investment, and the reliance ratio were all considered exogenous factors. Inflation and real interest rates are found to have a negative and significant effect on economic growth, whereas real interest rates, unemployment, and economic growth all have a similar and negative effect on inflation, according to the results of the two-stage least-squares model. Indirect taxes aids inflation especially. For a country's savings, growth in GDP, the dependency ratio, and FDI are all positive developments; but, a high depreciation rate is detrimental. Pakistan's inflation and GDP were analyzed by Najid et al. (2012), who looked at data from 1971 to 2011. This data was analyzed using both the Ordinary Least Squares (OLS) technique and the Granger Causality Test. In this experiment, we looked at the effects of inflation on GDP as a dependent variable (INFR). According to the Granger

causality test, increasing GDP leads to higher inflation. There is a positive relationship between inflation and economic growth in Pakistan, according to the OLS data.

Between 1972 and 2010, Muhammad, Imran, and Fatima (2011) analyzed how inflation affected Pakistan's gross domestic product (GDP). The study's dependent variable was the rate of expansion in the Gross Domestic Product (GDP), while the study's independent variables were inflation as measured by the Consumer Price Index (CPI), trade openness (OPNS), and the expansion in investment (INVG). Findings suggest that inflation poses a serious threat to Pakistan's economic growth.

With the help of a straightforward regression model based on ordinary least squares (OLS), Ezeanyejí et al. (2015) looked into how inflation affected economic growth in Nigeria between 1991 and 2013. The rate of inflation (INF) serves as the independent variable, while the gross domestic product (GDP) serves as the dependent variable, in this study. Researchers found that high inflation hinders Nigeria's economic development.

From 1973 to 2000, Mubarik (2005) discovered that low and consistent inflation promotes economic advancement, whereas high inflation stifles growth in Pakistan.

Thailand, 1995-2003 The dependent variable is the monthly percent change in Thailand's consumer price index after excluding raw food and energy components. Sun (2004). (2004). (2004) Fisher (1993) found a non-linear relationship in which low inflation rates have a positive influence on growth but have a negative impact when inflation rates rise. (1993).

Nigeria, 1970-2010 The positive association between inflation and economic growth is due to the impact of inflation on productivity, which has a beneficial influence on output and, as a consequence, enhanced economic performance Zubairu and Umaru (2012),

Ghana 1960-2008 Inflationary pressures and economic development OtengAbayie et.,al, (2010)1972-2010 Pakistan A negative and substantial inflation-growth

relationship was observed in Pakistan's economy. Persistent inflation is harmful to the economy's GDP growth after a certain threshold level.

Ayoub and coworkers (2011) looked studied the relationship between inflation and economic growth in over a hundred countries from 1960 to 1990 and found a substantial negative relationship. Some 87 nations are listed by Barro (1995). His research shows that inflation helps growth modestly up to the structural split, but starts hurting it significantly after that. Sarel (1996). (1996). (1996). (1996) The authors classify price increases into food and non-food categories and draw the conclusion that money supply is a major factor in inflation in Pakistan. Together, Qasim and his coworkers (1996)

The mainstream empirical understanding has evolved from a positive interpretation of inflation's effects on economic growth based on the Tobin (1965) effect to a negative interpretation based on the cash-in-advance economy with capital. An early group to investigate the connection between inflation and economic growth was Kormendi et al. (1985). Inflation was proven to be a major development inhibitor. Fischer (1993) and De Gregorio (1993) found evidence for a negative link between inflation and growth by studying pooled cross-section time series regressions for many different nations. Barro also confirmed this (1995, 1996). Barro concluded from his research that the link is most likely not causative. Levine and Zervos (1993) and Sala-i-Martin (2007) argue that inflation is not a good measure of economic growth (1997).

The importance of inflation is diminished when other conditioning factors are taken into account. In 2007, a new round of international studies was released, this time focusing on the nonlinearities and threshold effects of inflation on growth. Multiple authors' works were used in these analyses; some examples are Sarel (1996), Andres and Hernando (1997), and Ghosh and Phillips (2001). (1998). Andres et al. (1997) claim that inflation severely retards economic growth. Additionally, a nonlinear correlation was found. Their main point was that a 1% decrease in inflation could boost productivity by 0.5-2.5%.

The simultaneous equation was utilized by Metwally et.,al. (2004) to explain the dynamics and root causes of Egypt's inflationary period between 1986 and 2002. Three distinct equations were discovered. Based on the results of the three estimated models, inflation in Egypt was affected by both cost push and demand pull variables.

The analysis found that changes in fiscal and monetary policies had a greater impact on the rate of price change compared to shifts in import prices. Leheyda (2005) looked at what was causing inflation in Ukraine by using co-integration analysis and an error-correcting model. Too much money in circulation, inflation in other countries, and cost-push inflation were three hypotheses used to ground the study. Money demand and purchasing power parity markup the linkages that contribute to price increases over the long run, as demonstrated by the long-term Johansen co-integration result. In the short term, inflation is affected by the amount of money in circulation, wages, the exchange rate, actual production, and shocks from the outside world.

Using data from 1979 to 2006, Mame (2007) studied the methodology used to determine inflation in Mali's consumer price index. The investigation included a general-to-specific model and co-integration techniques. We discovered that national rainfall averages and, to a lesser extent, monetary and external sector volatility, best predict people's expectations of future inflation. Busari (2007) applied a variety of criteria, including the Hodrick and Prescott filter, to examine a sample of data from Nigeria. The underlying causes of cyclical, seasonal, and random components of inflation were explored using a general-to-specific modeling strategy. According to the findings, the budget deficit contributes less to inflation over time, whereas the quantity of the narrow money supply has a more direct and positive relationship with inflation. Over the medium term, depreciation of the currency and expansion of the money supply were both found to contribute to inflation. Gains in the money supply and exchange rate depreciation were found to positively correlate with inflation in the short run, while increases in real GDP were found to negatively correlate with inflation. Using a two-stage least-squares model, Iyabode (1999) calculated Nigeria's yearly inflation rate from 1971 to 1995. For this study's price level solution, researchers employed a micro foundation-based partial equilibrium model. According to the findings, variations in exchange rates on the black market are significant.

Inflation in Nigeria was studied by Gary (1994), who employed an error correction model to identify causes. The findings demonstrate that fiscal policy is primarily responsible for the expansion of the Nigerian currency, which accounts for the vast majority of inflation in the country. When studying price increases in Nigeria, Fakiyesi (1996) employed an ARDL model for analysis. Inflation, he found, is determined by the amount of new money created, the value of the naira relative to the dollar, real income growth, precipitation, and the amount of predicted inflation according to the rate of inflation in the prior year. Odusola et.,al, (2001) used the unconstrained VAR approach as well as reflex action to analyze studies of production, inflation, and the Nigerian currency rate. Inflation hinders output, as shown by impulse response functions and structural VAR models. But the best predictors of future inflation in Nigeria were production and the parallel exchange rate.

Imimole et al. (2011) looked into what happened to Nigerian inflation when the value of the currency went down. ARDL (auto regression with distributed lag) and co-integration are two methods that are used. According to the estimates, the exchange rate depreciation, the amount of money in circulation, and the real GDP were the main things that caused inflation in Nigeria.

From 1970 to 2007, Odusanya et al. (2010) analyzed inflation and its underlying causes in Nigeria. In particular, we used a co-integration test, an error correction model, and the Augmented Engle-Granger (AEG). The expected result highlights the many benefits of moving from a high or moderate inflation rate to a low inflation rate.

This article by Bakare (2011) explores the research done on what led to the inflationary monetary growth in Nigeria. The data was analyzed using a quasi-experimental research approach. The design took into account both theoretical considerations (a priori needs) and actual data, allowing for optimal data mining. The calculated regression model for Nigeria shows that there is a connection between the expansion of the country's monetary base and rising prices.

Mallik et al. (2001) compared inflation and growth in Bangladesh, India, Pakistan, and Sri Lanka across all four South Asian countries. The empirical findings of their study, which used co-integration and error correction models on annual data from the IMF and International Financial Statistics, led them to two main conclusions. Preliminary

empirical research indicates a favorable relationship between inflation and economic growth in four South Asian countries. Another intriguing empirical finding made by the authors is that inflation's sensitivity to changes in economic growth is smaller than growth's sensitivity to inflation.

The relationship between inflation and economic growth in Brazil was studied by Faria et.,al, (2001) Despite a negative association between inflation and economic growth in the short term, the authors of this study that uses annual data from 1980–1995 and a bivariate time series model called Vector Auto regression (VAR) show that inflation has no influence on economic growth in the long run. Data from their analysis supports the assumption that money is effectively neutral over time. The Jordanian economy was studied by Sweden (2004) to determine if there was a fundamental breaking point between inflation and economic growth between 1970 and 2003. His data reveal that below a 2% inflation rate, a positive correlation exists between inflation and GDP growth, but that once inflation exceeds 2%, the influence of the structural breakpoint becomes evident. When inflation is higher than the target rate, there is a strong link between inflation and slowing economic growth. Using annual data from 1973–2000, Mubarik (2005) determines Pakistan's inflation rate. The study's sensitivity analysis and threshold model were both established using the Granger Causality Test. Evidence from his research indicates that inflation rates higher than 9% pose a threat to Pakistan's economic growth. This empirical analysis, on the other hand, argues that keeping Pakistan's inflation rate below 9% is beneficial to the country's economic growth. The same thing is demonstrated by a sensitivity analysis of the model threshold.

Exchange Rate- Economic Growth

By regulating the relative costs of imported and exported goods, services, and assets, the currency rate is vital to international trade, economic stability, external balance, and competitiveness in Nigeria's economy today (Seyi, 2012). Furthermore, the economic vitality of a nation and how it stacks up against other economies can be gauged by looking at its exchange rate (Asinya et.,al, 2014; Akonji, 2013). Among the many factors that go into determining a country's exchange rate, economic goals play

a key role. Several factors affect the value of a nation's currency. The volume and competitiveness of exports, GDP, and foreign reserves are all examples (CBN, 1999). When domestic good prices rise, it drives up the cost of importing necessities like food and medicine, which in turn drives down the purchasing power of the local currency, leading to a depreciation.

Exchange rate fluctuations have been shown to have a significant impact on developing economies like Nigeria's, and there is a large body of theoretical and empirical work advocating for a more appropriate exchange rate for developed and emerging market countries. In addition, exchange rate variations have extensive consequences for prices, wages, interest rates, output, and employment opportunities. Short-term volatility peaked as a result of the shift from fixed to flexible exchange rates in the early 1970s and thereafter as a result of the breakdown of the Bretton Woods System, which had previously stabilized the exchange rates of many nations. One element that reduces the efficacy of macroeconomic interventions is the high volatility and sudden variations in exchange rates.

For the purpose of a framework with variable exchange rates, Rogoff claims that forecasting nominal exchange rates is a difficult task (2009). Exchange rate-affecting factors can occur over short or long time periods and can be either economic, political, or psychological.

It's important to remember that macro and micro variables can both be used to track currency exchange rate activity. This means that academics, policymakers, and monetary authorities are constantly on the lookout for workable solutions to stabilize the value of currencies. Mundell (1961) and McKinnon (1963) are two early authors who argue that a country's trading regime is determined primarily by its economic size and degree of openness. A fixed exchange rate regime is less likely to be adopted by large, closed economies than by smaller, more open ones, according to the researcher's research. In addition, Mohanty et al. (2005) noted that the exchange rate is likely to acquire particular relevance for monetary policy when its pass-through is high since it would have a direct and indirect impact on the real and financial sectors. Currency regime selection in developing and emerging markets, however, should be driven by factors such as economic size and regional trade concentration, according to recent

studies (Mickiewicz, A. 2006). Many studies have found links between the exchange rate and things like political economy, growth in the financial sector, macroeconomic performance, integration into the global financial market, and macroeconomic performance.

Hooper-equilibrium, the real exchange-rate model by Morton is a different way to figure out exchange rates. Humphrey and Lawler (1977) used the standard monetary model to look at how the exchange rates between the US and the UK and between the US and Italy changed over time. Frenkel (1976) used the PPP concept to make a model of the mark-dollar exchange rate during Germany's hyperinflation.

Schnabl (2009) looks into the link between fluctuations in exchange rates and growth in emerging Europe and East Asia. They made an unbalanced cross-country panel model with 17 rising European countries and 9 East Asian nations to find out how exchange rate volatility affects growth. Estimations show that, compared to the euro, there is a weak link between exchange rate volatility and growth in developing Europe. The specification for the whole sample, which includes all control variables, shows that the growth of exchange rate volatility relative to the euro is definitely hurt by this.

Demir (2013) examines how changes in currency exchange rates affect the growth of private Turkish manufacturing enterprises that are either publicly traded or not traded on a stock market using a company-level dataset. Exchange rate swings greatly restrict the growth of industrial businesses, as evidenced by dynamic panel data estimate methodologies. On the other hand, research shows that exposure to both domestic and international financial markets greatly reduces these negative effects. Using quarterly data from 1998:1 through 2014:4, Yildiz, Ide, and Malik (2016) analyze the correlation between economic expansion in Turkey and currency fluctuations. Results are consistent with the hypothesis that real effective exchange rate is related to economic growth both in the short and long run. However, other studies support the idea that growth and exchange rate volatility are positively correlated. Kasman (2005) investigates the effects of real exchange rate fluctuations on Turkish exports to key trading partners. He does this by using quarterly data from 1982 to 2001. Their research shows that changes in the value of the currency over time have a big positive effect on how many goods are exported. This conclusion may suggest that businesses in a small country like Turkey have limited ways to hedge against the possibility of a

sharp spike in the value of the Turkish lira. Adeniyi et.,al, (2019) apply the ARDL model to examine how currency volatility affects GDP growth in Nigeria. The findings are consistent with the existence of co-integration between the variables. It was discovered that exports significantly impacted GDP over the long run, but imports had a minimal effect. The research showed a small but favorable correlation between monetary policy shifts and GDP growth in Nigeria.

Sabina, Manyo, and coworkers find that the volatility of the naira to dollar exchange rate is inversely related to the development of the Nigerian economy (2017). The findings demonstrate that both volatility and FDI have large and adverse effects on the expansion of the Nigerian economy. They employ the Generalized Method of Moments to evaluate the results of volatility and economic growth in Nigeria (GMM). The expansion of the Nigerian economy throughout the study period was strongly influenced by government spending and foreign reserves. The report suggests that the government and the monetary authorities create plans to lessen the fluctuations in the value of the naira.

Data from 1971-2012 is used in a vector error correction model developed by Odili (2015) to analyze the impact of real exchange rate volatility and economic growth on Nigerian exports and imports. Exchange rate volatility, real exchange rates, real foreign income, real gross domestic product, real terms of trade, and a change in exchange rate policy were all found to have both short- and long-term effects on Nigeria's trade flows. Evidence suggests that the long-term volatility of exchange rates contributed to a slowdown in trade flows.

Through the lens of an ARDL model, Hussain and Farooq (2009) analyze the connection between economic expansion and fluctuations in the value of the Pakistani rupee. Except for exports and imports, all other economic variables are intertwined with growth over the long term, including currency exchange rate volatility, reserve money, and the manufacturing sector. The long-term performance of the domestic economy appears to be particularly vulnerable to changes in exchange rates.

The impact of exchange rate fluctuation on the economic development of English-speaking West African countries is the subject of Umaru et al.'s (2018) research. After adjusting for time-invariant variables, the findings revealed that the true value of the

exchange rate in West African English-speaking countries is statistically significant and negatively correlated with GDP.

Between January 1993 and December 2009, Musyoki et al. (2012) examine the effect of real exchange rate volatility on Kenya's economic performance using Generalized Method Moments (GMM). According to the data gathered, RER changed a lot during the course of the study. As the RER for Kenya rose and fluctuated across the study period, the country's international competitiveness declined. The unpredictability of the RER hampered Kenya's economic development.

By compiling yearly data from a large panel covering 14 countries in Sub-Saharan Africa, Bleaney et al. (2001) constructed investment and growth equations from 1980 to 1995. The low-income region of Sub-Saharan Africa was picked because of its reliance on the export of primary commodities. They discover that changes in trade terms damage growth and that changes in actual exchange rates have a significant impact on investment.

Nwosu (2016) looked at how volatility in exchange rates affected Nigeria's economic growth from 1987 to 2014. He found that volatility (also called "conditioned variance") in exchange rates hurt Nigeria's economic growth.

Nigeria's economic growth from 1970 to 2013 was correlated with fluctuations in the country's currency rate, as investigated by Amassoma et al. in a report published in 2016. They concluded that shifts in the value of the currency's exchange rate did not influence the expansion of the economy either temporarily or permanently.

Research by Obi et al. (2016) examined the connection between exchange rate regimes and economic growth in Nigeria using data from 1970 to 2014.

The study concluded that fixed exchange rates stifle economic progress based on the findings of a Generalized Method of Moments (GMM) model, while deregulated exchange rate regimes boosted economic growth. This showed that exchange rate regimes are very important to the economy of the country.

Exchange rate volatility, according to Azeez et al. (2014), has a positive and significant impact on macroeconomic performance over the long and short terms. Because of the

instability of currency rates, investors frequently take advantage of a rising Naira value to bring in the funds and technology they want for their operations.

Danmola (2013) looked into how changes in the exchange rate affect Nigeria's macroeconomic variables. He found that changes in the exchange rate were good for GDP.

In their 2012 study, Akpan et al. examined how fluctuations in the value of the naira impacted the expansion of the Nigerian economy. The results of the study, which used a generalized method of moments (GMM) to evaluate a simultaneous equation model, showed that changes in the value of the naira had little to no effect on the growth of the country's economy. Ismaila (2016) looked into the connection between currency rate depreciation and Nigeria's economic performance following the Structural Adjustment Programmed (SAP), and they discovered no proof of a causal relationship. Okorontah et.,al, (2016) used data from 1986 to 2012 to examine how shifts in the value of the naira affected economy growth of Nigeria. Using a number of econometric methods, the study found that the exchange rate in Nigeria didn't have much of an effect on GDP growth. However, depreciation of the currency has been linked favorably to economic growth in Bangladesh by Khondker (2012). As reported in the news, the economy grew by 3.2% after a 10% drop in the exchange rate. Numerous studies have found a link between the exchange rate and economic growth to be negative, while others have found a positive correlation or none at all.

Consumer Price Index-Economic Growth

The connection between expansion and price increases was studied by Khan and Senhadji (2001). For this investigation, they collected a total of 140 samples spanning the years 1960 to 1998 from both developing and developed nations. Their findings indicate that increasing inflation rates above a certain threshold greatly hinders economic expansion. The documentation of differential inflationary growth between developing and developed nations (e.g., for developing countries, it is 7–11 percent and for developed countries, it is 1-3 percent). There is a positive and robust association between inflation and economic growth, according to empirical evidence collected in Bangladesh, Pakistan, India, and Sri Lanka (Mallik et.,al, 2001). Second,

changes in growth are more likely to be brought about by inflation than the other way around. Gokal et.,al, (2004) used a number of economic theories to figure out how Fiji's inflation and growth are related. A weak inverse relationship between CPI and GDP was shown by the data. According to the causality test, the connection between GDP and inflation is unidirectional. Using data from 1970 to 2003, Sweidan (2004) examined how changes in inflation affected Jordan's economy. Results showed a strong positive correlation between the two variables. However, there have been 2% flat rates where a negative correlation was found.

In their study from 2005, Ahmed and Mortaza break down the link between Bangladesh's GDP and inflation. The data indicate a long-term negative correlation between CPI and GDP, and the analysis showed that Bangladesh's GDP has a 6% inflation threshold. Shahzad (2011) found that inflation and economic growth in Pakistan were linked in a strong and positive way. Even though Iqbal and Nawaz (2009) say that an inflation rate of 6% or less is best, anything above that rate hurts the economy in a big way. All variables were shown to be stationary by Umaru et.,al (2012). according to the findings of the Granger causality test, indicates that GDP has an effect on inflation. rather than the other way around. Inflation was found to rise in tandem with economic growth through the same mechanisms that boosted productivity and output: advances in total factor productivity.

CHAPTER III

Methodology

Introduction

This research chapter is an extremely important part of this thesis because it will provide you with a thorough knowledge of the research design for this research as well as an understanding of where the data for this research was collected. The significance of the tests that will be performed to verify the research hypotheses and provide answers to the research questions will also be discussed in this chapter.

Data

Secondary data, or data collected by sources other than the intended audience, was used in this thesis. Common examples of secondary data sources in the social sciences include census records, data gathered from government organizations, internal company documents, and information collected for entirely other purposes. Secondary data is already available, but researchers have to collect their own primary data.

This study uses World Bank data to investigate the effects of inflation, currency rate, and the consumer price index on Nigeria's economic growth from 1980 to 2020. The databases maintained by the World Bank are critical resources for supporting vital management decisions and providing essential statistical data for bank operations. The World Bank's Development Data Group is responsible for statistical analysis and data collection, as well as the upkeep of a variety of databases covering macroeconomics, finance, and many economic sectors. These databases adhere to generally accepted standards and best practices in the field. To make sure that everyone who uses the data can trust its quality and accuracy, the group works closely with the Bank's regional and global procedures to follow professional standards for collecting, putting together, and distributing data.

The quality of global statistics is largely dependent on the efficiency with which national statistical agencies collect and report data. The World Bank's goal is to improve the quality, reliability, and timeliness of national statistical systems in countries with low development levels. Without better and more complete national statistics, it is hard to make good policy decisions, figure out how well efforts to fight poverty are working, and keep track of regional and international progress.

Variables

To facilitate comparability, we report GDP growth as the annual percentage increase in GDP expressed in market values and converted to US dollars in 2015. Market value of all final goods and services produced inside a country's boundaries, adjusted for inflation and other considerations; also known as gross domestic product (GDP) (GDP). GNP is the market value of all final products and services produced in a country (GDP). It is calculated without taking into account the use of natural resources or the depletion of artificial assets. After deducting the cost of intermediary items and services from producers' total output, we are left with the value added. This is done before the cost of fixed capital is factored in. Value-added can be determined using either basic prices (which do not account for net taxes on items) or producer prices (which do account for net taxes on products paid by producers but do not account for sales or value-added taxes), as outlined by the United Nations System of National Accounts. Neither price takes into account the cost of transportation, which is passed on to consumers by manufacturers. We use purchaser prices to calculate total GDP. It is common practice in the industry to calculate value addition at a minimum price. The producer price index method is used to determine value added. Using constant prices in the local currency and the least-squares method, the growth rates of the GDP and its parts are estimated. Using a constant-price US dollar series allows one to compare the rates of expansion across regions and among income brackets. All foreign currency series are converted to US dollars at a constant rate based on the currency rate used as a standard for comparison.

The expansion of an industry's value added is a proxy for how much that sector has contributed to the overall expansion of economic output. It is possible to derive value added at constant prices by first determining the total outputs produced throughout a specific time frame, then assigning those outputs prices based on an agreed-upon base year price set, and then deducting the value of intermediate inputs, all at regular prices. This twofold deflation strategy calls for an in-depth understanding of the input and output pricing structures. However, in many industries, value added is estimated by looking forward from a given base year using output or input volume indices that only cover a single year. It is common to attribute value creation that doesn't change prices to labor inputs like wages or the cost of large government workforce, with the majority of its employees working in the service sector. Without well-defined output measures, it is difficult to track the expansion of services. Improvements in manufacturing efficiency and product quality brought about by technical progress should be accounted for, but they can skew the value-added and growth measures if they aren't. When output is estimated based on inputs, as is done with nonmarket services, the volume of production is underestimated due to the effects of unmeasured technological progress.

The underestimate of output and value creation is also caused by quality enhancements that are not accounted for. It's possible that as a result, both growth and productivity gains are underestimated, while inflation is overstated. Measuring the impact of the vast majority of a country's economy that occurs in undeveloped countries is a special problem because so much of it occurs in the informal sector. In order to have a thorough view of the economy, it is necessary to estimate household outputs that are not intended for sale, such as those made through bartering or illegal or deliberately unreported activities. The statisticians' expertise and methodology used in making the estimates make all the difference in terms of their reliability and thoroughness. The estimated economy growth rate could be affected by a rebasing of national accounts, and data consistency could be harmed by the resulting gaps in time series. Rebasings national accounts involves revising the relative importance given to various elements in order to make them more in line with modern practices of output production and consumption. A year with no major shocks or distortions to the economy is preferable as the new base year so that it accurately reflects how the economy usually operates. Despite the need to do so for many years, several developing countries have not yet

updated their national accounts. The implicit price and volume weights used by some of these methods decline in usefulness and relevance over time; thus, using an extremely old base year could be misleading. For the purpose of aggregate calculations, the World Bank rebases the series of constant price data for GDP and industry value added to a single reference year.

Inflation- Consumer Price Index (CPI), which assesses price changes for a symbolic sample of products and services over a specified time period (often one year), provides this information. In many applications, the Laspeyres formula is preferred. To put it simply, inflation measures the rate at which prices increase over a certain period. Price increases across the board or a general increase in the cost of living are two common measures used to characterize inflation. However, in some cases, like with food or a haircut, it can be calculated with greater accuracy. Economists use the term "inflation" to describe increases in the value of goods and services over a specific time period, often one year. Many factors, including the costs of individual items and the relative size of their respective shares of total household expenditures, contribute to the overall cost of living for consumers. In order to figure out what the average cost of living is, government agencies do surveys of households to put together a "basket of commodities" that people buy often and then track the prices of these items over time. The Consumer Price Index (CPI) measures the annual percentage change in the price of a market basket of goods and services, relative to its value in a chosen base year (in the United States, housing costs like rent and mortgages make up the greatest portion of the consumer basket). The most popular metric of inflation is the rise in consumer prices. You may calculate it by taking the percentage rate of inflation and dividing it by the total percentage of inflation throughout the time period in question.

Exchange rate- The nominal effective exchange rate is divided by a price deflator or cost index to produce the real effective exchange rate index (2010 = 100), which represents the value of one currency relative to a basket of other currencies. The real effective exchange rate, which accounts for relative changes in national price or cost indices within the home nation, a few other nations, and the Eurozone, is a subset of the nominal effective exchange rate index. To calculate the weighted geometric average exchange rate, we divide the average exchange rate during a certain time period by the exchange rates of a set of nations and the Eurozone. This provides a

useful index of the exchange rate. Trade in manufactured goods between developed countries accounts for the vast bulk of high-income country weights. A cost indicator based on relative normalized unit labor costs in manufacturing and the nominal effective exchange rate index are utilized to arrive at conclusions. Based on their trade in intermediate and primary goods with our trading partners and rivals, several other nations' nominal effective exchange rates are estimated. If the real effective exchange rate index goes up for these countries, it means that their currencies are becoming more valuable compared to the US dollar. Market economies are characterized by a wide range of relative pricing variables, such as the real wages, real interest rates, and real exchange rate, all of which affect the way in which households, businesses, and governments allocate scarce resources. Relative prices also reflect the tastes of these participants. Therefore, relative prices provide vital information regarding the interactions of monetary actors operating within an economy and interacting with external parties.

Consumer price index- The Consumer Price Index (2010 = 100) measures the typical consumer's average annual change in the cost of a constant or changing basket of goods and services. The Laspeyres formula is recommended in many situations. The results of calculations are averaged throughout time. To gauge the overall cost of living in a particular area, consumer price indices are developed. Increases in prices across the board that last for an extended period of time are what economists call inflation. It is important to distinguish between a general increase in prices across the economy and a rise in the value of specific good and service. Inflation is solely defined by the average increase, not by the changes in the structure of relative prices, which typically follow a rise in the overall level of price. The most common technique of measuring inflation is the consumer price index, which tracks changes in the cost of a basket of goods and services representative of what a typical family would purchase. A lot of the time, monthly or quarterly surveys of what people buy are used to figure out the CPI. Numerous other price indices are derived indirectly from the CPI and CPI-U series indexes. A cautious approach is required when utilizing consumer pricing indices. Consumer price surveys may have widely varying levels of coverage among countries, depending on factors including how they define households, what kinds of goods they buy, and whether or not they include data from low-income or rural areas. To add insult to injury, weights are derived from surveys of household spending, which

are rarely conducted in low-income countries for budgetary reasons, reducing the possibility of long-term comparisons. While consumer price indexes are helpful for gauging price changes inside a single nation, they are less informative when trying to evaluate relative price changes between nations.

Table 1.1 Variable Description

Variables Description

<i>#</i>	<i>Variables</i>	<i>Abbreviation</i>	<i>Measurement</i>	<i>source</i>
1	<i>Inflation</i>	<i>INF</i>	<i>(annual %)</i>	<i>World Bank</i>
2	<i>Economic growth</i>	<i>GDP</i>	<i>(annual %)</i>	<i>World Bank</i>
3	<i>Real exchange rate</i>	<i>REER</i>	<i>(2010=100)</i>	<i>World Bank</i>
4	<i>Consumer price index</i>	<i>CPI</i>	<i>(2010=100)</i>	<i>World Bank</i>

(Source: Author's E-Views 12 Computation)

Model specification

Model variables are selected during a procedure called "model specification" (MacCallum, 1995). When developing a model, there is a trade-off between wanting to include all relevant variables and wanting to keep your sample size as small as possible. In an effort to build models that are both accurate and minimal, many different approaches to defining models have been explored. While p-values are widely used in DBER, the information criterion is the preferred way of analysis in the field of data science. A large proportion of Models using the p-value method tend to be less complex and include fewer variables. The research questions that can be asked and the conclusions that can be derived are both determined by the model's variables. We will use a mathematical model called a multiple regression model to analyze the connection between, say, inflation, the economic growth, the consumer price index, and exchange rate. What this model entails is:

$$GDP_t = \beta_0 + \beta_1 INF_t + \beta_2 REER_t + \beta_3 CPI_t + \varepsilon_t \dots \dots \dots 1$$

Where:

GDP is the abbreviation for gross domestic product growth annually, *INF* stands for inflation, *REER* is the acronym for real effective exchange rate, *CPI* stand for consumer price index, $\beta_1 \dots \beta_3$ is the parameters to be estimate, $\varepsilon_t =$ stochastic term and $t = 1 \dots 41$ (Time period is from 1980-2020)

Descriptive statistic

Using concise, meaningful coefficients, descriptive statistics allow us to characterize a data collection that may be representative of the full population or a subset of it. Data can be described using a variety of statistical metrics, including central tendency and dispersion (spread). Central tendency can be measured with the mean, median, or mode, while variability can be measured with the standard deviation, variance, minimum and maximum variables, kurtosis, and skewness. To summarize, descriptive statistics offer succinct summaries of sample and data measures to help describe and comprehend the characteristics of a certain data set. Common descriptive statistics used in almost all mathematical and statistical contexts include the mean, median, and mode. The mean, or average, of the numbers in the set can be calculated by taking the sum of the numbers and dividing it by the total number of numbers in the set.

Stationary

When a series' mean and autocorrelation don't depend on how long it's been since it began, the series is considered stationary (Gujarati and Porter, 2009). Even if it would be reasonable to conclude that the series in question is also not stationary, we can assert that the series is stationary in this circumstance (Gujarati and Porter, 2009). Analyzing the Series in question should lead us to the conclusion that it, too, is not stationary. A time series is regarded as being stationary when its central tendency, dispersion, and dispersion coefficients do not change significantly during the course

of the series. To rephrase, time does not impact the show in any way. Whether the adjustment is applied or not, the series will remain non-stationary. The terms "unit root" and "non-stationary" are sometimes used interchangeably, as are other terms with similar meanings. Generally speaking, it is assumed that a time series must be stationary before any accurate forecasts can be made. This is true for any sequence of times. In this thesis, we used the extended Dickey-Fuller to test for variable stationarity. Both of these assessments have advanced from their previous iterations. When beginning statistical analysis, it is suggested that a significance level of 5% be employed. The following equation represents a non-stationary series in the context of a random walk:

$$Y_t = Y_{t-1} + \epsilon_t \dots \dots \dots 2$$

In this situation, the Epsilon variation represents a stationary random disturbance term. As can be seen in the equation above, the expected value of the Y-series remains unchanged over time. An increasing variance in y over time is shown by the preceding equation. Just like the random walk, the difference in y at the start is a difference in a stationary series.

An integration of the differential stationary series at the specified time is represented by the notation I (d). The sequence of integration determines how many differentiable steps are needed to bring the series to a stable equilibrium, or how many unit roots are allowed in the series. Due to there being just one-unit root in the above-described random walk, the I (1) series is the designation for these numbers. When a series, on the other hand, remains unchanged across time, we can confidently label it as I. (0). When the dependent variable or the repressors in a regression are themselves integrated, the usual methods of inference cannot be used. Therefore, before utilizing a series in a regression, it is crucial to check if it is stationary to guarantee reliable findings. To determine if a series is stationary, the unit root test is often used. Please explain how the consistency of the data contributes to our inquiry in more detail. When both the mean and standard deviation of a set of numbers remain stable over time, we say that the data has a stationary distribution (Jeffrey M. Wooldridge, 2013). The presence of a unit root can be deduced from a change in any of these parameters. Non-stationary series, in contrast to stationary ones, are more likely to produce erroneous and misleading findings.

ADF And PP Unit Root Test

The gold standard for determining whether or not a time series is stationary is the Unit Root Test, and the ADF test is a variation of this test. Dickey and Fuller (1979) developed a computer program to evaluate whether a given variable has a unit root or is amenable to an a priori random walk in order to test their theory. Yes, it is the answer. According to the traditional paradigm, the variable has a single, globally distinct unit root. The main distinction between the two approaches is that the former includes a drift term in the null hypothesis, whereas the latter also includes a constant term and a temporal trend in the regression that is used to create the test statistic. The only difference is that we test the model rather than the data, which is comparable to the original test. The Phillips–Perron test is a kind of unit root test that is used in statistics. This test was named after Peter C. B. Phillips and Pierre Perron. In other words, it is used to test the null hypothesis in time series analysis, which states that a time series is integrated out of order.

$$Y_t - 1 + BXe + E \dots \dots \dots 3$$

where, Y_t is the value of the time series at time 't' and X_e is an exogenous variable (a separate explanatory variable, which is also a time series).

ARDL Model

The autoregressive distributed lag (ARDL) method was created by Pesaran et al. (1995) and Pesaran et al. (1995), and it serves as the foundation for the principal modeling strategy that has been utilized in this study (1995). (1995). (1995). (1996). There are several benefits to using the ARDL co-integration method instead of the more traditional approaches outlined by Engle and Granger (1987), Johansen (1988), and Johansen and Juselius (1999). (1989). (1989). (1989). (1990). (1990). According to Narayan and Smyth (2005) and Ozturk et.,al, (2010a, b), the ARDL method does not need to undergo pre-testing for unit root because it may be utilized with a combination of I (0) and I (1) series. This is one of the reasons why this is the case. Second, unlike the Johansen method, which requires large amounts of data to be valid, ARDL can be applied with small sample sizes. Third, the ARDL method may be

capable of accommodating variables with varying optimal lag lengths. Fourth, unlike other co-integration processes that require system equation specification, ARDL employs a single reduced-form equation. As a result, the following ARDL models were created for the study:

$$\begin{aligned} \Delta \ln GDP_t = & \alpha_0 + \beta_1 \ln GDP_{t-1} + \beta_2 \ln REER_{t-1} + \beta_3 \ln INF_{t-1} + \beta_4 \ln CPI_{t-1} \\ & + \sum_{i=0}^q \Delta \alpha_1 \ln GDP_{t-k} + \sum_{i=0}^p \Delta \alpha_2 \ln REER_{t-k} \\ & + \sum_{i=0}^p \Delta \alpha_3 \ln INF_{t-k} + \sum_{i=0}^p \Delta \alpha_4 \ln CPI_{t-k} \\ & + \varepsilon_t \dots \dots \dots 4 \end{aligned}$$

In order to know the short run relationship between the variable we developed the Error Correction Model

$$\begin{aligned} \Delta GDP_t = & \alpha_0 + \sum_{i=0}^q \Delta \beta_1 \ln GDP_{t-k} + \sum_{i=0}^p \Delta \beta_2 \ln REER_{t-k} \\ & + \sum_{i=0}^p \Delta \beta_3 \ln INF_{t-k} + \sum_{i=0}^p \Delta \beta_4 \ln CPI_{t-k} + \lambda ECM_{t-1} \\ & + \varepsilon_t \dots \dots \dots 5 \end{aligned}$$

Where:

GDP is the abbreviation for gross domestic product growth annually, INF stands for inflation, REER is the acronym for real effective exchange rate, CPI stand for consumer price index, $\beta_1 \dots \beta_3$ is the parameters to be estimate, $\varepsilon_t =$ stochastic term and $t = 1 \dots 41$ (Time period is from 1980-2020)

ARDL Bound

The Unit Root Test, the gold standard for determining whether or not a time series is stationary, is a variant of the ADF test. To verify their idea, Dickey and Fuller (1979) created a computer program that determines whether a given variable has a unit root or is amenable to an a priori random walk. The answer is indeed "yes." The variable, according to the conventional paradigm, has a single, globally distinctive unit

root. The two strategies are notably different because the later includes a constant term and a temporal trend in the regression used to derive the test statistic, whereas the former includes a drift term in the null hypothesis. The sole difference from the previous test is that we now test the model rather than the data.

Residual Diagnostic

In this study, additional diagnostic tests, in addition to the ones previously stated, are being utilized to validate the dependability of the model that was used. Among the tests in this area are the White (heteroscedasticity) test, the residual normality test (serial correlation), and the autocorrelation test. By displaying the value of the residual values in respect to the predicted values, we can assess the degree of autocorrelation in the data. Heteroscedasticity is assumed to be present in the model once the F-statistics are compared to the probability value and the null hypothesis is rejected. Breusch and Godfrey created the LM test, a test for the presence of autocorrelation in regression model errors. The regression analysis's residuals from the model under test are then used to create a test statistic. The residuals are used in this method. According to the null hypothesis, there is no serial connection for any rank up to and including p . In statistics, the Breusch-Godfrey test is used to evaluate the validity of particular modeling hypotheses that arise when regression-like models are applied to observed data series. T. S. Breusch (1978) It specifically looks for serial correlation, which has not been incorporated into a suggested model structure and, if it is, could lead to inaccurate results from subsequent tests or inadequate model parameter estimations. Regression models that reflect future observations using lagged values of the dependent variables as independent variables are among those to which the test may be used. In econometric models, this is a common form. FDI is one example of a financial time series with time-varying volatility that is represented using ARDL models. In ARDL models, volatility clustering is anticipated to be caused by the present error term's variance being proportional to the size of the error terms from earlier periods. A regression model's heteroscedasticity is evaluated using the Breusch-Pagan test. Heteroscedasticity (or heteroscedasticity) occurs when a predicted variable's standard deviations change over time or in comparison to the values of other independent variables. When evaluating whether a data collection is adequately

represented by a normal distribution or the likelihood that a connected random variable is normally distributed, normality tests are used. To check if sample data is distributed uniformly, a normality test is utilized (within a certain range of values). error).

Granger Causality

By examining how well the signal from the seed region predicts the signal from the target region, Granger causality quantifies the amount of effective connectivity (links that draw activity from one section of the brain to another) (Geweke, 1982; Granger, 1969). It is a form of link that is based on how it functions, in other words. The log-ratio of the error variance when forecasting both time series together to the error variance when forecasting one time series only based on its own historical values is known as the Granger causality. The importance of a directed functional connection between two sources rather than anatomical connectivity between areas must be highlighted.

Stability test

In nonlinear models, parameter instability is rare (Saliminezhad et al., 2018). As a result, the stability of the estimated model used must be evaluated in order to assess the reliability of the findings. To do this, we employ Brown and colleagues' CUSUM of Squares Test (1975). In ARDL models, heteroscedasticity is considered to be proportional to the size of the error components in earlier periods, resulting in volatility clustering. To determine whether a regression model is heteroscedastic, utilize the Breusch-Pagan test. When the standard deviations of a predicted variable do not remain constant when compared to other independent variable values or past time periods, heteroscedasticity (or heteroscedasticity) arises. Normality tests are used to figure out if a set of data is well represented by a normal distribution or how likely it is that a connected random variable is also normally distributed. A normality test is performed to examine whether or not sample data is distributed uniformly (within a certain range of error). In nonlinear models, parameter instability is rare (Saliminezhad et al., 2018). As a result, the stability of the estimated model used must be evaluated

in order to assess the reliability of the findings. We do this using Brown and colleagues' CUSUM of Squares Test (1975). The model's stability must be preserved throughout the estimation process, depending on how much faith you place in the post-estimation test (Hansen, 2000). A multiple linear regression study's coefficient consistency is evaluated using Cusum test. The basis for inference is sums or sums of squares of recursive residuals, which are regularly produced from nested subsamples of data and represent standardized one-step-ahead prediction errors. Numbers that are outside the predicted range of the sequence indicate that the structure of the model has changed over time under the null hypothesis that parameters remain constant.

CHAPTER IV

Results and Interpretations

Introduction

This chapter will provide you with more information as well as an interpretation of all of the tests that were explained in the chapter that came before this one, which was chapter three. This chapter details two types of tests: The Granger causality test and the stability test. These tests include the descriptive statistics test, the stationarity test, the ARDL bound test, the ARDL long run test, and the ARDL short run test, and the residual diagnostic test. Every one of these checks passed with the help of the EViews 12 software.

Table 2.1 Descriptive statistics test

Descriptive statistics test

	GDP	CPI	INF	REER
Mean	3.055069	65.83909	18.779	151.3957
Median	4.195924	29.60073	12.55496	100.5760
Maximum	15.32916	302 9462	72.83550	536.8903
Minimum	-13.12788	0.405056	5.388008	49.74471
Std. Dev.	5.387712	81.20331	167.1584	117.7697
Skewness	-0.825581	1.387797	1.862501	1.784395
Kurtosis	4.621278	4.031432	5.313499	5.414266
Jarque-Bera	9.147918	14.97828	32.84770	31.71512
Probability	0.010317	0.000559	0.000000	0.000000
Sum	125.2578	2699.440	769.9303	6207.224
Sum Sq. Dev.	1161.097	263759.1	11176.77	554788.1
Observations	41	41	41	41

Source: (Author's E-Views 12 Computation)

Descriptive statistics are those that are used to describe a single data collection, which may or may not be typical of the entire population. The coefficients that make up descriptive statistics are short and useful. There are two sorts of descriptive statistics:

measures of central tendency and measures of variability (spread). The mean, median, and mode are all central tendency measures. Variability is measured by the standard deviation, variance, minimum and maximum variables, kurtosis, and skewness. Central tendency measurements include the mean, median, and mode. The real exchange rate and value have been found to have the highest mean of 151.395 in this research, while the means for GDP growth and inflation have been found to be 3.05 and 18.77, respectively. The highest possible values for GDP growth are 15.329 percent, which corresponds to an inflation rate of 72.835 percent and a real exchange rate of 536.890 percent. A highly skewed distribution is indicated by a value of skewness that is either larger than 1 or less than -1. A number that falls between 0.5 and 1 or -0.5 and -1 is said to have a highly skewed distribution. A number that falls between -0.5 and 0.5 suggests that the distribution is relatively symmetrical. If the kurtosis value of the dataset is greater than 3, it has larger tails when compared to a normal distribution. When compared to a normal distribution, the dataset in question exhibits thinner tails if the kurtosis value is less than 3.

ADF Unit Root Test

The ADF test is one of the tests of the "Unit Root Test" family, which is the recommended approach to testing for time series stationarity. Computer software was developed by Dickey and Fuller (1979) to test their theory of whether or not a given variable has a unit root or is susceptible to an a priori random walk. Hamilton (1994) gives four case studies to demonstrate the use and efficacy of the expanded Dickey-Fuller test. According to the null hypothesis, the variable, regardless of the conditions, has a single unit root at every location in the distribution. The term "regression" refers to the process of determining whether or not a particular piece of data is relevant to a given situation.

Table 3.1 ADF unit root test**ADF unit root test**

ADF UNIT ROOT TEST				PP UNIT ROOT		
Variables	Level	1 st difference	Order	Level	1 st difference	Order
GDP	0.1197	0.0010***	I(1)	0.1086	0.0000	I(1)
INF	0.0392**	-0-	I(0)	0.0149		I(0)
CPI	0.7740	0.0004***	I(1)	0.9554	0.0000	I(1)
REER	0.3098	0.0099***	I(1)	0.0851	0.0000	I(1)

Source: (Author's E-Views 12 Computation)

*Note: Akaike info criterion note: significant level at 1***5** 10**

Table 4.1 displays the results of the unit root test, which show that the variables are level and first difference stationary. Only inflation ($p = 0.0392$) lacks a unit root problem at the level; neither does GDP growth ($p = 0.0010$), the real effective exchange rate ($p = 0.0099$), or the consumer price index ($p = 0.0004$). This result demonstrates that none of our variables have a unit root problem at first difference, hence we reject the null hypothesis. The variables in this situation don't have a unit root issue.

ARDL Bound Test

Bound testing is a type of ARDL modeling that is used to find out how delayed levels of variables affect a univariate equilibrium correction system when it is not clear whether the process behind a time series is a trend or first difference stationary. Haug (2002) says that the ARDL limits testing method works better and comes up with better results when a small sample size is used. This is because, in the short run, estimates are made for both short-run and long-run parameters at the same time, which makes the process more accurate.

Table 4.1 ARDL bound test**ARDL bound test**

Model	Lag.	F-Statistic	Decision
GDP, REER, INF, CPI	(1,0,0,4)	10.95197***	Co-Integration Exist
Bound Critical Value			
		I (0)	I (1)
Sign.	10%	2.37	3.2
	5%	2.79	3.67
	2.5%	3.15	4.08
	1%	3.65	4.66

Source: (Author's E-Views 12 Computation)

Note: indicates that computed statistic falls above the upper bounds value at one percent significance level. The Bounds critical values are obtained from Pesaran, et al. (2001).

At the 1% significant level, the F-statistic in Table 4.2 is substantially larger than the upper limit critical value of 10.95. This implies that the variables have stable long-term co-integration and that the null hypothesis of no co-integration is incorrect. This indicates that the investigated variables are co-integrated, which means they cannot move too far apart or independently of one another. In addition, the fact that the variables are co-integrated suggests that some type of short-run correction mechanism is at work, preventing the errors in the long-run connection from becoming progressively greater.

Table 5.1 ARDL LONG-RUN**ARDL LONG-RUN TEST**

ARDL LONG RUN TEST				
<i>Variables</i>	<i>Coef.</i>	<i>St. Error</i>	<i>t-statistic</i>	<i>P value</i>
<i>INF</i>	-0.022	0.007	-2.840	0.0083**
<i>CPI</i>	-0.167	0.039	-4.229	0.0002***
<i>REER</i>	-0.024	0.008	-2.765	0.0099***

<i>ARDL SHORT TEST</i>				
<i>GDP</i>	<i>0.089</i>	<i>1.550</i>	<i>0.575</i>	<i>0.5697</i>
<i>INF</i>	<i>-0.152</i>	<i>0.039</i>	<i>3.851</i>	<i>0.0006***</i>
<i>CPI</i>	<i>-0.020</i>	<i>0.007</i>	<i>-2.704</i>	<i>0.0115**</i>
<i>D(REER(-3))</i>	<i>-0.024</i>	<i>0.008</i>	<i>2.756</i>	<i>0.0043***</i>
<i>ECM</i>	<i>-0.910</i>	<i>0.115</i>	<i>2.756</i>	<i>0.0000</i>

Source: (Athour's *E-Views 12 Computation*)

Note: Note ****represent significance at,1%*** 5%** and *10% respectively

As Table 4.4 illustrates, there is a negative link between economic growth and inflation. Inflation is crucial both in the long run and in the near run. This conclusion is consistent with Bawa et AL estimates of Nigerian inflation (2012). The study predicted a 13% inflation rate in Nigeria using a threshold regression model established by Khan et al. (2001). Inflation has a minor impact on economic activity below a specific threshold, but a large negative impact on growth over that barrier. The negative and robust link between inflation and economic growth is insensitive to changes in econometric approach, extra explanatory variables, and data frequency adjustments for inflation rates both below and beyond the threshold. These findings have crucial implications for monetary policy development because they help policymakers choose an inflation target that is consistent with the nation's long-term goals of sustained economic growth. Furthermore, the exchange rate and the consumer price index are harmful to Nigeria's economic progress. The results are consistent with those of Rapettia et al. (2012), who conducted research and revealed evidence indicating RER-growth in less developed nations, there is a stronger connection. We show how the criteria used to divide the sample into developed and developing countries had an impact on his findings. When we examine the occurrence of differences among groups of countries using a variety of categorization criteria and empirical approaches, we discover that the impact of currency value loss on growth is unquestionably stronger and greater for developing economies. On the other hand, the link between RER undervaluation and per capita GDP is non-monotonic and largely restricted to the richest and poorest nations in the globe. It is a mystery how this chasm

came to be. With a speed of 91%, the ECM exhibits a high rate of adjustment in both the short and long runs.

Table 6.1 residual diagnostic tests

Residual Diagnostic tests

<i>Tests</i>	<i>Statistic</i>	<i>P value</i>	<i>Results interpretation</i>
<i>Serial correlation</i>	<i>0.628</i>	<i>0.4263</i>	<i>No serial correlation</i>
<i>Normality</i>	<i>2.019</i>	<i>0.3643</i>	<i>Normal distribution</i>
<i>Heteroskedasticity</i>	<i>1.277</i>	<i>0.2727</i>	<i>No serial correlation</i>

Source: (Athour's *E-Views 12 Computation*)

The residual diagnostic tests are shown in Table 4.4. This thesis used three diagnostic tests: serial correlation, normality, and heteroscedasticity.

This thesis supports the null hypothesis of no serial correlation in the series, as the p value is greater than the 5% significance level required to reject the null. The p value is currently 0.4263. The residuals appear to follow the normal distribution predicted by the null hypothesis of the normality test, and this result agrees with the null hypothesis with a p value of 0.3643. With a p value of 0.2727, the heteroscedasticity test suggests that there is no heteroscedasticity in the data set.

Table 7.1 Granger Causality

Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
CPI does not Granger Cause GDP GDP does not Granger Cause CPI	39	0.85879 0.36366	0.4327 0.6978
INF does not Granger Cause GDP GDP does not Granger Cause INF	39	0.17806 0.32492	0.8377 0.7248
REER does not Granger Cause GDP GDP does not Granger Cause REER	39	0.00115 10.7888	0.9989 0.0002**
INF does not Granger Cause CPI CPI does not Granger Cause INF	39	1.02032 0.85915	0.3713 0.4325
REER does not Granger Cause CPI CPI does not Granger Cause REER	39	0.15943 0.21467	0.8533 0.8079

REER does not Granger Cause INF	39	1.99752	0.1513
INF does not Granger Cause REER		0.45825	0.6362

Source: (*Athour's E-Views 12 Computation*)

The level of effective connectivity (that is, causal relationships that extract activity from one brain element over another) from one region to another can be measured using the Granger causality method. This approach measures the signal's ability to reliably forecast the signal in the target location (Geweke, 1982; Granger, 1969). To put it another way, it may be thought of as a kind of directed functional link. In light of this, the findings indicate that GDP and the exchange rate are the only variables with a unidirectional causal relationship at the 5% level of significance. The increase in GDP has an effect on the exchange rate, but the exchange rate itself does not influence the growth of GDP

Stability Test

Figure 1.1 CUSUM test

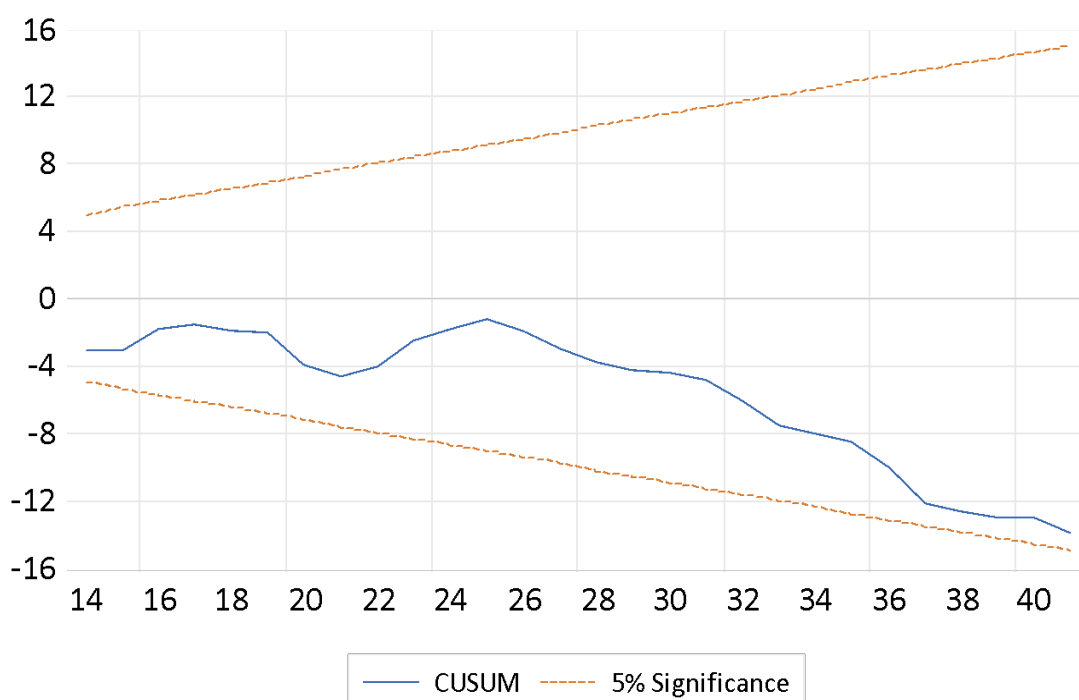
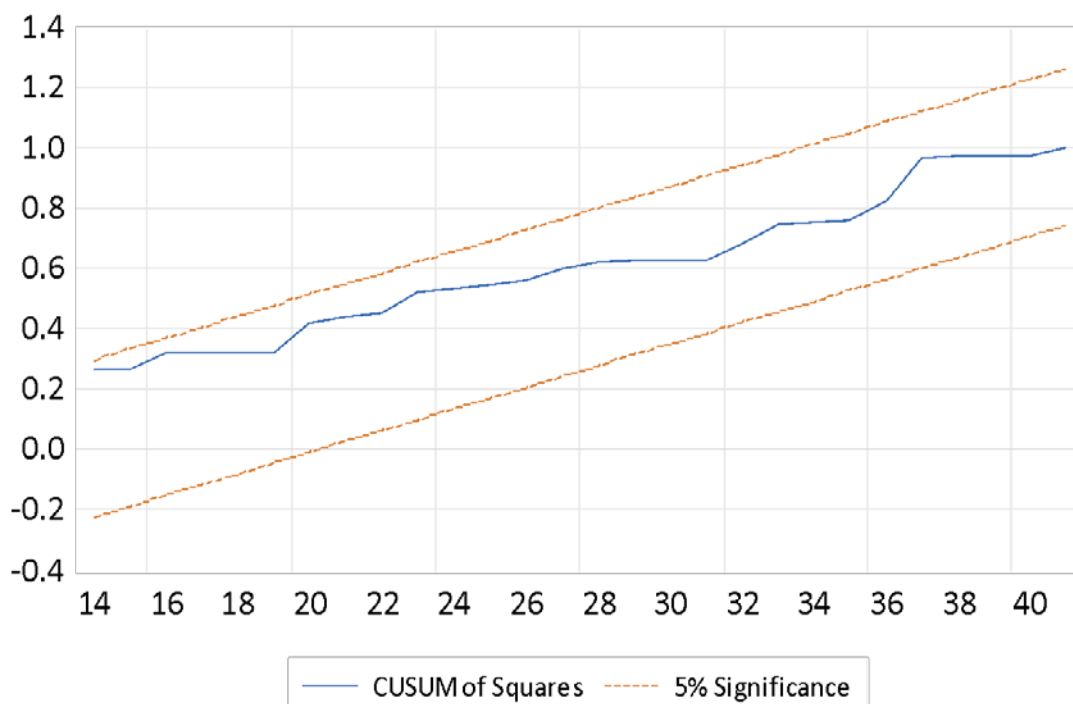


Figure 2.1 CUSUM of square test

Based on the results of the experiment, the red line shows where the blue can and cannot go. As a result, the blue line is restricted to those bounds. To gain an advantage, we have decided to think that rather of being unstable, the residual variances are stable, as illustrated in the diagram. Therefore, we choose to reject the alternative hypothesis as true while accepting the null hypothesis as true. However, contrary to what the statistics would suggest, the residual variance is not changing. This is a recurring observation. The null hypothesis of consistent coefficients may be rejected at a 5% level of significance if any of the lines are shown to be crossed. The CUSUM and CUSUMQ data plots must comply with the key restrictions depicted in the picture above. This ensures that the international tourist coefficient remains constant over time.

CHAPTER V

Overview, Conclusion and Recommendation

Overview

Inflation, the exchange rate, and consumer price changes are analyzed together with their effects on Nigeria's economic growth from 1980 to 2020. Achieving rapid and sustained economic growth is a top priority for the economies of most nations. Many factors affect economic growth, making it difficult to attain this goal. The economy growth rate and the inflation rate are at the center of the discussion on macroeconomic policy. The rate of economic growth can be affected by a number of factors, and inflation is one of them (Barro, 1995). However, the connection between economic expansion and price increases is not black-and-white or simple. The correlation between rising prices and thriving economies has been the subject of numerous studies, which have uncovered a wide range of possible explanations. Both theoretical discussions and empirical research have been plagued by this issue. Inflation is typically categorized as either cost-push or demand-pull. This type of inflation is known as "demand-pull" inflation since consumer spending is what ultimately pushes prices higher. One or more of the following may be contributing to the persistent growth in demand, an expanding economy, an increase in the supply of money and government spending, a rise in exports; etc. Inflation occurs when demand increases without a corresponding supply increase, pushing up prices across the board. Inflation caused by higher production costs, also known as "cost-driven inflation" or "supply-driven inflation," can be attributed to factors like rising raw material prices, wage increases, and other similar variables. Inflation take place when the cost of producing a goods or services increases relative to its cost to the economy as a whole (Raza et al., 2013). The initial dispute between economic growth and inflation centers on the nature of their relationship. Inflation and economic expansion may have no correlation at all (Sidrauski, 1967), a negative correlation (Fisher, 1993, and Barro, 1995), or a positive correlation (both authors) (Fisher, 1993, and Barro, 1995). According to Mallik & Chowdhury (2001), These results are built upon prior research and speculation.

It's not just that the two are linked; it's also how much of a drag inflation could be on economic growth. Both structuralists and monetarists agree that inflation affects

economic growth, but structuralists see it as a net positive while monetarists see it as a net negative. With regards to the expansion of the economy. Both proponents and detractors of inflation provide their own theories as to why it could affect the economy's development for the better or worse. By allocating wealth in a way that favors capitalists who keep more of their money in the bank, inflation is said by neoclassical economists to encourage economic growth for the better or worse. By allocating wealth in a way that favors capitalists who keep more of their money in the bank, inflation is said by neoclassical economists to encourage economic growth. Accepted as payment for products and services and for meeting a nation's monetary obligations, money is a medium of exchange that has universal acceptance. Money also serves as a store of value, a unit of account, and a standard for deferred payment, among other things. Since money is a necessary component of exchange, its value affects the rates at which goods and services are traded for one another. The value of international trade is also dependent on the relative values of the currencies involved, just as the value of one country's currency is affected by the value of another. This is because the value of a country's currency is influenced by a variety of macroeconomic factors, including those specific to that country's economy. Because of the frequent need to convert between currencies as a result of international trade, it is useful to examine how other countries' currencies stack up against one another. This thesis makes use of secondary data, meaning that it was gathered by a source other than the intended audience. Secondary data for the social sciences typically comes from sources like demographers, government information, organizational records, and data collected for other research reasons. In contrast, primary data is gathered by the researcher.

Using information from the World Bank data portal, the effects of inflation, currency rates, and the consumer price index examines Nigeria's economic expansion between the years 1980 and 2020. Without its databases, the World Bank would be unable to offer the necessary statistical information and support crucial management decisions. Statistics and data work are performed by the World Bank's Development Data Group, which also maintains numerous macro, financial, and sector databases that adhere to internationally recognized standards and regulations. The team collaborates closely with the Bank's regional and worldwide processes to ensure that everyone who uses

the data can rely on its quality and accuracy, and that it is collected, compiled, and distributed in accordance with professional standards.

Since most data comes from national statistical systems of member nations, its efficiency is a crucial factor in determining the quality of global statistics. The World Bank's mission is to help developing countries build stronger, more reliable national statistical systems. Formulating successful policies, evaluating the efficacy of anti-poverty programs, and monitoring progress toward global objectives is challenging without better and more reliable national data. Regardless of how many years have passed since the series' commencement, the mean and autocorrelation of a stationary series will remain constant (Gujarati and Porter, 2009).

We may deduce from looking at the series that it is likewise non-stationary if it is not stationary. A series is said to be stationary when its mean, covariance, variance, and other characteristics remain constant across time. In other words, the series does not vary over time. The series will continue to be non-stationary whether or not the fix is applied. The terms "non-stationary," "unit root," and others are sometimes used interchangeably. To make predictions about a time series, it is often assumed that it must be stationary. This has ramifications for every time series. The augmenting Dickey-Fuller was applied in this thesis to examine the variables' stationarity. From earlier revisions, both of these tests have been enhanced. A 5% significance level is the often-used starting point for statistical analysis. The main modeling strategy employed here is based on the autoregressive distributed lag (ARDL) method developed by Pesaran et al. in 1995. (1996). Engle and Granger (1987), Johansen (1988), and Johansen and Juselius (1989) all discuss the advantages of ARDL co-integration over more traditional approaches. (1989). (1989). (1989). (1990). (1990).

According to Narayan and Smyth (2005) and Ozturk et al., there is no requirement for unit root pre-testing when employing the ARDL technique (2010a, b). The ARDL method can be applied to both I (0) and I (1) series. Second, ARDL can be utilized with relatively modest sample sizes, whereas the Johansen approach requires huge amounts of data for validity. Bound testing, a type of ARDL modeling, is used to determine the importance of delayed levels of variables in a univariate equilibrium correction system when it is unclear whether the data-generating process underlying a time series is trend or first difference stationary. Furthermore, Haug (2002) asserts that

with smaller sample numbers, the ARDL limits testing approach is more successful and trustworthy. This is because, in the short term, both short-run and long-run parameters are evaluated concurrently, making the process more precise.

Table 4.1 displays the outcomes of the unit root test, demonstrating that the variables are level and first difference stationary. Only one of the four variables, inflation, does not have a unit root problem at the level ($p = 0.0392$), although the other three variables, GDP growth, the real effective exchange rate, and the consumer price index, do not ($p = 0.0000$, 0.0099 , and 0.0004 , respectively). We reject the null hypothesis that the variables in our situation do not have a unit root problem because of this result, which shows that none of our variables initially appear to have a unit root problem. Table 4.2's F-statistic clearly exceeds the 1% significant level upper limit critical value of 10.95. Since the alternative hypothesis is true, we can conclude that the variables are long-run co-integrated and stable. If the variables under consideration are co-integrated, then they are inherently bound to one another and cannot undergo large scale, independent changes.

In addition, the fact that the variables are co-integrated suggests that some type of short-run correction mechanism is at work, preventing the errors in the long-run link from growing progressively larger. Table 4.3 displays the findings of the ARDL long and short run tests, which indicate that economic growth and inflation have a negative relationship, with inflation being substantial in both the long and short term. This outcome is consistent with Bawa et al.'s (2012) prediction of Nigerian inflation. Applying the method of threshold regression proposed by Khan and Senhadji (2001), the study predicted that Nigeria's inflation rate would be 13%. Below a certain threshold, inflation has little influence on economic activity, but over that barrier, it has a major negative impact on growth. An extremely negative correlation between inflation and economic expansion is unaffected by econometric technique modifications, new explanatory variables, and data frequency modifications for inflation rates below and over the threshold. These results are significant for the formulation of monetary policy because they help decision-makers choose an acceptable aim for inflation that is consistent with the nation's long-term objectives for sustainable economic growth. The exchange rate and the consumer price index are additional hindrances to Nigeria's economic development. This outcome is in line with research done by Rapettia et al. (2012), who looked into the issue and found evidence

that the RER-growth relationship is more pronounced in developing countries. We discuss the impact of the sample's division into developed and developing nations on the results. When we employ alternative categorization criteria and empirical approaches to quantify the incidence of differences between groups of nations, we find that the impact of currency value loss on growth is unquestionably bigger and more robust for emerging economies. Contrarily, the link between RER undervaluation and per capita GDP is non-monotonic and mainly restricted to the richest and poorest nations in the globe. There is a mystery to be solved with this chasm. With a speed of 91%, the ECM adjusts quickly in both the short and long terms. The remaining diagnostic tests are shown in Table 4.4. In this thesis, serial correlation, normality, and heteroscedasticity were used as three diagnostic tests. Supporting the null hypothesis of serial correlation, with a p value of 0.4263, which is larger than 5% significance, this thesis argues that there is no serial correlation in the series. Normality test predictions for the residuals are consistent with the null hypothesis ($p = 0.3643$). The heteroskedasticity test indicates that the data set does not show heteroskedasticity with a p value of 0.2727. The experiment demonstrates that the blue line is restricted to the area that the red line defines. In order to obtain an advantage, as can be seen in the graphic, we have opted to assume that the residual variances are stable rather than unstable. So, we'll go ahead and assume the null hypothesis is valid and rule out the alternative. On the other hand, contrary to what one might expect based on statistical analysis, the residual variance is holding steady. In my experience, this has held true time and time again. The consistent coefficients null hypothesis may be rejected at a 5% level of significance if any of the lines are demonstrated to be crossed. Data displays using CUSUM and CUSUMQ must adhere to the fundamental constraints depicted in the preceding image. The international tourist coefficient will remain stable as a result.

Conclusion

In this study, we analyze the impact of price increases, currency fluctuations, and consumer price indexes on Nigeria's economic growth from 1980 to 2020. For the vast majority of countries, achieving rapid and sustained economic growth is the top economic priority. The many variables that affect economic growth have made it challenging to achieve this objective. The two most contentious issues in discussions about macroeconomic policy are inflation and the growth rate of the economy. Economic expansion rate could be affected by a number of factors, one of which is inflation (Barro, 1995). Although the connection between these two concepts is not cut and dry, rising prices and the economy. Extensive study has led to a number of hypotheses about the connection between inflation and economic growth. There has been dispute on this topic for both theoretical and empirical reasons.

Inflation is classified into two types: cost-push inflation and demand-pull inflation. When demand is the primary driver of inflation, this is referred to as "demand-pull" inflation. Consistent demand growth can be connected to a range of causes, including, but not limited to, increases in the money supply and government expenditure; higher exports; and so on. When increased demand is not met by increased supply, the overall price level rises, resulting in inflation. Inflation produced by rising manufacturing costs, also known as "cost-driven inflation" or "supply-driven inflation," can be blamed on rising raw material prices, salary increases, and other related reasons. Finally, the unit root test findings reveal that the variables are stationary at the level and first difference levels. Only one of the four variables, inflation, has a unit root problem at the first difference ($p = 0.0392$), whereas the other three, the consumer price index, the real effective exchange rate, and GDP growth, do not ($p = 0.0000$, 0.0099 , and 0.0004 , respectively). This result disproves the null hypothesis that the variables in this case do not have a unit root problem by demonstrating that none of our variables do at first look have a unit root problem. The F-statistic is clearly more than the upper limit critical value of 10.95 at the 1% significant level. As a result, the null hypothesis of no co-integration is rejected, suggesting a long-term stable co-integration relationship between the variables. This indicates that the investigated variables are co-integrated, which means they cannot move too far apart or independently of one another. In addition, the fact that the variables are co-integrated

suggests that some type of short-run correction mechanism is at work, preventing the mistakes in the long-run link from increasing in size. Both the long and short term ARDL tests show a negative relationship between economic growth and inflation, with inflation being significant in both the long and short run. This result is consistent with the prediction of Nigerian inflation made by Bawa et al. (2012). Using Khan and Senhadji's threshold regression model, the study predicted that Nigeria's inflation rate would be 13%. (2001). Inflation has no effect on economic activity below a specific level, but it has a significant negative impact on growth above that threshold. Changes in econometric approach, additional explanatory variables, or data frequency have no effect on the negative and robust link between inflation and economic growth at inflation rates below and beyond the threshold. These results are critical for designing monetary policy because they help policymakers establish an inflation target that is consistent with the nation's long-term objectives for sustained economic growth. Furthermore, the consumer price index and the currency rate impede Nigeria's economic progress. The results are consistent with those found by Rapettia et al. (2012), who looked into the topic and found that the correlation between RER and economic growth was more pronounced in less developed countries. Implications of categorizing nations in the sample as developed or developing according to the criteria used are discussed. Using alternative criteria for grouping countries and empirical methods to quantify the prevalence of differences, we find that the impact of currency value loss on growth is undoubtedly larger and more robust for emerging economies. Contrarily, RER undervaluation is negatively correlated with per capita GDP, but only in the world's richest and poorest nations. Similar to a puzzle, this void must be filled. The ECM has a high rate of adjustment both in the short and long terms, clocking in at 91%. Diagnostic tests that have yet to be completed are on show. For this thesis, we ran three different diagnostic tests to check for serial correlation, normalcy, and heteroskedasticity. This thesis confirms the null hypothesis of serial correlation with a p value of 0.4263, which is greater than 5% significant, suggesting that there is no serial correlation in the series. The residuals follow a normal distribution, as predicted by the normality test's null hypothesis ($p = 0.3643$). With a p value of 0.2727, the heteroskedasticity test concludes that the data set does not exhibit heteroskedasticity. The experiment shows that the blue line is constrained to the space delineated by the red line. In order to obtain an advantage, as seen in the graphic, we have opted to presume that residual variances are stable as opposed to unstable. So, we'll go ahead

and assume the null hypothesis is valid and rule out the alternative. On the other hand, contrary to what one might expect based on statistical analysis, the residual variance is holding steady. In my experience, this has held true time and time again. The null hypothesis of consistent coefficients may be rejected at a 5% level of significance if any of the lines are shown to be crossed. Data presented using CUSUM and CUSUMQ must meet the standard. Limitations as depicted in the image. The international tourist coefficient will remain stable as a result. Given the foregoing, it is crucial to design a research study with the goal of identifying the relationships between Nigeria's exchange rate, inflation, consumer price index, and economic growth.

Recommendations

This thesis is confirmed by a p value of 0.4263, which is higher than the 5% significance level and indicates that there is no serial association. According to the normality test, the residuals are distributed normally ($p = 0.3643$). The heteroskedasticity test determines that the data set does not exhibit heteroskedasticity, with a p value of 0.2727. As the experiment demonstrates, the blue line can only exist within the boundaries set by the red line. To our benefit, we have assumed that the residual variances are constant, as seen in the illustration. Because of this, we will proceed on the assumption that the null hypothesis is correct and dismiss the alternative. But contrary to what one might anticipate based on statistical analysis, the residual variance has been quite stable recently. This has been my experience time and again. At the 5% level of significance, the consistent coefficient null hypothesis can be rejected if any of the thresholds are demonstrated to have been surpassed. Any CUSUM or CUSUMQ output must adhere to the image's indicated constraints. As a consequence, there will be no change in the international tourist coefficient. In light of the preceding, it is urgent to conduct a study with the aim of determining the connections between the Naira/US dollar exchange rate, inflation, the Consumer Price Index, and economic growth in Nigeria.

References

- Adeniyi, A. P., & Olasunkanmi, A. O. (2019). Impact of exchange rate volatility on economic growth in Nigeria (1980-2016). *International Journal of Management Studies and Social Science Research*, 1(4), 6-14.
- Aghion, P., Bacchetta, P., Ranciere, R., & Rogoff, K. (2009). Exchange rate volatility and productivity growth: The role of financial development. *Journal of monetary economics*, 56(4), 494-513.
- Ahiabor, G., & Amoah, A. (2019). Examining the effect of real effective exchange rate volatility on economic growth: Evidence from Ghana. *Journal of Economics and Economic Education Research*, 20(1), 1-14.
- Ahmad, N., & Joyia, U. T. S. (2012). The relationship between inflation and economic growth in Pakistan: An econometric approach. *Asian Journal of research in business economics and management*, 2(9), 38-48.
- Ahmed, S., & Mortaza, G. (2005). Ahmed, M. S. (2010). An empirical study on inflation and economic growth in Bangladesh. *OIDA International Journal of Sustainable Development*, 2(3), 41-48.
- Aidis, R., & Mickiewicz, T. (2006). Entrepreneurs, expectations and business expansion: Lessons from Lithuania. *Europe-Asia Studies*, 58(6), 855-880.
- Akinbode, S. O., Fapetu, O., Olabisi, J., & Ojo, O. T. (2019). Impact Of Exchange Rate On Economic Growth In Nigeria (1981-2016): An Ardl Approach. *Contemporary Economy Journal*, 4(2), 158-171.
- Akonji, D. R., Olateju, A. O., & Abba, M. W. (2013). Nexus between public expenditure and economic growth by testing Wagner's law time series: Evidence from Nigeria. *International Journal of Development and Sustainability*, 2(4), 2383-2395.
- Akpan, U. F., & Akpan, G. E. (2012). The contribution of energy consumption to climate change: a feasible policy direction. *International Journal of Energy Economics and Policy*, 2(1), 21-33.
- Alagidede, P., & Ibrahim, M. (2016). Evidence from Ghana.
- Alexander, A. A., Andow, A. H., & Danpome, M. G. (2015). Analysis of the main determinants of inflation in Nigeria. *Research Journal of Finance and Accounting*, 6(2), 144-155.

- Aliyu, S. U. (2011). Oil price shocks and the macroeconomy of Nigeria: a non-linear approach. *Journal for International Business and Entrepreneurship Development*, 5(3), 179-198.
- Amassoma, D. (2016). The nexus between exchange rate variation and economic growth in Nigeria. *Journal of Entrepreneurship, Business and Economics*, 5(1), 1-40.
- Amassoma, D., & Ikechukwu, E. (2016). A reappraisal of the nexus between investment in human capital development and economic growth in Nigeria. *Journal of Entrepreneurship, Business and Economics*, 4(2), 59-93.
- Amjad, R., Irfan, M., & Arif, G. M. (2013). How to Increase Informal Flows of Remittances
- Andrés, J., & Hernando, I. (1997, July). Inflation and economic growth: some evidence for the OECD countries. In *Monetary Policy and the Inflation Process-BIS Conference Papers* (Vol. 4, pp. 364-383).
- Andrés, J., & Hernando, I. (1997, July). Inflation and economic growth: some evidence for the OECD countries. In *Monetary Policy and the Inflation Process-BIS Conference Papers* (Vol. 4, pp. 364-383).
- Asinya, F. A., & Takon, N. (2014). Exchange rate depreciation and government policy is Nigeria: An Empirical Evidence. *The Business & Management Review*, 4(3), 161.
- Ayyoub, M., Chaudhry, I. S., & Farooq, F. (2011). Does Inflation Affect Economic Growth? The case of Pakistan. *Pakistan Journal of Social Sciences (PJSS)*, 31(1).
- Azeez, B. A., Dada, S. O., & Aluko, O. A. (2014). Effect of international trade on Nigerian economic growth: The 21st century experience. *International Journal of Economics, Commerce and Management*, 2(10), 1-8
- Bakare, A. S. (2011). An empirical study of the determinants of money supply growth and its effects on inflation rate in Nigeria. *Journal of Research in International Business and Management*, 1(5), 124-129
- Barro, R. J. (1995). J., and Xavier Sala-I-Martin. *Economic growth*, 2.
- Bawa, S., & Abdullahi, I. S. (2012). Threshold effect of inflation on economic growth in Nigeria. *CBN Journal of Applied Statistics*, 3(1), 43-63.

- Blanchard, O. J., & Kiyotaki, N. (1987). Monopolistic competition and the effects of aggregate demand. *The American Economic Review*, 647-666
- Bleaney, M., & Greenaway, D. (2001). The impact of terms of trade and real exchange rate volatility on investment and growth in sub-Saharan Africa. *Journal of development Economics*, 65(2), 491-500.
- Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian economic papers*, 17(31), 334-355
- Busari, D. T. (2007). On the Determinants of Inflation in Nigeria.
- Cottani, J. A., Cavallo, D. F., & Khan, M. S. (1990). Real exchange rate behavior and economic performance in LDCs. *Economic Development and cultural change*, 39(1), 61-76.
- Danmola, R. A. (2013). The impact of exchange rate volatility on the macro economic variables in Nigeria. *European scientific journal*, 9(7).
- De Gregorio, J. (1993). Inflation, taxation, and long-run growth. *Journal of monetary economics*, 31(3), 271-298.
- Demir, F. (2013). Growth under exchange rate volatility: Does access to foreign or domestic equity markets matter?. *Journal of Development Economics*, 100(1), 74-88.
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American statistical association*, 74(366a), 427-431.
- Diouf, M. A. (2008). Modeling inflation for Mali.
- Doguwa, S. I. (2012). Inflation and economic growth in Nigeria: Detecting the threshold level. *CBN Journal of Applied Statistics (JAS)*, 3(2), 6.
- Dornbusch, R. (1996). The effectiveness of exchange-rate changes. *Oxford Review of Economic Policy*, 12(3), 26-38.
- Durmus-Pedini, A., and Ashuri, B., 2010, "An Overview of the Benefits and Risk Factors of Going Green in Existing Buildings", *International Journal of Facility Management*, Vol. 1, No. 1.
- Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: journal of the Econometric Society*, 251-276.

- Erbaykal, E., & Okuyan, H. A. (2008). Does inflation depress economic growth? Evidence from Turkey. *International Journal of Finance and Economics*, 13(17).
- Ezeanyej, C. I., & Ejefobihi, U. F. (2015). Inflation and economic growth in Nigeria: An impact analysis. *Wilolud Journals: Continental Journal of Social Sciences*, 8(1), 1-12.
- Fabayo, J. A., & Ajilore, O. T. (2006). Inflation: How much is too much for economic growth in Nigeria. *Indian Economic Review*, 129-147.
- Fahrettin, Y. A. Ğ. C. I. (2001). Choice Of Exchange Rate Regimes For Developing Countries. *The World Bank, Africa Region Working Paper Series*, (16).
- Fakiyesi, O. M. (1996). Further empirical analysis of inflation in Nigeria. *Economic and Financial Review*, 34(1), 2.
- Faria, J. R., & Carneiro, F. G. (2001). Does high inflation affect growth in the long and short run?. *Journal of applied economics*, 4(1), 89-105.
- Fatima, W., Shahid, A., Imran, M., Manzoor, J., Hasnain, S., Rana, S., & Mahmood, S. (2011). Leptin deficiency and leptin gene mutations in obese children from Pakistan. *International journal of pediatric obesity*, 6(5-6), 419-427.
- Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of monetary economics*, 32(3), 485-512.
- Frenkel, J. A. (1976). A monetary approach to the exchange rate: doctrinal aspects and empirical evidence. *Exchange rate economics*, 1, 147-171.
- Frimpong, J. M., & Oteng-Abayie, E. F. (2010). When is inflation harmful? Estimating the threshold effect for Ghana. *American journal of economics and business administration*, 2(3), 232-239.
- George, O., Shadare, S., & Owoyemi, O. (2012). Military intervention in the Nigerian politics. 'A time bomb' waiting to explode? The avowal of new management elites. *International Journal of Business, Humanities and Technology*, 2(5), 191-198.
- Geweke, J. (1982). Measurement of linear dependence and feedback between multiple time series. *Journal of the American statistical association*, 77(378), 304-313.
- Ghosh, A., & Phillips, S. (1998). Warning: Inflation may be harmful to your growth. *Staff Papers*, 45(4), 672-710.

- Gokal, V., & Hanif, S. (2004). *Relationship between inflation and economic growth* (Vol. 4). Suva: Economics Department, Reserve Bank of Fiji.
- Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: journal of the Econometric Society*, 424-438.
- Gujarati, D. N., & Porter, D. (2009). *Basic Econometrics* Mc Graw-Hill International Edition.
- Gultekin, N. B. (1983). Stock market returns and inflation: evidence from other countries. *the Journal of Finance*, 38(1), 49-65.
- Hamilton, J. D. (1994). State-space models. *Handbook of econometrics*, 4, 3039-3080
- Hansen, B. E. (2000). Sample splitting and threshold estimation. *Econometrica*, 68(3), 575-603.
- Haug, A. A. (2002). Temporal aggregation and the power of cointegration tests: A Monte Carlo study. *Available at SSRN 334965*.
- Humbatova, S. I., Garayev, A. I. O., Tanriverdiev, S. M. O., & Hajiyev, N. G. O. (2019). Analysis of the oil, price and currency factor of economic growth in Azerbaijan. *Entrepreneurship and Sustainability Issues*, 6(3), 1335.
- Humphrey, T. M., & Lawler, T. (1977). Factors determining exchange rates: a simple model and empirical tests. *FRB Richmond Economic Review*, 63(3), 10-15.
- Ilyas, M., Sabir, H. M., Shehzadi, A., & Shoukat, N. (2014). Inter-relationship among economic growth, savings and inflation in Pakistan. *Journal of Finance and Economics*, 2(4), 125-130.
- Imimole, B., & Enoma, A. (2011). Exchange rate depreciation and inflation in Nigeria (1986–2008). *Business and Economics Journal*, 28(1), 1-11.
- Inflation and economic growth in Bangladesh. *Policy Analysis Unit Working Paper Series: WP, 604*.
- Inyama, O. I. (2013). Does inflation weaken economic growth? Evidence from Nigeria. *European Journal of Accounting Auditing and Finance Research*, 1(4), 139-150.
- Iqbal, N., & Nawaz, S. (2009). Investment, inflation and economic growth nexus. *The Pakistan Development Review*, 863-874.

- Ismaila, M. (2016). Exchange rate depreciation and Nigeria economic performance after Structural Adjustment Programmes (SAPs). *NG-Journal of Social Development*, 5(2), 122-132.
- Jan Myhammad, M., Altaf Ahmed, T., Roshan Ali, S., Abdul Razaque, Q., Syed Qaiser Hussain, N., & Anwar Ali, A. (2007). < An> audit of peripheral lymphadenopathy
- Javed, Z., & Farooq, M. (2009). Economic growth and exchange rate volatility in the case of Pakistan. *Pakistan Journal of life and social sciences*, 7(2), 112-118.
- Jawaid, S. T., & Raza, S. A. (2013). Effects of terms of trade on growth performance of India. *Economic Modelling*, 33, 940-946.
- Jin (2008): "oil price volatility", *International research journal of finance and economics*, pg 38 – 47
- Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of economic dynamics and control*, 12(2-3), 231-254.
- Johansen, S., & Juselius, K. (1989). *The full information maximum likelihood procedure for inference on cointegration-with applications* (No. 89-11).
- Kasman, A., & Kasman, S. (2005). Exchange rate uncertainty in Turkey and its impact on export volume.
- Khan, A. A., Ahmed, Q. M., & Hyder, K. (2007). Determinants of recent inflation in Pakistan.
- Khan, A. H., Qasim, M. A., & Ahmad, E. (1996). Inflation in Pakistan revisited [with comments]. *The Pakistan Development Review*, 35(4), 747-759.
- Khan, M. S. and Senhadji, S. A. (2001) "Threshold Effects in the Relationship between Inflation and Growth, IMF Staff Papers, 48(1).
- Khondker, M., Alfasane, M. A., Gani, M. A., & Islam, M. S. (2012). Limnological notes on Ramsagar, Dinajpur, Bangladesh. *Bangladesh Journal of Botany*, 41(1), 119-121.
- Kormendi, R. C., & Meguire, P. G. (1985). Macroeconomic determinants of growth: cross-country evidence. *Journal of Monetary economics*, 16(2), 141-163.
- Kuijs, L. (1998). *Determinants of inflation, exchange rate, and output in Nigeria*. International Monetary Fund.

- Leheyda, N. (2005). „„Determinants of Inflation in Ukraine: A Cointegration Approach.““ Center for Doctoral Studies in Economics and Management (CDSEM). *University of Mennheim, Mennheim, Ukraine*.
- Levine, R., & Zervos, S. J. (1993). What we have learned about policy and growth from cross-country regressions?. *The American Economic Review*, 83(2), 426-430.
- MacCallum, R. C., & Mar, C. M. (1995). Distinguishing between moderator and quadratic effects in multiple regression. *Psychological Bulletin*, 118(3), 405.
- Mallik, G., & Chowdhury, A. (2001). Inflation and economic growth: evidence from four south Asian countries. *Asia-Pacific Development Journal*, 8(1), 123-135
- Mame A. D. 2007. Modeling inflation for Mali. International Monetary Fund WP/07/295 www.imf.org/external/pubs/ft/wp/2007/wp07295.pdf
- Marbuah, G. (2010). On the inflation-growth nexus: Testing for optimal inflation for Ghana. *Journal of Monetary and Economic Integration*, 11(2), 71-72.
- Markiewicz, A. (2006). Choice of exchange rate regime in transition economies: An empirical analysis. *Journal of Comparative Economics*, 34(3), 484-498.
- Masha, I. (2007). New perspectives on inflation in Nigeria. *Economic and Financial Review*, 38(2), 3.
- McKinnon, R. I. (1963). Optimum currency areas. *The American economic review*, 53(4), 717-725.
- McLellan, J. S., Pancera, M., Carrico, C., Gorman, J., Julien, J. P., Khayat, R., ... & Kwong, P. D. (2011). Structure of HIV-1 gp120 V1/V2 domain with broadly neutralizing antibody PG9. *Nature*, 480(7377), 336-343.
- Metwally, M. M., & Al-Sowaidi, S. (2004). The main determinants of inflation in Egypt. *MIDDLE EAST BUSINESS AND ECONOMIC REVIEW*, 16(1), 30-38
- Mohanty, M. S., & Klau, M. (2005). Monetary policy rules in emerging market economies: issues and evidence. In *Monetary policy and macroeconomic stabilization in Latin America* (pp. 205-245). Springer, Berlin, Heidelberg.
- Mordi, C. N. (2006). Challenges of exchange rate volatility in economic management in Nigeria.
- Moser, G. G. (1995). The main determinants of inflation in Nigeria. *Staff Papers*, 42(2), 270-289

- Mubarik, Y. A., & Riazuddin, R. (2005). *Inflation and growth: An estimate of the threshold level of inflation in Pakistan*. Karachi: State Bank of Pakistan.
- Muftau, O., Iyoboyi, M., & Ademola, A. S. (2014). An empirical analysis of the relationship between CO2 emission and economic growth in West Africa. *American Journal of Economics*, 4(1), 1-17.
- Mundell, R. (1961). Flexible exchange rates and employment policy. *Canadian Journal of Economics and Political Science/Revue canadienne de economiques et science politique*, 27(4), 509-517.
- Musyoki, D., Pundo, M., & Pokhariyal, G. P. (2012). Real exchange rate volatility in Kenya. *Journal of Emerging Trends in Economics and Management Sciences*, 3(2), 117-122.
- Narayan, P. K., & Smyth, R. (2005). The residential demand for electricity in Australia: an application of the bounds testing approach to cointegration. *Energy policy*, 33(4), 467-474.
- Nwosu, N. C. I. (2016). *Impact of exchange rate volatility on economic growth in Nigeria. A P. hD* (Doctoral dissertation, Dissertation Submitted to the Department of Banking and Finance, Faculty of Business Administration, University of Nigeria).
- Obansa, S. A. J., Okoroafor, O. K. D., & Aluko, O. O. (1970). Millicent Eze (2013) Percieved Relationship Between Exchange Rate. *Interest Rate And Economic Growth In Nigeria, 2010*.
- Obi, K. O., Oniore, J. O., & Nnadi, K. U. (2016). The impact of exchange rate regimes on economic growth in Nigeria. *Journal of Economics and Sustainable Development*, 7(12), 115-127.
- Obstfeld, M., & Rogoff, K. (1995). The mirage of fixed exchange rates. *Journal of Economic perspectives*, 9(4), 73-96.
- Odili, O. (2015). Real exchange rate volatility, economic growth and international trade in an emerging market economy: Evidence from Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 5(7), 17-201.
- Odusanya, I. A., & Atanda, A. A. (2010). Analysis of inflation and its determinants in Nigeria.
- Odusola, A., & Akinlo, A. (2001). Output, inflation, and exchange rate in developing countries: An application to Nigeria. *The Developing Economies*

- Okorontah, C. F., & Odoemena, I. U. (2016). Effects of exchange rate fluctuations on economic growth of Nigeria. *International Journal of Innovative Finance and Economics Research*, 4(2), 1-7.
- Omoke, J. M. (2010). *The relationship between capital market development and economic growth in Kenya* (Doctoral dissertation, University of Nairobi, Kenya).
- Onwioduokit, E. A., & ACCRA, G. (2002). Current World Financial Crisis: Lessons to be Learnt. In *Seminar on Corporate Governance and International Financial Standards*.
- Osuala, A. E., Osuala, K. I., & Onyeike, S. C. (2013). Impact of inflation on economic growth in Nigeria—A causality test. *Journal of Research in National Development*, 11(1), 206-216.
- Oyovwi, O. D. (2012). Exchange rate volatility and imports in Nigeria. *Academic Journal of Interdisciplinary Studies*, 1(2), 103-103.
- Ozturk, I., & Acaravci, A. (2010). The causal relationship between energy consumption and GDP in Albania, Bulgaria, Hungary and Romania: Evidence from ARDL bound testing approach. *Applied Energy*, 87(6), 1938-1943.
- Ozurumba, B. A. (2012). Fiscal deficits and inflation in Nigeria. *Journal of Research in National Development*, 10(3), 357-368.
- Paul, S., Kearney, C., & Chowdhury, K. (1997). Inflation and economic growth: a multi-country empirical analysis. *Applied Economics*, 29(10), 1387-1401
- Pesaran, M. H., & Shin, Y. (1995). An autoregressive distributed lag modelling approach to cointegration analysis.
- Pitcher, M. A. (2018). Entrepreneurial governance and the expansion of public investment funds in Africa. In *Africa in World Politics* (pp. 45-68). Routledge.
- Quartey, P. (2010). Price stability and the growth maximizing rate of inflation for Ghana. *Modern Economy*, 1(03), 180.
- Raza, S. A., Jawaid, S. T., & Shafqat, J. (2013). Profitability of the banking sector of Pakistan: Panel evidence from bank-specific, industry-specific and macroeconomic determinants.
- Razmi, A., Rapetti, M., & Skott, P. (2012). The real exchange rate and economic development. *Structural Change and Economic Dynamics*, 23(2), 151-169.

- Saaed, A. A. (2007). Inflation and economic growth in Kuwait: 1985-2005-Evidence from co-integration and error correction model. *Applied Econometrics and International Development*, 7(1).
- Sabina, N. E., Manyo, T. S., & Ugochukwu, U. S. (2017). Modeling exchange rate volatility and economic growth in Nigeria. *Noble International Journal of Economics and Financial Research*, 2(6), 88-97.
- Sala-i-Martin, X. (1997). Transfers, social safety nets, and economic growth. *Staff Papers*, 44, 81-102.
- Saliminezhad, A., & Lisaniler, F. G. (2018). Validity of unbalanced growth theory and sectoral investment priorities in Indonesia: Application of feature ranking methods. *The Journal of International Trade & Economic Development*, 27(5), 521-540.
- Sarel, M. (1996). Nonlinear effects of inflation on economic growth. *Staff Papers*, 43(1), 199-215.
- Schnabl, G. (2009). Exchange rate volatility and growth in emerging Europe and East Asia. *Open Economies Review*, 20(4), 565-587.
- Sidrauski, M. (1967). Inflation and economic growth. *Journal of political economy*, 75(6), 796-810.
- Singh, A., Baoule, A. L., Ahmed, H. G., Dikko, A. U., Aliyu, U., Sokoto, M. B., ... & Haliru, B. (2011). Influence of phosphorus on the performance of cowpea (*Vigna unguiculata* (L) Walp.) varieties in the Sudan savanna of Nigeria. *Agricultural Sciences*, 2(03), 313.
- Sohail, N., & Hussain, Z. (2009). Long-run and short-run relationship between macroeconomic variables and stock prices in Pakistan: The case of Lahore Stock Exchange. *Pakistan Economic and Social Review*, 183-198.
- Stockman, A. C. (1981). Anticipated inflation and the capital stock in a cash in-advance economy. *journal of Monetary Economics*, 8(3), 387-393.
- Sweidan, O. D. (2004). Does inflation harm economic growth in Jordan? An econometric analysis for the period 1970-2000. *International Journal of Applied Econometrics and Quantitative Studies*, 1(2), 41-66.
- Tobin, J. (1965). Money and economic growth. *Econometrica: Journal of the Econometric Society*, 671-684.

- Udoh, E. J., Akpan, S. B., John, D. E., & Patrick, I. V. (2012). Cointegration between exchange rate volatility and key macroeconomic fundamentals: evidence from Nigeria.
- Umaru, A., & Zubairu, A. A. (2012). Effect of inflation on the growth and development of the Nigerian economy (An empirical analysis). *International Journal of Business and Social Science*, 3(10).
- Umaru, A., Hamidu, A., & Musa, S. (2013). Globalization and its impact on the performance of the Nigerian economy. *Interdisciplinary Journal of Research in Business*, 2(8), 1-16.
- Umaru, H., Aguda, N. A., & Davies, N. O. (2018). The effects of exchange rate volatility on economic growth of West African English-speaking countries. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 8(4), 131-143.
- Uniamikogbo, S. O., & Ewanehi, S. (1998). Agricultural Sector's Performance in a deregulated Economy: The case of Nigeria. *The Nigerian Journal of Economic and Management Studies*, 3(1-2), 6.
- Wang, H., Iglesias, E. M., & Wooldridge, J. M. (2013). Partial maximum likelihood estimation of spatial probit models. *Journal of Econometrics*, 172(1), 77-89.
- Wooldridge, J. M. (2013). Correlated random effects panel data models. *IZA Summer School in Labor Economics* (http://www.iza.org/conference_files/SUMS_2013/viewProgram).
- Yildiz, H., Ide, G., & Malik, S. (2016). The relationship between exchange rate volatility and economic growth: An example of Turkey. *Yıldız, H., Ide, G., & Malik, ST (2016). The Relationship between Exchange Rate Volatility and Economic Growth: An Example of Turkey. International Journal of Arts and Commerce*, 47-61.

Appendix

UNIT ROOT TEST

Date: 12/12/22 Time: 14:57

Sample: 1 41

	GDP	CPI	INF	REER
Mean	3.055069	65.83999	18.77879	151.3957
Median	4.195924	29.60073	12.55496	100.5760
Maximum	15.32916	302.9462	72.83550	536.8903
Minimum	-13.12788	0.405056	5.388008	49.74471
Std. Dev.	5.387712	81.20331	16.71584	117.7697
Skewness	-0.825581	1.387797	1.862501	1.784395
Kurtosis	4.621278	4.031432	5.313499	5.414266
Jarque-Bera	9.147918	14.97828	32.84770	31.71512
Probability	0.010317	0.000559	0.000000	0.000000
Sum	125.2578	2699.440	769.9303	6207.224
Sum Sq. Dev.	1161.097	263759.1	11176.77	554788.1
Observations	41	41	41	41

GDP

Null Hypothesis: GDP has a unit root

Exogenous: Constant

Lag Length: 6 (Automatic - based on AIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.520331	0.1197
Test critical values:		
1% level	-3.639407	
5% level	-2.951125	
10% level	-2.614300	

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

Null Hypothesis: D(GDP) has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on AIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.500440	0.0010
Test critical values:		
1% level	-3.626784	
5% level	-2.945842	
10% level	-2.611531	

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

INF

Null Hypothesis: INF has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	-3.044761	0.0392
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

CPI

Null Hypothesis: CPI has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	-0.912345	0.7740
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

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

Null Hypothesis: D(CPI) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	-4.739902	0.0004
Test critical values: 1% level	-3.610453	
5% level	-2.938987	
10% level	-2.607932	

REER

Null Hypothesis: REER has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	-1.943375	0.3098
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

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

Null Hypothesis: D(REER) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	-4.366347	0.0013
Test critical values: 1% level	-3.610453	
5% level	-2.938987	
10% level	-2.607932	

PP UNIT ROOT

Null Hypothesis: GDP has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 1 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=5)

	Adj. t-Stat	Prob.*
<u>Phillips-Perron test statistic</u>	-3.152712	0.1086
Test critical values: 1% level	-4.205004	
5% level	-3.526609	
10% level	-3.194611	

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

Null Hypothesis: D(GDP) has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 3 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=5)

	Adj. t-Stat	Prob.*
<u>Phillips-Perron test statistic</u>	-10.72851	0.0000
Test critical values: 1% level	-4.211868	
5% level	-3.529758	
10% level	-3.196411	

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

Null Hypothesis: INF has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 1 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=9)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.046897	0.0149
Test critical values:		
1% level	-4.205004	
5% level	-3.526609	
10% level	-3.194611	

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

Null Hypothesis: REER has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 1 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=9)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.275128	0.0851
Test critical values:		
1% level	-4.205004	
5% level	-3.526609	
10% level	-3.194611	

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

Null Hypothesis: D(REER) has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 8 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=9)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-10.66734	0.0000
Test critical values:		
1% level	-4.211868	
5% level	-3.529758	
10% level	-3.196411	

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

Null Hypothesis: LOGCPI has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 2 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=9)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-0.816690	0.9554
Test critical values:		
1% level	-4.205004	
5% level	-3.526609	
10% level	-3.194611	

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

Null Hypothesis: D(LOGCPI) has a unit root
 Exogenous: Constant, Linear Trend
 Lag length: 9 (Spectral OLS AR based on t-statistic, lagpval=0.1, maxlag=9)

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.973507	0.0180
Test critical values:		
1% level	-4.211868	
5% level	-3.529758	
10% level	-3.196411	

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

Appendix 2

ARDL BOUND TEST

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.95197	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Asymptotic: n=1000

Appendix 3 ARDL LONG

ARDL Long Run Form and Bounds Test
 Dependent Variable: D(GDP)
 Selected Model: ARDL(1, 0, 0, 4)
 Case 2: Restricted Constant and No Trend
 Date: 11/25/22 Time: 16:39
 Sample: 1 41
 Included observations: 37

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.173528	2.412213	3.802951	0.0007
GDP(-1)*	-0.910815	0.155050	-5.874332	0.0000
CPI**	-0.020111	0.007436	-2.704530	0.0115
INF**	-0.152613	0.039625	-3.851425	0.0006
REER(-1)	-0.008271	0.008017	-1.031754	0.3110
D(REER)	0.006916	0.010992	0.629190	0.5343
D(REER(-1))	-0.004587	0.010262	-0.446966	0.6583
D(REER(-2))	-0.005269	0.009484	-0.555534	0.5829
D(REER(-3))	-0.024100	0.008714	-2.765591	0.0099

* p-value incompatible with t-Bounds distribution.

** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation
 Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-0.022081	0.007773	-2.840846	0.0083
INF	-0.167557	0.039693	-4.221306	0.0002
REER	-0.009081	0.007889	-1.151070	0.2594
C	10.07178	1.759211	5.725171	0.0000

EC = GDP - (-0.0221*CPI -0.1676*INF -0.0091*REER + 10.0718)

APPENDIX 4 SHORT-RUN ARDL TEST

ARDL Error Correction Regression
 Dependent Variable: D(GDP)
 Selected Model: ARDL(1, 0, 0, 4)
 Case 2: Restricted Constant and No Trend
 Date: 11/25/22 Time: 16:43
 Sample: 1 41
 Included observations: 37

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REER)	0.006916	0.007933	0.871816	0.3907
D(REER(-1))	-0.004587	0.008281	-0.553878	0.5841
D(REER(-2))	-0.005269	0.008436	-0.624549	0.5373
D(REER(-3))	-0.024100	0.007748	-3.110715	0.0043
CointEq(-1)*	-0.910815	0.115134	-7.910921	0.0000

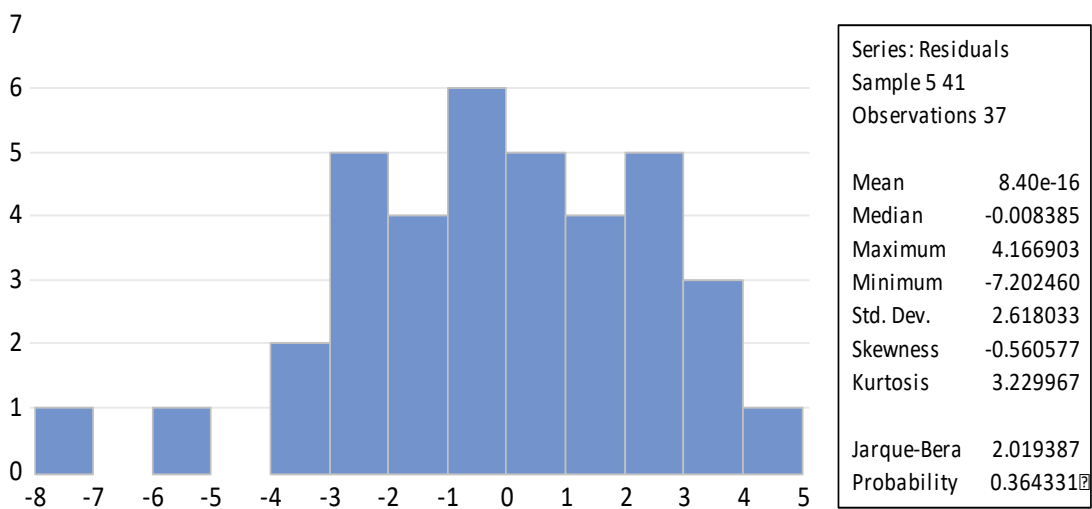
Dependent Variable: GDP
 Method: ARDL
 Date: 11/25/22 Time: 16:54
 Sample (adjusted): 5 41
 Included observations: 37 after adjustments
 Maximum dependent lags: 4 (Automatic selection)
 Model selection method: Akaike info criterion (AIC)
 Dynamic regressors (4 lags, automatic): CPI INF REER
 Fixed regressors: C
 Number of models evaluated: 500
 Selected Model: ARDL(1, 0, 0, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	0.089185	0.155050	0.575203	0.5697
CPI	-0.020111	0.007436	-2.704530	0.0115
INF	-0.152613	0.039625	-3.851425	0.0006
REER	0.006916	0.010992	0.629190	0.5343
REER(-1)	-0.019774	0.014990	-1.319154	0.1978
REER(-2)	-0.000682	0.016141	-0.042254	0.9666
REER(-3)	-0.018832	0.014344	-1.312804	0.1999
REER(-4)	0.024100	0.008714	2.765591	0.0099
C	9.173528	2.412213	3.802951	0.0007

Appendix 5 RESIDUAL DIAGNOSTICS TEST RESULT

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

F-statistic	0.628017	Prob. F(2,26)	0.5416
Obs*R-squared	1.705063	Prob. Chi-Square(2)	0.4263



APPENDIX 6 HETEROSKEDASTICITY TEST

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	1.277129	Prob. F(8,28)	0.2947
Obs*R-squared	9.891665	Prob. Chi-Square(8)	0.2727
Scaled explained SS	6.316121	Prob. Chi-Square(8)	0.6119

APPENDIX 7 PAIRWISE GRANGER CAUSALITY TEST

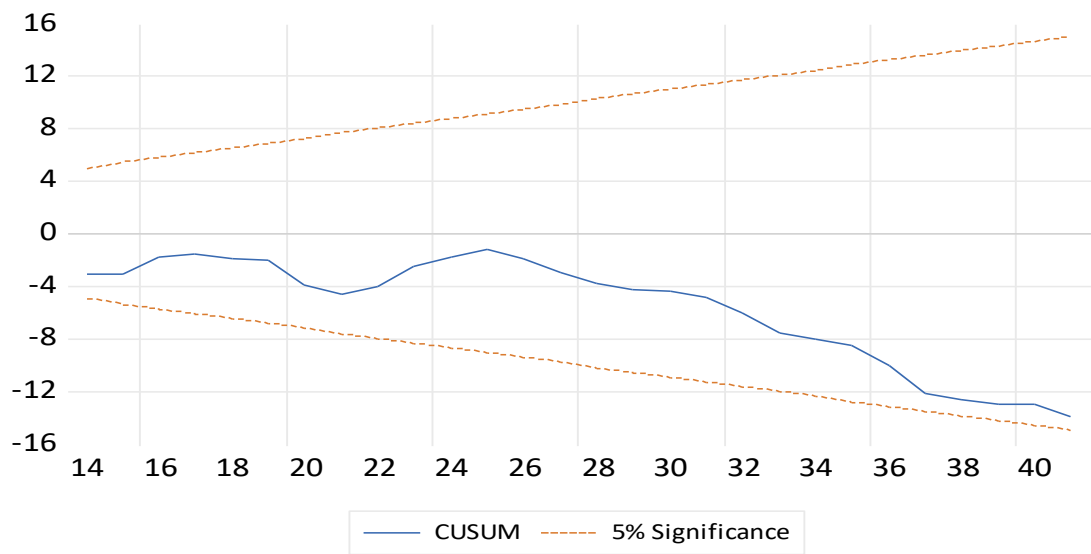
Pairwise Granger Causality Tests

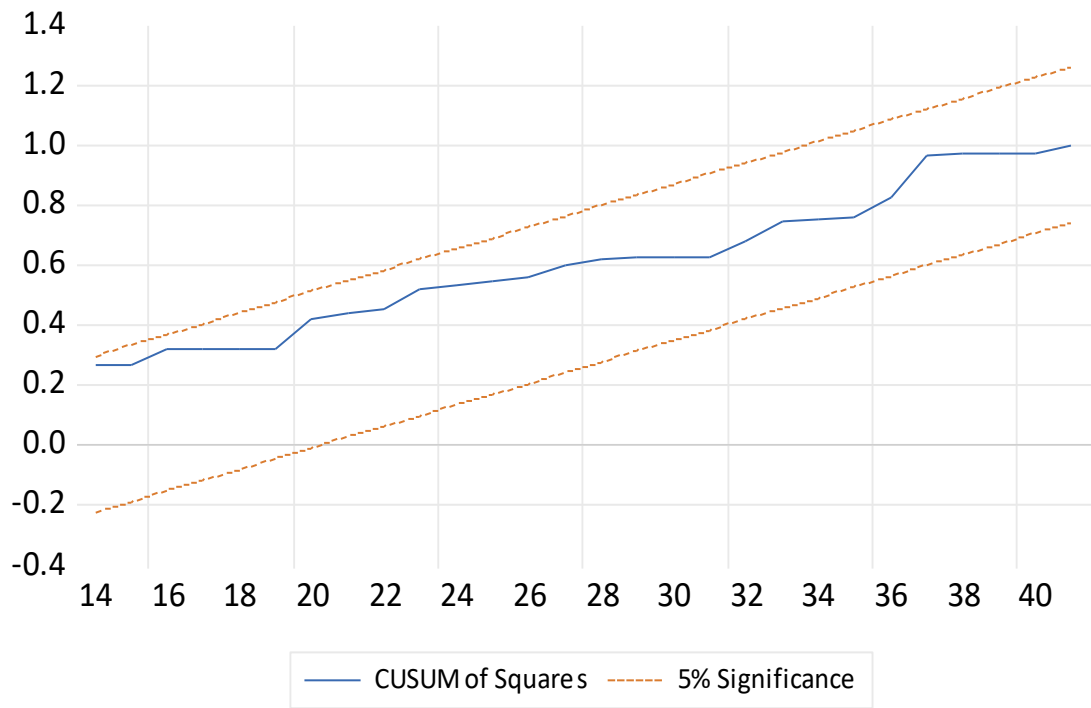
Date: 12/12/22 Time: 15:03

Sample: 1 41

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CPI does not Granger Cause GDP	39	0.85879	0.4327
GDP does not Granger Cause CPI		0.36366	0.6978
INF does not Granger Cause GDP	39	0.17806	0.8377
GDP does not Granger Cause INF		0.32492	0.7248
REER does not Granger Cause GDP	39	0.00115	0.9989
GDP does not Granger Cause REER		10.7888	0.0002
INF does not Granger Cause CPI	39	1.02032	0.3713
CPI does not Granger Cause INF		0.85915	0.4325
REER does not Granger Cause CPI	39	0.15943	0.8533
CPI does not Granger Cause REER		0.21467	0.8079
REER does not Granger Cause INF	39	1.99752	0.1513
INF does not Granger Cause REER		0.45825	0.6362

APPENDIX 8 CUSUM TEST

APPENDIX 9 CUSUM of SQUARES

Turnitin Report

APPENDIX 10 TURNITIN REPORT

GLADYS_YANNALA KPANGBALA

Similarity Report

12% SIMILARITY INDEX
9% INTERNET SOURCE
7% PUBLICATIONS
6% STUDENT PAPERS

Match sources

1	www.ista.org Internet Source	1%
2	Submitted to Yakin Doğu Üniversitesi Student Paper	1%
3	www.pressacademia.org Internet Source	1%
4	www.rsvic.rs Internet Source	<1%
5	www.britannica.com Internet Source	<1%
6	mpra.ub.uni-muenchen.de Internet Source	<1%
7	Submitted to Higher Education Commission Pakistan Student Paper	<1%
8	"Beyond Traditional Probabilistic Methods in Economics", Springer Science and Business Media LLC, 2019 Publication	<1%