

Capital Flight, Institutional Qualities and Economic Growth in Nigeria

John Adejare ALABI
LCU/PG/001589

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Certification

This is to certify that John Adejare ALABI with matriculation number LCU/PG/001589 carried out this research work titled „Capital Flight, Institutions and Economic Growth in Nigeria“ in the Department of Economics and Development Studies, Faculty of Management and Social Sciences, Lead City University, Ibadan, Oyo State, Nigeria for the award of Doctor of Philosophy (Ph.D) in Economics, under my supervision and that this has not been previously submitted.

Dr. O.O Adesina
(Supervisor)

Date

Dr. O.O Ogunjinmi
(Head of Department)

Date

Dedication

This research work is dedicated to God Almighty, to my parents, late Chief A.A Alabi and Mrs. S.A Alabi, my wife, Mrs. A.K Alabi and my children; Fikayomi, Fadekemi, Feyikemi and Folawe.

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Abstract

Nigeria is seen as a country where the issue of illicit capital flight and emigration of professionals threatens the growth and development of the country, as a result of weak institutional qualities. With these, the growth prospects of the economy are hindered. The objective of the study is to analyze the relationship among capital flight, institutional qualities and economic growth in Nigeria, between 1986-2022. The study relied on annual secondary data, sourced from the World Bank Development Indicator, (2022), Central Bank of Nigeria Statistical Bulletin (2022) and Annual Abstracts of Statistics, and Bureau of Statistics (2022). Descriptive Statistics, such as graphs were employed to examine the trend of the variables employed. Autoregressive Distributed Lag (ARDL) was employed to examine the combined effects of capital flight and institutional qualities on economic growth. The trend analysis showed upward and downward trends. The findings from the study suggest that capital flight contributed to the decline in economic growth, when there are weak institutional qualities, during the study period. The unit root test revealed the stationarity properties at level, while others are at first difference. The cointegration test revealed that long-run relationship existed among the variables, and it has negative impacts on economic growth. The study concluded that capital flight have negative effect on economic growth in Nigeria, due to weak institutional qualities. The study therefore recommended that government should create policies and programmes that retain and attract skilled individuals, as they are valuable assets for nation-building. Monitoring trends in physical capital flight is essential in order to reduce capital flight and promote economic growth. Also, institutional qualities need to be studied, so as to identify areas in need of reform and guide efforts to strengthen the institutions.

Keywords: Physical Capital flight, Human Capital Flight, Institutions, Economic growth, Capital scarcity problem, Nigeria

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	Acronyms		

Abbreviation		Meaning
BR	-	Bureaucratic Regulation
CAB	-	Current Account Balance
CC	-	Control of Corruption
CFH	-	Human Capital Flight
CFP	-	Physical Capital Flight
DA	-	Democratic Accountability
FDI	-	Foreign Direct Investment
G	-	Economics Growth
GDP	-	Gross Domestic Product

GS	-	Government Stability
H	-	Human Capital
I	-	Investment in Human Capital
IFF	-	Illicit Financial Flows
IRF	-	Impulse Response Function
K	-	Capital
LO	-	Law and Order
SAP	-	Structural Adjustment Programme
Q	-	Institutional Qualities
RGDP	-	Real Gross Domestic Product

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Chapter One

Introduction

1.1 Background to the Study

Personal and professional growth can often lead to life that people value and desire. Whether its personal development, career advancement or skill improvement, growth can provide a sense of fulfillment and achievement¹. Economic growth does play a crucial role in facilitating growth in social terms. When an economy grows, it can provide resources for infrastructure development. This, in turn, can lead to better access to education, healthcare and other essential services, as well as reduced poverty and increased overall well-being for a society¹. It's important to ensure that economic growth is sustainable and equitable to benefit all segments of the population¹. It is an increase in the capacity of an economy to produce goods and services within a specific period of time and this growth vary among different sectors of the economy, implying growth in the production of goods and services, over a defined period of time.¹Gross domestic product (GDP) measures the total market value of all final goods and services, produced within a country, over a specific period of time. It is a critical indicator of how healthy an economy is, leading ultimately to higher employment rates, improved living standards, capital formation and increased investment². It is influenced by technological advancement, increase in productivity, investment in capital, improvements in infrastructure, and government policies that promotes innovation and entrepreneurship³.

The rate of technological growth is dependent on the rate of savings and investment^{4,5,6,7,8}. More workers generate more economic goods and services and vice versa. Workers become more motivated and accomplished when their productivity is raised through acquisition of skills and training. Most economies today have recorded tremendous success at reducing poverty, and unemployment as a result of strong economic growth. This growth is not sustained, if the benefits flow to a few privilege elites and not evenly distributed. Sustained

growth is usually achieved when the benefits are evenly distributed. Growth can best be described as a process of positive transformation of the various sectors of the economy. In economies where economic growth is persistent, many positives are recorded, more jobs are created, income and wealth are increased, and capital formation is enhanced, consumers' purchasing power increases, and there is decrease in poverty rate and these drives higher growth. For these, all countries desires positive economic growth and this makes economic growth, the most important economic indicator.

Between 1986 and 2022, Nigeria's population experienced significant growth, increasing from around 90 million to over 210 million people. In terms of GDP growth rate, Nigeria witnessed fluctuations but generally maintained positive growth, with some periods of rapid expansion and others of slower growth due to various economic factors and policies. Capital plays a huge role in the economy, as resource mobilization is needed for investment and economic growth. Capital is considered an essential ingredient for the production of output, leading ultimately to growth. Unfortunately, a sizeable amount of capital, required for growth in the form of human and funds has been taken out of the production system, which can be termed as capital flight. The stunted growth experienced in Nigeria is as a result of movement of capital away from the country to a more developed and industrialized economies.

Capital flight is seen as a particularly serious and important concern for developing countries, Nigeria inclusive. This is because, it adds to the prevalent capital scarcity problem. It also restricts the ability and the capacity of the affected economies to mobilize domestic resources necessary to finance economic growth. Consequently, capital flight contributes to the retardation of the economy⁹. Regardless of growth status, capital flight poses a danger of immense measure to the growth of national economies. This denied the country of the desired financial and human resources, necessary to finance growth. West African countries, of which Nigeria is one, are

regarded as a capital scarce sub-region⁹. The loss of the scarce capital will be detrimental to the prospects of sustained growth. Also, low levels of human capital, with particular reference to skill deficiency, are detrimental to investment and growth in Nigeria. Progress in overcoming this menace of shortages in skilled and trained manpower seems to be disappointingly slow, in spite of substantial efforts and resources devoted to it by successive governments, through her agencies. This has made a large number of skilled and professional manpower migrate to other markets, basically in search of better qualities of life. People with skills move to developed and industrialized countries where returns to their human capital seems to be comparatively higher¹⁰. Nigeria is blessed and endowed with different and varying resources, human capital resources inclusive. These resources contribute immensely to the growth and the development of the nation. Highly educated citizens would rather travel abroad, as a result of little or no incentives for them in the domestic economy. Even those who were sponsored abroad for further studies will not return home, unlike in the post-independence days, when citizens studying abroad, were patriotic enough to return home to contribute their quota to the development of their home country. These days, they chose not to return, as a result of political instability and insecurity, among others and instead, look for „greener pastures“¹¹. These become a concern for the academic world and research becomes more worrisome and complicated. Political instability, insecurity and poor governance deters investment and induces capital flight to a very great extent^{12,13,14,15,16}. If continued is considered a serious problem. This is, because most highly skilled professionals leave the home country and contribute their expertise to the economy of the other countries, at the expense of the home country. The home country suffers economic hardships, as a result of their action and those that remain may not have the required expertise to make the expected difference. This occurs from developing countries to the developed and more industrialized countries, in most cases¹⁷.

Capital flight can be reduced to the minimum level when there are strong institutional qualities. Institution does strongly affect the economic growth of countries¹². Institutions determine the volume of interactions, the benefits from economic exchange and the form which they can take. Institutions conducive to economic growth reduce the costs of economic activity, improve the living standards and encourage trust by providing policing and justice systems in an egalitarian society. This spurs economic growth significantly. However, the level of awareness of the illicit financial flows and migration of its skilled professionals has been on the high in Nigeria and most of the West African countries. It continues due to weak political will, the bane of the Nigerian polity, lack of proper legislation, safe havens of and for their resources, corruption, and weak human and institutional capacities. The nature of a country's institution shapes the growth of the economy and the flow of benefits¹².

Institutional qualities can be described as the degree of code of conduct, represented by the system and accepted as its binding force in a social-economic context. When the qualities of the institution are high, the compliance degree of people to the system will be high. There shall be less of the uncertainty of the transaction consequences and the more stable the expectation of the transaction subject. It is believed that the qualities of the political and legal system will affect investors' expectation of future returns and capital flight¹³. Judicial system of high qualities ensures the effective implementation of legislation from the level of law enforcement. Sound judicial system provides a reliable guarantee for the efficiency, equity and fairness of law enforcement. A judicial system with credibility also provides incentives for economic exchange¹³.

Improving the qualities of institutions tends to reduce to a great extent the harmful effect of capital flight, on economic growth. Reviewed literatures revealed that capital flight results, among others from political corruption. Controlling the menace of corruption, a cankerworm that

has eaten so deep into the fabrics of the activities of governance, makes it impossible to tackle the problem at source. For law and order, it plays an important role to sanction the activities that generate these illicit funds and ensure control over the capital that leaves. Government stability is very important. This is a government that achieves its blueprint. This reassures the investors and the prospective investors, knowing that the government works to improve and provide adequate infrastructural facilities. Capital flight is a major concern for countries where institutional qualities is seriously deficient. The role of institutional qualities is emphasized in the literatures reviewed. The qualities of institution are essential in the provision of an enabling environment for prosperity¹³. The main impediment is the uncertainty and manipulation of the judiciary, in order to guarantee sustainable growth.

1.2 Statement of the Problem

Many authors had worked on how physical capital flight affected economic growth, yet evidence is lacking on the effect of human capital flight. Majority of the studies looked at political risk, while neglecting other qualities of institutions that drives capital flight for economic growth. There are divergent opinions on the effect of capital flight on economic growth. Empirical studies suggest that the effect of capital flight on economic growth is negative. Others opined that the effect is positive, while others concluded that the effect is context specific. The opinion of some reviewed literatures was that the effect of capital flight is not necessarily negative, but its dependent on some factors, such as scale of outflows and political risk^{18,19}. Government has over the years expended expenditures and energy to improve on the qualities of the institution. Capital flight persisted, leading to asking whether the qualities of institutions need to get to a level before it can yield its benefits, to stemming the tide of capital flight to promote economic growth, hence its threshold. As the government is working to improve

its institutional qualities, positive and negative effects of capital flight may occur^{18,19}. This makes or mars the qualities of institutions, through which capital flight exists. Thus, giving the shocks, to what extent does economic growth respond, even in the face of capital flight.

The Study addressed the need to investigate the relationships between capital flight, institutional qualities and their impact on economic growth. Understanding the mechanisms through which capital flight and institutional qualities interact to shape economic growth was delved into. This involves examining the influence of governance structures, regulatory frameworks, and policy effectiveness on both capital flight and economic growth. Assessing the implications of these findings for policy makers and proposing potential solutions to mitigate negative effects. Additionally, assessing the implications of these findings for policymakers and proposing potential solutions to mitigate negative effects were looked into. It explored the potential asymmetries in the impact of capital flight and institutional qualities across economic sectors. Nuanced understanding of how changes in institutional qualities over time correlate with fluctuations in capital flight and consequently, impact economic growth. This can provide valuable insights into the dynamic nature of these relationships and help formulate policies that consider the evolving economic landscape. Understanding how external elements interact with institutional qualities and impact economic growth, provide a comprehensive view guiding policymakers in developing strategies that consider both domestic and international factors influencing capital movements and economic outcomes. This offers a well-rounded approach to investigating the complex interplay between capital flight, institutional qualities and economic growth.

The increasing trend in capital flight is often traced to disincentives created by distortions in domestic macroeconomic policy, occasioned by corruption as demonstrated by public office holders and aided by weak institutions¹⁹. Capital flight in Nigeria is hindering growth and threatening economic development at all levels, with significant consequences on the economy.

It's seen as a threat to the growth prospects of the Nigerian economy. In Nigeria, with scarce capital, capital flight weakens the growth potential. Capital flight constitutes a large proportion of income which can be used to finance growth and development and normalized the adverse economic trends ravaging the economy. The causes, magnitude and consequences are a serious concern to scholars. Nigeria has been a victim of massive and significant outflow, to other countries, especially the developed countries. This massive outflow denies the country and its people of their prospects. It undermines transparency and good governance. A country ravaged with this menace spends less on education, health, infrastructure and productive capacity. It also erodes the trust in the country¹⁹.

The departure of human resources and assets in large volume is detrimental to a very large extent, as it triggers negative and monumental consequences for the host country; it reduces their economic strength and that of their government, as a result of loss of tax revenue. By the improvement in human skills, health, and knowledge and in some cases, resilience, people become more productively flexible and innovative. This, to a large extent brings an all-round positivity to the economy. In response to technological change, investment in human capital becomes more important, as the nature of work has evolved. Human capital, no doubt is central to sustainable growth, poverty reduction, reduction in the rate of unemployment and promotion of social equity. Policy makers often find it hard and difficult to make a strong case for investment in human capital. After all, the return to investment in human capital takes longer than investment in infrastructural facilities. Countries that under invest in human capital, misses the opportunity of creating a virtuous cycle between physical and human capital and growth and poverty reduction¹⁹.

The purchasing powers of citizens in the affected economies are reduced. This is as a result of consistent and rapid capital outflows. Though capital flight occurs in developed countries, it is more prevalent in the developing countries and its effect is more devastating in the developing countries. This is as a result of less developed and judicial institutions, among others. The interest among policy makers is on severe limitation from the magnitude of capital outflows to fund hunger, endemic illness and myriads of other developmental challenges plaguing the developing nations of West Africa¹⁹.

Capital flight has over the years been a great concern for economic growth in Nigeria. A great number of researches have been carried out on this. In spite of this, the prospects of solving this menace have been elusive. As presented in the works of many authors reviewed, capital flight affects economic growth negatively and significantly so²⁰. Capital flight appears to be a barrier to economic growth and development of nations. Capital needed to finance growth and development has left the country in a rapid and an unorganized way. It causes currency weakness, exchange rate depreciates, and leading to an increase in the cost of living, as prices of input increases and becomes more expensive and inflation goes up. This has a massive and significant impact on households and this leads to income and wealth inequalities²⁰.

1.3 Aim and Objectives of the Study

The broad objective of this study is to analyze the relationship existing among capital flight (both physical and human), institutional qualities and economic growth in Nigeria from

1986 to 2022. The specific objectives of the study were to;

1. analyze the effect of capital flight on economic growth in Nigeria.
2. examine the role institutional qualities play in the relationship between capital flight and economic growth in Nigeria.
3. determine the threshold level of institutional qualities that will reduce capital flight for economic growth.
4. investigate the response of economic growth to shocks in the institutional qualities in the presence of capital flight.

1.4 Research Questions

In order to put the study in the right perspective, the following pertinent issues are being raised for investigation;

1. What effect does capital flight have on economic growth in Nigeria?
2. How do institutional qualities play their roles in the relationship between capital flight and economic growth in Nigeria?
3. What threshold level of institutional qualities can reduce capital flight for economic growth?
4. To what extent does economic growth respond to shocks in institutional qualities in the presence of capital flight?

1.5 Hypotheses

Ho1: Higher levels of capital flight, coupled with weaker institutional qualities negatively impact economic growth in Nigeria.

Ho2: Improved institutional qualities mitigate the negative impact of capital flight on economic growth in Nigeria.

Ho3: Better placed institutional qualities enhance the positive effects of capital inflows on economic growth in Nigeria.

Ho4: Institutional qualities mediate the relationship between capital flight and economic growth in Nigeria, whereby stronger institutions alleviate the adverse effects of capital flight.

1.6 Significance of the Study

The understanding of the dynamics of the relationships among capital flight, institutional qualities and economic growth can inform policymakers, economists and other stakeholders

about the factors influencing a country's economic performance. The knowledge of this may contribute to the development of more effective policies aimed at reducing capital flight, improving institutional qualities and fostering sustainable economic growth. The findings could provide a basis for international cooperation and assistance in addressing economic challenges associated with capital flight and institutional deficiencies. It extends its potential to contribute to the academic understanding of the global economy. This is by unraveling the complex interplay between capital flight, institutional qualities, and economic growth. This may generate new theoretical frameworks, or refine existing ones. The findings could serve as a foundation for future research, guiding scholars in exploring related topics and expanding the body of knowledge in the field of economics and governance. Therefore, a comprehensive understanding of these dynamics has the potential to foster more resilient and equitable economic systems worldwide.

The study's insights may have practical implications for businesses and investors. Understanding how capital flight and institutional qualities impact economic growth can help businesses assess risks and make informed investment decisions. Also, the research may shed light on potential areas for reform and improvement, guiding businesses in navigating environments with varying institutional qualities. Ultimately, the study's comprehensive analysis could contribute to fostering a more stable and conducive economic environment for both domestic and foreign investors. The study's findings highlights how capital flight and institutional qualities affects various segment of the society. The knowledge of this can be crucial for policymakers in designing strategies that promote economic growth, reduce inequalities, and enhance the overall well-being of the society. The study contributes to ongoing discourse on global financial stability. It understands factors influencing capital flight and the role institutional qualities can provide for international organizations, policymakers, and regulatory bodies working to enhance the resilience of the global financial system.

The purchasing powers of citizens in the affected countries are reduced, as a result of rapid capital outflows. Assets may be devalued leading to loss of capital formation, a requisite for growth. Though capital flight occurs in developed and developing countries, its effect is more devastating in the developing countries. This is as a result of less developed political and judicial institutions. The interest among policy makers is on severe limitation, from the magnitude of capital outflows to fund hunger, endemic illness and myriads of other developmental challenges plaguing the developing nations of West Africa¹⁸.

The issue of capital flight has attracted the attention of government and financial institutions, both locally and internationally¹⁸. The economic growth of Nigeria and many West Africa countries is pitiable. There is sluggish growth in virtually all the sectors of the economy. Capital flight decreases funds that could have been invested, in order to finance economic growth¹⁸. It distorts the economic progress of the developing countries¹⁸. The effect of capital flight is severe and the role institutions plays are justified on two premises²¹. One, the country suffers from low level of investment and a high level of capital flight. Secondly, empirical literatures examining the effects of capital flight on investment does not take into account the role of institutions. Capital flight is harmful for domestic investments in Nigeria. Increasing the qualities of institutions makes it possible to combat capital flight¹⁸.

Capital flight has over the years been a concern for countries where institutional qualities is deficient significantly¹⁸. A question of what would be the optimum or threshold level of institutional qualities remained unanswered¹³. It is a major obstacle to sustainable growth. It is often thought to be the outcome of failure in economic governance, as it brings economic instability to the host country¹³. The rate and extent at which human and funds move away from the domestic economy to foreign lands, necessitates concerted efforts geared towards checkmating and regulating it, otherwise it may cripple the domestic economy and affect capital

formation¹⁷. There are actually gains and losses associated with capital flight. The losses outweigh the gains, especially in Nigeria, where its effects are felt more.

This study is motivated by the massive capital flight experiences by the privilege and the political class and the bureaucrats. The exodus of highly trained manpower from underdeveloped and developing countries to the more developed and industrialized countries are not a new phenomenon. However, the magnitude of the problem in Nigeria and its alarming increase, present a growing concern and urgency for action, as the consequences threatens to stunt the overall growth of the affected countries²¹. All these could affect the output of the economy, hampering its growth in the process.

From the literatures reviewed in this study, there is inconsistency of findings among various researchers on the subject matter. The conflicting findings might be due to different variables employed across all studies, the methodology used, the time and the geographical scope, hence this study.

1.7 Scope of the Study

The study focused on the assessment of the effect of capital flight on the economic growth of Nigeria and the role, institutional qualities played in the relationship between capital flight and economic growth. The time scope from 1986 provides a historical context for studying the relationships between capital flight, institutional qualities, and economic growth in the Nigerian context. Nigeria implemented significant economic reforms, including the Structural Adjustment Program (SAP) in the mid 1980s. The introduction of SAP marked a pivotal moment in Nigeria's economic history, involving policy changes that influenced capital movements and institutional frameworks. This timeframe includes significant global economic events, such as the liberalization of economies, and the rise of globalization. Nigeria's engagement in globalization and trade agreements increased during this period. Studying how

these global interactions affected capital movements and institutional adaptations offers insights into the country's integration into the global economy.

Many countries also underwent economic transformations during this period, with shifts toward privatization and financial liberalization. Studying capital flight and institutional qualities during these transformative period can reveal insights into the impact of policy changes on economic dynamics. The chosen timeframe includes various financial crises, such as the Asian financial crisis in the late 1990s and the global financial crisis of 2008. These crises had profound effects on capital movements, institutional reforms and economic growth, making the period conducive to understanding how nations responded to such challenges. Examining its effects on Nigeria, including capital flight patterns and institutional responses, contributes to understanding the resilience of the Nigerian economy to external shocks. Nigeria underwent banking reforms in the 2000s, aiming to strengthen the financial system. Analysing the impact of these reforms on capital movements and economic growth provides insights into the effectiveness of institutional changes. Nigeria's economy is heavily dependent on oil exports. The chosen time frame includes periods of significant oil price volatility, allowing researchers to explore how fluctuations in oil prices influenced capital flight, institutional responses, and economic performance.

The time frame also encompasses Nigeria's transition to democratic rule in the late 1990s. Political stability and changes in leadership can impact institutional qualities, making this period relevant for studying their effects on capital flight and economic growth. By selecting a timeframe that spans several decades, makes researchers to assess the effectiveness of policy interventions in addressing capital flight and shaping institutional qualities, offering valuable insights for future policy considerations. The Nigerian government launched various infrastructure development initiatives during this timeframe. Assessing how these initiatives

influenced institutional qualities and attracted or repelled capital contributes to understanding the broader economic context. Over the years, Nigeria has aimed to diversify its economy, away from oil dependency. The chosen timeframe covers periods of policy initiatives and efforts to promote economic diversification, providing context for studying their impact on capital flight and economic growth.

1.8 Limitation of the Study

There were restrictions based on limited availability, incomplete reporting and data inconsistencies. There was also limited access to comprehensive and up-to-date data in Nigeria. Nigeria grapples with governance challenges, such as corruption, weak institutional qualities and political instability. These significantly impact the relationships between the variables employed in the study. Nigeria's social-economic landscape is complex, with multiple interconnected factors influencing outcomes. Simplifying this complexity in statistical models may overlook important nuances. It may exhibit significant temporal variations due to political transitions, economic shocks, or social unrest. Data collection in Nigerian can be challenging, due to logistic issues, security concerns, and bureaucratic hurdles. These may affect the qualities of data collected. Collaboration between researchers, policymakers, and data collection agencies is essential to overcome these challenges and generate insights that can inform evidence-based policy decisions in Nigeria.

1.9 Operational Definition of Terms

Bureaucratic Qualities: This is the degree to which public policies are constructed and implemented accurately. It is the efficiency, transparency and effectiveness of bureaucratic processes in a government. It involves factors, such as clear communication, streamlined procedures, and fair decision-making to ensure optimal functionality.

Capital Flight: This is used in the context of the study as both an illicit movement of capital away from the domestic economy to a foreign economy and the emigration of skilled and professional manpower. These are often done in manners that circumvent the regulatory purview of the domestic economy. It is the large scale exit of financial assets and capital from a country, often due to economic or political instability. Investors may move their funds abroad to seek safer and more stable investment environments, which can have negative impacts on the country experiencing capital flight. This could be a decline in currency value and economic instability.

Capital Outflow: This is used as a proxy for capital flight, implying the movement of investible resources out of Nigeria to a more developed and industrialized economies. It is the movement of financial assets and capital from one country to the other. This can occur as a result of investments, portfolio diversification or seeking better returns. While capital outflow can contribute to global economic interconnectedness, excessive or sudden outflows may pose challenges for the source country, affecting its currency value and financial stability.

Corruption: This is the abuse of entrusted power, for private gains and benefit. This is often done at the expense of the majority. Corruption involves dishonest or unethical behavior by individuals in positions of power for personal gain. It can manifest in various forms, such as bribery, embezzlement, nepotism, or fraud. Corruption undermines trust in institutions, distorts economic activities and hampers social development.

Current Account Balance: This is a measurement of a country's trade where the value of goods and services it imports exceeds the value of goods and services it exports.

Democratic Accountability: This is the expectation of government by her citizens in the delivery of public services in a way that responds to their needs. It refers to the idea that elected officials and institutions are responsible and answerable to the citizens in a democratic system. It

involves transparency, responsiveness and mechanisms through which the public can hold leaders accountable for their actions.

External Debt: It is the proportion of a country's debt that was borrowed from foreign lenders, inclusive of banks, governments or international financial institutions.

Foreign Direct Investment (FDI): This involves usually the participation in management, joint venture transfers of technology and expertise. It can bring benefits such as capital inflow, technology transfer, job creation and economic growth to the recipient country.

Foreign Reserve: It is the official sector of the foreign assets that are readily available and controlled by the monetary authorities for direct financing of payment imbalances and directly regulating the magnitude of such imbalances, through intervention in the exchange markets to affect the currency exchange rate and for other purposes. These are assets held by a country's central bank in foreign currencies.

Government Stability: This is the quantification of government functioning in office that reduces risks of violence, usually provided by political interests. It is the ability of a government to maintain control, order and continuity in its functioning over time.

Gross Domestic Product (GDP): This measures the total output of a country. It is a sign of economic productivity and an indicator of the standard of living and how healthy an economy is. It is a key indicator of a country's economic performance.

Human Capital Flight: This is the emigration or immigration of private individuals who have received advance training at home. This migration of professionals can result in a loss of expertise, innovation and potential economic contributions for the home country.

Illicit Financial Flows: It is the movement of illegal money across borders. Examples of which are terrorist financing, smuggling, tax evasion and corruption. It is the movement of money across borders in ways that violates laws or regulations.

Inflation: It is a persistent and consistent rise in the general price level of goods and services in the economy.

Institutional Qualities: These are the characteristics and attributes of institutions within a society. Strong institutional qualities are essential for fostering stable and conducive environments for economic development, social progress and effective governance.

Institutional Qualities: This is the degree of code of conduct represented by the system and accepted as its binding force.

Institutions: These are ways of thoughts or actions prevalence and permanence, embedded in the habits of a group.

Law and Order: Society becomes more functional when laws are made, obeyed and accepted by the society. It pertains to the presence of a legal framework and a system of enforcement that maintains peace, prevents crime, and upholds justice within a society.

Real Gross Domestic Product (RGDP): It is a macroeconomic measure of the value of economic output, adjusted for price changes.

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Chapter Two

Literature Review

This chapter discusses the conceptual review of the variables in the study: the role of institutions, capital flight, both human and funds and their effects on economic growth in Nigeria. Various theories of economic growth were discussed, and Uzawa-Lucas theory was used as the base theory in the theoretical framework of the study.

2.1 Conceptual Review

The review explores the intricate relationships between capital flight, institutional qualities and economic growth, evidence from Nigeria. It underscores the importance of understanding these dynamics for effective economic policies. Poor institutional qualities can lead to capital flight, which in turn hampers economic growth. This dynamic creates a vicious cycle, where economic instability begets further capital flight. In today's world, it is recognized widely that the phenomenon of capital flight is an obstacle to the economic progress and wellbeing of the citizens in the developing economies of the world in general and West African countries, Nigeria inclusive¹. Countries that appear to be the richest in Africa, like Nigeria and Angola are countries where capital flight is most massive². Thus, it has become increasingly necessary to consider that countries cannot afford to ignore the effect of capital flight in their quest for economic progress and citizens' wellbeing. Otherwise, it may remain backwards in the comity of nations³.

2.1.1 Institutions

The way of thought or actions prevalence and permanence, which is often embedded in the habits and psyche of a group or the tradition and customs of the people, is often considered as institutions⁴. In some parlance, institution is regarded as the way of life, which people adopt

towards the fulfillment and accomplishment of needs and objectives with procedures and behaviour. In other words, institutions can be procedures, customs, conventions and arrangements⁵. It is a structure of the society, organized to meet the needs of the people mainly through well established and known procedures. An institution is a complex integrated organization of collective behavior, established in the social heritage and meeting some persistent needs or want⁵. It can as well be referred to as a relatively permanent structure of social patterns, role and relations that people enact in certain sanctioned and unified ways, for the purpose of satisfying basic social needs. Institutions can be considered as the way of rituals and patterns of living mutually, which are established, accepted and arranged by the consent of the community⁴.

Institutions tend towards becoming customary, permanence, traditional, enduring and enforceable in a social economic context⁴. It is always value laden and tends to become a code of conduct in the society. It functions as a unit and it is seen often as a unified structure, which is permanent in nature. Institutions role over time reduces uncertainties and establishing a stable economy and social relations. By formal rules and informal norms, culture and traditions, institutions determine what is acceptable to a society, what is alien and what is considered a taboo². Economies with representative political institutions attract more foreign investment than the ones without it and formal political institutions, to a very large extent shapes investors' behaviour⁴.

In providing an enabling environment for the economy to thrive, progress and prosper, the qualities of institution is very essential⁴. Poor institutions prevail in the developing countries of West Africa and with Nigeria in particular, because individual actors are unable to choose a more optimal choice, as a result of an unstable change in the system that comes with initial costs⁴. This is as a result of existing institutions that is very costly and unsustainable. For the law to be

more effective the adherent must be educated about it and the law must be enforced absolutely³. The expenses significantly increase, if the law introduced is not compatible with the existing norms and rules in the socio-economic context. Government effectiveness and the rule of law play a significant role in promoting economic growth in developing countries of West Africa. The basic impediment to institutional qualities is corruption in the developing countries of West Africa. Corruption is a cankerworm that has eaten so deep into the fabrics of the West African polity⁴.

Other measure of institutional qualities, other than government effectiveness and the rule of law, like regulatory qualities promotes significantly economic growth⁴. Good institutional qualities mitigate the crowding out effects of foreign direct investment (FDI). This is by encouraging foreign investment in pioneering industries and lessening competition with local firms, for it to thrive⁴. This is often done to strengthen the growth of FDI. Positive effect of FDI on economic growth will be strong in economies with relatively high institutional qualities⁴.

2.1.2 Capital Flight

There appears to be no universally accepted definition of capital flight. Its activities have been identified, for periods dating back to the seventeenth century. Due to the fact that there is no universally definition of capital flight, calculating it yields different and varying results. The non-existent of a universal definition of capital flight brings about a controversy because of the way the term is interchangeably used between developed and developing countries of the world. Consequently, some schools of thought opined that outflows of capital from developed economies to developing economies is foreign direct investment, while the same activity is referred to as capital flight, when it is undertaken by residents of a developing economy to a developed economy⁶. This makes it challenging to access the scale of the impact of capital flight

accurately. Nonetheless, it remains an important topic in economics and finance, as it can have significant implications for a country's economic stability and development⁶.

This is premised on the belief that investors from the developed economies respond to better opportunities abroad, and returns to their investment is guaranteed, while investors from developing economies are assumed to be escaping the perceived high risks of investing at home, in the domestic economy. The risk could be insecurity and political instability, to mention but a few⁷. Also the unstable political situation and insecurity in the domestic economy discourages. However, it is perceived that all investors from developed and developing economies are rational, and will thus base their investment decisions on the relative returns and risks of investment, whether at home and or abroad⁷.

The above testifies to the fact that there are different views amongst economists, researchers, and policy makers regarding the concept, definition, and measurement of capital flight. Nevertheless, it can be generally agreed to a large extent that, capital flight refers to capital that is moved away from the domestic financial market in order to avoid losses and is in conflict with the interests, goals and objectives of the domestic society. Also, these varieties of definitions means that estimates of capital flight using different definitions and measurements yields different and at times confusing results. It could be deduced from the above that capital flight destroys the domestic macroeconomic environment and enhances the absence of transparency, fairness, equity and accountability⁸.

Capital flight is any movement of illicit capital away from the domestic economy to a foreign economy⁹. It is often done in such manners that circumvent the regulatory purview of the domestic authorities. In the contemporary literature of development economics, there has been increasing attention to the notion of capital flight. Many analysts have attributed sluggish economic growth, inadequacy of capital formation for investment and persistent balance of

payments deficits in most developing countries of West Africa to capital flight¹⁰. Capital flight is a particularly serious and important concern for developing country like Nigeria. It can lead to a decrease in domestic investment, as capital is moved abroad, rather than been reinvested within the country. This can hinder economic growth and development¹⁰.Capital is scarce in the developing world, particularly Nigeria, so capital flight contributes to worsening the capital scarcity problem. In these countries, access to sufficient capital is a critical factor for economic growth and development. When capital is moved out of a particular economy, it reduces available resources for investment in productive activities, infrastructure and human development¹¹. This scarcity of capital can have a detrimental impact on economic growth and development. It can lead to higher borrowing costs, reduced investment in essential sectors and hinder job creation, which ultimately perpetuate the cycle of poverty and underdevelopment¹⁰.In addition, it restricts the capacity and the ability of the affected countries to mobilize domestic resources and access foreign capital which are necessary to finance economic growth and development. Consequently, capital flight contributes to the retardation of economic growth and development of the developing countries¹⁰.

Despite the serious attention devoted to the issues of capital flight, it still remains a serious challenge in Nigeria. Factors, such as economic instability, corruption, inadequate regulatory frameworks, and lack of transparency contribute to the persistency of capital flight⁹. For decades, Nigeria has been experiencing the disturbing occurrence of capital flight with corresponding adverse effects over the years on the economy and on her citizens in particular⁹. Many studies have been conducted on the relationship between capital flight and macroeconomic variables. These studies have conflicting results. Some studies have found a negative relationship between capital flight and macroeconomic variables, while other studies found a positive relationship. Although, most of the reviewed studies focused on the impact of capital flight on

economic growth, the effects of capital flight on economic growth and the roles played by institutions have not been fully considered, hence the study⁹.

The Concise Encyclopedia of Economics argues that there is no widely accepted definition of capital flight. The classic use of the term is to describe widespread currency speculation, especially when it leads to cross-border movements of private funds, large enough to affect and distort national financial markets. It was observed that the concept has been applied more broadly to capital outflows, from residents of developing economies and not for developed countries. This is based on the motivation of the holders of capital flight. Capital flight means the flight of financial and capital assets, savings and wealth from a country to another⁸. Capital flight is also referred to as short-term capital outflows, involving hot money that responds to political or financial crises, burdensome taxes, a prospective tightening of capital controls or a major domestic currency devaluation as well as actual or developing hyperinflation. Also, capital flight constitutes the reported and unreported ownership of foreign assets by the non-bank private sector and elements of the public sector⁸.

An argument was made that, capital flight is a mechanism investors use to apply the discipline of the market to national economic policies. Here, capital flight is often a vehicle for tax evasion, or way rulers and their close associates sequester the proceeds of corruption. “The cost of capital flight: what Thailand lost” defines capital flight as the “residual” capital outflow. It is measured as the difference between capital (money) inflows into a country and the recorded money outflows¹¹. They viewed it as the missing money that has left the country without having been officially recorded as leaving. Capital flight is also seen as an abnormal flow of funds whose holder seeks safe havens for, from financial uncertainty and taxation or seeks to launder proceeds from illegal activities¹⁰.

The issue of capital flight over the years has been a concern to economic analysts, policy makers and researchers. Capital flight is also seen as that part of the outflow of residents' capital which is motivated by social, economic and political uncertainties. An explanation was made that capital flight is the movement of large sums of money from one country to another to escape political or economic turmoil or to seek higher rates of return or because of insecurity which dissuade prospective investors from investing. It refers generally to an outflow of capital from a country where capital is relatively scarce¹².

2.1.3 Human Capital Flight

Human capital flight or in some parlance brain drain is considered an important determinant of economic growth⁶. Further research has reinforced this assertion, emphasizing it as a significant explanatory variable for the different growth experiences of countries. Despite this recognition, the international movement of human capital has not generated the same interest in recent years as that of its counterpart, the physical capital. Physical capital flight has been analyzed in a number of studies in recent years and has been recognized as a constraining factor affecting domestic growth. However, this cannot be said of the human capital⁶.

Comparatively, human capital flight or brain drain has a broader and wider definition. It is the migration of professional and skilled labour from the less developed or developing economies, which have undergone training in the host economy, to the more industrialized and developed economies. It has been opined in many studies that human capital flight, has been a major constituent in the declining rate of the available human capital present in the domestic economy and adversely affect the per capita income growth of the country found in such an unpleasant situation. With particular reference to the health sector, brain drain means the migration of medical and health personnel, in search of better education, higher living standard,

higher qualities of life, increased salaries, technological advancement and stability of political conditions among others. Another view to human capital is when it is linked to the transfer of a country's assets to a foreign country to accessing control of one's financial wealth through activities approved by the host government⁶.

„Brain drain has cost the African continent so much in the employment expatriates and professionals annually“. According to UNDP, Ethiopia had lost 75 percent of its skilled workforce between 1980 and 1991, affecting the ability of that nation to get out of poverty.

Countries such as Nigeria, Kenya and Ethiopia are believed to be the most affected. In the case of Ethiopia, it produces many professional medical doctors, but there are more Ethiopia doctors in Chicago than in any cities of Ethiopia. The former South African president, Thabo Mbeki in his 1998 African Renaissance speech said that „in our world, in which the generation of new knowledge and its application to change the human condition is the engine which moves human society further away from barbarism, do we not have need to recall Africa's hundreds of thousands of intellectuals back from their places of emigration in Western Europe and North

America ,to rejoin those who remain still within our shores .”I dream of the day when Africa Physicists, Engineers, Doctors, Business Managers and Economists will return from London, Manchester, Paris and Brussels to add to the African pool of brain power, to enquire into and find solutions to Africa's myriads of problems and challenges, to open the African door to the world of knowledge, in the comity of nations, to elevate Africa's place within the universe of research, the information of new knowledge, education and information⁵.

Push-pull model is the combination of the enticing factors that enhances, inspires and motivates youth emigration¹³. Push factors are those factors that discourage citizens in the home

country, among which are insecurity, and political instability, while pull factors are those factors that entice and draw them, one of which is the belief that better quality life can only be experienced outside the host economy. Factors motivating migration were discussed under economic, psychological and situational periods¹³. Some of the economic factors are under employment or unemployment. Psychological are family reunion and altruism. Situational are identified from the perspective of the host country¹⁴. A study carried out also classified the drivers of migration to be economic, social-cultural and political. Low population density, economic conditions and environmental factors in the developed economies have “Pulled” youths in their large numbers to the industrialized economies away from the unfavorable economic, social and environmental conditions experienced in the home country. The desire to experience higher living standard and ultimately, good life in developed nations of the world is also a “pull” factor, responsible for youth emigration. Increased unemployment rate and the desire of the youths to be out of poverty at any cost are other factors that influence migrant decision to leave the shores of the home country for a better quality of life¹⁴.

Studies on the determinants of brain drain otherwise known as human capital flight have placed a particular emphasis on different factors. A study state that advancing career and financial advantages are motivation that inspires in the home country. This drives and entices professionals away from the home country, and to the more industrialized economies. However, the problem of access to research and weak institutional support structures are additional key factors, besides the expected higher income that motivate researchers and scientists to move abroad. In Sub-Saharan (SSA), better employment opportunities, low wages and better conditions, and presence of good infrastructural facilities are the key factors that encourage migrants¹⁴. Factors driving emigration among others are religious or colonial link, low level of development, political instability, policies, lack of training, ethnicity, geographical distance,

former colonial links and linguistic proximity between countries of origin and destination. The main contributing factor of brain drain are economic, Political, social and educational in nature. However, the study noted that in developing countries of the world, push factors are organizational in nature. For instance, ambiguous career opportunities, low salaries, greater workloads, poor working conditions and environments, lack of required equipment and training for her employees are responsible for emigrants' movements¹⁴.

2.1.4 Determinants of Human Capital Flight

For decades, economic conditions of Nigeria and most West African countries seems to be on a downward trend¹¹. This to a great extent had a negative and significant effect on the living standard and qualities of life of citizens in the economy. The discouraging and deplorable state of the economy of the country is responsible for the growing exodus and emigration of people, particularly youth and professionals from Nigeria to the more developed and industrialized countries of Europe and America¹³. They saw to it that leaving the home country for a more developed country as an opportunity, rather than an option. The rising incidence of poverty, insecurity and unemployment partly accounted for the reason why skilled workers migrate to the developed countries for better opportunities and better living conditions. Highly skilled workers often seek to maximize return on their investment and training by moving in search of the highest paid and most rewarding employment¹³. The search for better living conditions, more global technological and industrial nation leads to a growing increase in the number of migrants for the purpose of high education and human development¹⁴.

Existing literatures recognizes that migration decision is the result of interaction between "push" and "pull" factors¹⁴. Push factors alienate people and encourage professionals to leave their countries in search of a location where these factors rarely exist or are non-existent.

However, “pull” factors entices people from source to destination countries in search of a better and qualities of life^{13,14}. Highly skilled persons are needed in every part of the world, especially specially trained technicians, technologist, engineers, university graduates and health professionals. Developed countries attracts skilled labour through better standards of living, qualities of life, higher working conditions and environment, access to advanced technology, security of lives and property and more stable political policies among others. The developing nations of West Africa, Nigeria inclusive face a considerable loss of human resources, when those highly skilled professionals emigrate because of the huge investment in their education and training at home, while the host country benefits directly because it did not bear the cost of educating them. Emigration of the highly skilled professional is becoming a global concern. This is as a result of the importance attached to human capital, often known as the most important resource, in the economic growth process of a nation. The educated are the nation’s asset and this significant loss of the great asset affects the economy, substantially and the society as a whole of the domestic economy. It has been observed by researchers, and policy makers that flight of highly educated skilled professionals creates a great loss in the development of the poor and the vulnerables^{9,14}. Brain drain would raise the growth rate and economic prosperity in the host country but for the home countries, it will negatively affect the economic growth process^{9,14}. This ultimately results to a great loss on the part of the domestic economy. This is respectively known as brain gain and brain drain.

2.1.5 Illicit Financial Flows

In spite of the recent economic growth experience of Nigeria, it still unfortunately experience large capital outflows. This is worrisome and a concern for economic growth in the country¹⁵. The worry about capital flight is what it does to the economy. Capital flight

undermines investment, capital formation, growth and sustainable development at all levels of the economy. It also reduces government revenue, social expenditure and meeting the development goals (MDGs) targets becomes a herculean task¹⁵. It fails to promote social equity, and the development of systems of accountability, fairness, sustainable and a vibrant economy. Sustainable development is realized only if it is able to mobilize and retain sufficient resources which are needed to finance growth and development of the domestic economy and block all loopholes. Resources lost to capital flight are supposed to be stock of productive capital used for economic growth and development. Capital flight is no doubt a threat to economic growth¹².

Capital flight studies suggest that, it is driven both by private and public authorities. The authors accordingly revealed that capital flight is driven by actions due to macroeconomic instabilities and uncertainties, political and institutional instabilities, less developed financial systems and higher rate of returns differentials abroad, among others. In the portfolio choice, private agents hold their savings abroad, and by so doing reduces their private investment portfolios. This consequently decreases the level of private investment and ultimately reducing economic growth and development¹¹.

2.1.6 Economic Growth

Growth is reduced partly because investment has been diverted abroad. Growth is also reduced because necessary imports are limited by the foreign exchange drain from both the flight itself. Also those earnings on such assets are often not repatriated. It therefore can be argued that normal capital outflows are the ones that take place in order to maximize economic returns and opportunities between economies. Normal portfolio diversification takes place on the basis of differentials in economic returns. Capital as seen from this analysis is that subset of capital outflows that are propelled by such country policies¹¹.

However, it was noted that an influx of immigrants can further alter welfare of the host countries, especially, when it leads to congestion in the use of public goods and services, such as roads, parks, and schools or greater demand for transfer payments to cover expenses on housing, food, and medical care¹³. The net fiscal balance from immigration is a function of taxes paid and the extra demands for services and transfers created. However, when immigrants arrives a new country, with huge and significant amounts of capital, (both financial and or human) the situation changes. The reason for the changes is that the capital-labour ratio rises, then fall with the arrival of the immigrants. This is the reason countries like Canada; maintain immigration presence for people who arrive with sufficient capital to start new businesses. This ultimately and in the longrun affects the host country positively and improves the economy. Education and training mostly constitute the more typical form of capital that makes immigrants, a potentially important source of economic growth¹³.

A review of the theoretical and empirical literature on capital flight was carried out extensively. Debate was on the measurement of capital outflow and information was provided on the magnitude, consequence and also the debate focused on the burden of capital outflow for selected set of developing countries in four regions of the world (South Asia, Sub –Saharan Africa, Latin America and East –Asia). Also, literatures were reviewed on the determinants of capital flight and the provisions of an overview of empirical studies that have analyzed and examined the determinants of capital flight were made. In the light of the discussion, the prospect for flight capital reversal was assessed. Conclusively, some policy measures were proposed to stem the tide of continued capital outflow and induced capital reversal. Although, a multitude of determinants were found in the literature, the following main factors were discussed: (1) external debt (2) macroeconomic instability (3) political instability (4) rate of return differentials (5) capital inflows (6) stock of capital flight and (7) public policy uncertainty. These

all have both direct and significant influence on portfolio decisions of individuals and most of them are closely interwoven and interrelated¹⁶.

2.2 Theoretical Framework

2.2.1 AK THEORY (An Endogenous Growth Theory)

AK theory was propounded by Frankel. In the theory, an argument was raised by him that aggregate production function exhibits a constant or even increasing marginal product of capital. Endogenous theory is based on the idea that economic outcomes are influenced by factors and processes that are internal to the economy. These theories focus on how economic variables like technology, human capital and institutions develop and change over time as a result of interactions within the economic system¹⁷. This is an endogenous growth model used in the theory of economic growth. AK model is also known as an endogenous growth model. It uses a linear relationship between output and capital¹⁸. Economic growth problem raises the question of the driving forces determining growth. When economic growth is a dynamic process, will the same factor and in the same proportion determines its strength in the future? The classical school of thought opined that the determinants of economic growth are investment and improving productive capacity, and these often drives growth. In neo-classical school of thought, three factors of economic growth were identified: land, labour and capital. This explained the causes of economic growth in capitalist countries. The more these factor inputs are utilized, the greater is the economic growth. AK Model of economic growth is an endogenous growth model used in the theory of economic growth, a subfield of modern macroeconomics¹⁹. The model predicted economies with technological change. It is called AK Model because they used result in a production function of the form $Y=AK$, with „A“ constant. The AK Model is actually considered the first version of endogenous growth theory. Lucas developed AK Model where the creation and transmission of knowledge occurs through human capital accumulation. The first version of endogenous growth theory was AK theory which did not make an explicit distinction between

capital accumulation and technological progress. In effect, it lumped together the physical and human capital. An early version of AK theory was produced by Frankel. Frankel argued that the aggregate production function exhibits a constant or even increasing marginal product of capital. This is because, when firms accumulate more capital, some of that increased capital will be the intellectual capital which often times creates technological progress, and this technological progress will offset the tendency for the marginal product of capital to diminish²⁰.

In a situation where the marginal product of capital is exactly constant, aggregate output Y is proportional to the aggregate stock of capital K

$$Y = AK$$

Where A is a positive constant reflecting the level of technology and „ K “ is taken in a broader sense, as it includes physical as well as human capital. This model shows constant marginal product to capital.

Hence, output per capita is: $Y/L = A \cdot K/L$ i.e. $y = Ak$. The model assumes implicitly that the average product of capital equals marginal product of capital, equivalent to: $A > 0$

$$MPK = \partial Y / \partial K = A$$

AK Model is a simple way of illustrating endogenous growth. Assuming a closed economy, the savings are equal to investment under conditions of full employment. Since savings are the functions of income and capital depreciates at a constant rate, change in the capital stock can be traced through this equation: $I = S = s \cdot AK$ ²¹.

Since capital depreciates at a constant rate, the change in capital stock, K can be expressed as $K^* = s \cdot Y - \partial k$

The growth of capital stock can be found by dividing both sides of the equation, showing change in capital stock with K .

$$K^*/K = s \cdot (Y/K) - \partial$$

Since $Y=K$ i.e. $Y/K = A$

Therefore, the above equation can be re-written as

$$K^*/K = s \cdot A - \delta$$

As the growth of output is equal to the growth of capital stock. Assuming that:

$s \cdot A > \delta$, the growth of capital stock as well as growth of output, showing that the economy will be ever increasing, as compared to the Solow-Model²².

The assumptions of the endogenous model are:

- Emphasis is on the need for government to subsidize and provide incentives for businesses. This is done in order to encourage and motivate investors.
- To increase the qualities of labour and productivity, investment in human capital through education and training, is a requisite.
- Government should create an enabling environment by creating an enabling environment, so as to create jobs and opportunities.
- Investment in infrastructure is a requisite, to achieve innovation in production.
- Intellectual property rights are incentives for businesses to thrive²³.

Criticisms on endogenous growth theory are drawn from:

- Endogenous growth theory assumptions cannot be assessed accurately.
- There is no empirical evidence to validate the theory.
- There is no distinct difference between physical capital and human capital.
- There is disregard for the role of organizations.
- The theory places too much weight on human capital.

2.2.2 AK Model with Human Factor

In its more realistic form, we can add labour as an input along with capital. In this context, we can discuss Arrows model with knowledge spillovers. In this model, the production

for final output can be written as: $Y=B.K^\alpha L^{1-\alpha}$

This is a Cobb-Douglas type production function showing constant return to scale with inputs K and L. The total factor productivity is given as B. However, we suppose that B is in fact endogenously determined.

In sum Appraisal, AK model gives a new framework for the long-run growth of the economics. However, there are still some reasons to doubt the predictions about the long-run growth generated by this class of models. The first is related with the non-accumulable factors. In the real world, there are factor inputs that are in fixed supply, such as land, or that cannot simply be accumulated indefinitely, such as energy. Another constraint of the AK Model is that it does not make an explicit distinction between capital accumulation and technological progress.

In effect, it just lumps together the physical and human capital²⁴.

2.2.3 Uzawa-Lucas Growth Theory

The Uzawa Lucas model provides an explanation for long term economic growth by emphasizing the role of human capital accumulation in enhancing productivity and economic performance. It was a model developed by Robert Lucas Jr. It built upon the initial contributions of Hirofumi Uzawa, extending the AK model by a two-sector set-up, where physical and human capitals are produced by different technologies. Uzawa-Lucas model is an endogenous growth theory. Using Ramsey framework and Cobb-Douglas production function, Lucas gave more attention to formal education rather than learning by-doing. Solow-Swan model human capital is constant, leading to no transitional dynamics. Lucas measures total capital as the ratio of physical to human capital, and not as a sum. The model is associated with the idea that long-term economic growth can be explained in part by human capital accumulation. It is considered an extension of Solow growth model and introduces the role of human capital, referring to knowledge, skills and education of labour force. The model suggests that investments in

education, training, and skills development can lead to increases in labour productivity and consequently higher economic growth rates. The model highlights the importance of policies and factors that encourage human capital development. This is because they can have a significant impact on a nation's long-term economic growth²⁰.

Its assumptions are:

- Emphasis is placed on the need for government to provide incentives and subsidies.
- There is an increasing return to scale by investing in human capital through education and training.
- Policies should be enacted to help entrepreneurs.
- Investment should be made to improve infrastructures.
- Intellectual property rights are incentives for businesses to expand their operation.

The theory was criticized on the following grounds:

- The assumptions of the endogenous theory cannot be assessed accurately.
- There is no empirical evidence to validate the theory.
- There is no unique distinction between human capital and physical capital.
- The theory disregards the role of organization²¹.

The Uzawa-Lucas theory is very popular in literatures. Its main characteristic is that it is a two-sector model, with two production functions, devoted and targeted at producing physical and human capital. Agents have the same expertise and they devote a fraction of non-leisure time to produce the final good, and dedicate the remaining to training and studying. The first sector produces a consumption good by means of a constant returns to scale Cobb-Douglas technology, and the second one produces human capital on the other hand. The peculiarity of the model is in the functional form of the technology used in the second sector. Here, a linear technology is specified in which physical capital does not appear²³.

There is a perceived representative agent and the return on capital from a social point of view. Its relevance is in two folds. One of the usual results in the two-sector growth model is no more obvious, as long as it is no more guaranteed that the optimal trajectories converge towards the steady state equilibrium. Also, the presence of externality leads us in distinguishing between decentralized or market solution and centralized or social planner solution. This is such that when a distortion due to such externality occurs, the market equilibrium solution differs from the optimal solution, chosen by a hypothetical social planner. This acknowledges the crucial importance neglected in the literature of studying the centralized solution of the model when the externality is not zero.²⁴

Lucas described the properties of both centralized and decentralized economics evolving with balanced paths.

2.2.4 Paul Romer Endogenous Growth

A model of endogenous was presented by Paul Romer. He introduced capital externalities into the neoclassical production function. The production function is characterized by increasing returns to scale of all factors of production constant returns to scale of capital. This lays the foundation for the existence of endogenous growth model. However, in Romer's model, the growth of the economy requires the fulfillment of certain conditions. The first of the condition is that, the size of the externalities must be significant; otherwise the economy grows according to

Cobb-Douglas function. Moreover, Romer's model foresees the existence of the scale effect, which is not confirmed by the data flowing from individual economies. This growth model holds that economic growth is primarily the result of endogenous and external forces. The model holds that investment in human capital; innovation and knowledge are significant contributions to economic growth. It focuses on positive externalities and spill-over effects of a knowledge-based economy which will lead to economic development. It also holds that the long-run growth rate of an economy depends on policy measures²⁵.

Romer theory, an endogenous theory has the following assumptions:

- Economists who believed in the theory place emphasis on the need for the government to provide subsidies and incentives.
- As a result of investment in human capital, there is an increasing return to scale.
- Enabling environment should be created for entrepreneurs.
- Investment in infrastructure should be encouraged.
- Incentives like intellectual property rights should be for businesses to expand their operation²⁶.

He presented his model according to which technical progress, the main determinant of economic growth, is reflected in the increasing supply of intermediate goods. In his model, economic growth is dependent on the level of human capital. Countries rich in human capital can develop very quickly. While the shortage of human capital can lead to economic stagnation. Thus, the model does not confirm the phenomenon of convergence between economies

The collective failure to explain the conditional convergence reported in the empirical literature is a major critique. Another critique is the cornerstone assumptions of diminishing returns to capital.

Romer endogenous theory was criticized based on:

- The assumptions cannot be assessed accurately.
- There is no empirical evidence to validate the theory.
- There is no much difference between human and physical capital.
- The roles of organizations were disregarded²⁷.

2.2.5 The Classical Growth Theory

The classical growth theory focuses on long-term economic growth and the factors that drives it, which are the role of capital accumulation, technological progress and labour supply. The interest of the classicals, among which are Adam Smith and David Ricardo in the problem of

economic growth are rooted in the concrete conditions of their time. They were confronted with the facts of economic and social changes taking place in the contemporary society. Their interest of economic growth was also derived from a philosophical concern with the possibilities of progress which is an essential condition which was seen to be development of the material basis of the society. Progress was seen from the point of view of the growth of the national wealth. Hence, the principle of national advantage was regarded as an essential criterion of economic policy. Progress again was conceived from the framework of a need to preserve private property and the interest of the property owning class. With this, they were able to provide an account of broad forces that influences economic growth and of the mechanisms underlying the growth process. They were able to achieve the recognition that the accumulation and productive investment of a part of the social product is the main driving force behind economic growth, and under capitalism, this takes the form mainly of the reinvestments of profits. The classical growth theory posits several key concepts:

1. Capital accumulation: According to the classical growth theory, the accumulation of physical capital (machinery, equipment, infrastructures) is a primary driver of economic growth. Increased investment in capital leads to higher productivity and output.
2. Technological Progress: Technological advancements are seen as a crucial driver longterm economic growth. The theory emphasizes the role of innovation, research and development in improving productivity and increasing the efficiency of production processes.
3. Diminishing returns to capital: Classical economists recognize the concept of diminishing marginal returns to capital accumulation. As more capital is added to the production process, the additional output gained from each unit of capital diminishes over time.

4. Labour Supply: Classical growth theory also considers the role of labour supply in economic growth. An increase in the labour force through population growth or labour force participation can contribute to economic expansion, but it's important to balance this with technological progress to sustained growth.
5. Convergence: Classical growth theory suggests the existence of a long-term tendency for economies to converge toward similar levels of per capita income. This convergence occurs due to capital accumulation, technological diffusion, and efficiency improvements.
6. Policy Implications: Policies that promote savings, investment in physical and human capital, technological innovation, and a conducive business environment are often recommended by classical growth theorists to foster long-term economic growth.

Classical growth theory provides a framework for understanding the determinants of economic growth over time and has influenced policymakers' approaches to promoting sustained prosperity in economies around the world²⁸.

Here are a few aspects of the classical growth theory:

Steady state: The classical growth theorists suggest that economies tend to reach a steady state or equilibrium in the long-run, where the growth rate of output per capita stabilizes. In this state, the economy's capital stock grows at the same rate as its labour force, and there is no further increase in output per capita.

Savings and Investment: They emphasize the role of savings and investment in driving economic growth. Higher savings rate leads to greater investment in capital, which in turn contributes to higher productivity and economic expansion.

Role of Institutions: Classical growth theory acknowledges the importance of institutions, such as the rule of law and political stability; in fostering economic growth. Sound institutions create an environment conducive to entrepreneurship, innovation and investment.

Human capital: While classical growth theory primarily focuses on physical capital, some extensions of the theory consider the role of human capital (education, skills, knowledge) in driving economic growth. Investments in human capital are seen as essential for technological progress and innovation.

The assumptions of the classicals are:

- The economy has a high employment rate.
- There is the existence of full employment without inflation.
- There is laissez faire capitalist economy without government interference.
- There is a closed economy without foreign trade.
- There is perfect competition in labour and product markets.
- Labour is homogenous.
- The output of the economy is divided between consumption and investment expenditures.
- Wages and prices are perfectly flexible.
- There is perfect information on all market participants.
- Money is the only medium of exchange.
- Money and real wages are related and proportional.
- Savings are automatically invested.
- Capital stock and technical knowledge are given.
- The law of diminishing returns operates in production.
- It assumes long run.

The theory has the following limitations.

- Self-adjustment is not possible.
- Equalities of savings and investment through income changes.
- Importance of speculative demand for money.
- Rejection of quantity theory of money.

- Money is not neutral.
- Refutation of wage-cut.
- No direct and proportional relation between money and real wages.
- State intervention is essential.
- Long-run analysis unrealistic.
- There is underemployment equilibrium.
- Refutation of Say's law²⁹.

2.2.6 Harrod Domar Growth Theory

Growth is sustainable in the case of Harrod-Domar, when three growth rates are equal: the actual growth rate, guaranteed growth rate, and natural growth rate. This situation in Harrod

Domar is called „golden age“³⁰. This is where the achieved macroeconomic balance ensures the full use of capital and labour. Its assumptions are:

- Income is determined by investment, through multiplier. Savings income ratio is assumed constant.
- Productivity capacity is created by investment according to potential social average investment productivity.
- The economy operates at full employment and makes use of available goods. • Productivity and savings rate are the main determinants of economic growth.
- The theory assumes constant returns to scale for the capital-output ratio and propensity to save.
- Average propensity to save (APS) is the same as marginal propensity to save (MPS).
- Investment is net. This is gross investment minus depreciation.

The theory has the following as its limitations:

- The theory over simplify the sources of economic growth. It ignores other factors.
- The theory assumes the economy is operating at full employment.
- A constant marginal return on capital is not valid.
- Capital is immobile³¹.

2.2.7 Neo-Classical Growth Theory

Solow

Robert Solow proposed a long-term economy growth model, in response to the unsatisfactory results derived from Harrod –Domar model. The aim is to show that in the longrun, an economy achieved sustainable growth. Then to the growth rate of income per capita was equal to the rate of population growth. Instability of the economy and impossibility of the full use of the labour were the problems identified by Harrod-Domar. These were solved by Solow model by introducing the assumption of substitution of factor inputs, which in turn remove the assumption of a constant ratio of capital/production³¹.

The model of this study is an off-shoot of Solow model of economic growth used in the works of Uдах and Ayara. They examined institutions, governance structure, and economic growth nexus in Nigeria. In the Solow model, output is a function of capital (K) and labour (L) with constant returns to scale. The rate of capital accumulation in the long-run is higher than in the short-run, the marginal efficiency of capital approaches zero and the growth rate is subsequently determined by technical progress and growth in labour force.

$$GDP = AK^\alpha L^{1-\alpha} \quad (1)$$

Where GDP= Real GDP

A=Total factor productivity

K= Capital Stock

L= Labour

α = Elasticity of capital with respect to output

The model assumes that each productive unit will use the same level of capital and labour, with the following aggregate production function as;

$$GDP = AK^\alpha L^\beta \quad (2)$$

In the study of Udah and Ayara, they incorporated governance structure and institutions into equation 2, through the effects on total factor productivity (TFP) or technical efficiency on the premise of the role of institutions in increasing technical efficiency, which in turn affects the efficiency of investment. Thus, their study assumes that TFP is a function of qualities of institutions and governance structure (corruption, government effectiveness and the rule of law).

$$\text{Thus, } A = Y_t = \alpha_0 + \alpha_1 X_t + \alpha_2 \text{ CIM} + \varepsilon_t \quad (3)$$

Combining equations 2 and 3, we have;

$$GDP = C_t K_t^\alpha L^\beta X_t^d \text{ CIM}^\phi \quad (4)$$

Where α , β , d and ϕ are elasticity coefficients.

From equation 4, an explicit estimation function is specified, ignoring labour and capital and taking the natural logs of both sides as;

$$\text{LogGDP}_t = \alpha_0 + \alpha_1 X_t + \alpha_2 \text{ CIM} + \varepsilon_t \quad (5)$$

Where x_t = a vector of explanatory variables, including; voice and accountability (VACCOUNTR), Political stability and absence of violence (PSVIOLENCTR), Governance effectiveness (GEFFECTR), Regulatory qualities (REGULATR), Control of corruption (CORRUPTR), CIM=contract intensive money (CONTRINTR), E_t = Stochastic error term, with the usual normality assumptions. Its assumptions are:

- Capital is subject to diminishing returns in a closed economy.
- The population grows at a constant rate.
- All consumers in the economy save a constant proportion of their income and consume the rest.

- All firms in the economy produce output using the same production technology that takes in capital and labour as inputs.
- Prices and wages are flexible.
- One composite commodity is produced.
- There is perpetual full employment of labour.
- Labour and capital are substitute for each other.

Its criticisms are based on:

- The purpose of the theory was to examine what might be called tight-rope view of economic growth.
- There is absence of an investment function.
- The theory is based on the assumption of labour-augmenting technical progress.
- It is based on realistic assumption of homogenous capital.
- It leaves out the causality of technical progress.
- It assumed flexibility of prices³².

2.3 Review of Empirical Studies

2.3.1 Evidence from Developed Countries

High unemployment rates in a country can indeed lead to labour migration, which can have both positive and negative impacts on the economy. Labour migration can be driven by the search for better employment opportunities and improved living conditions. However, it can also pose challenges for the home country, such as a loss of skilled workers and potential remittances

In the case of Pakistan; labour migration has been significant with many of her citizens seeking employment abroad. While this can provide remittances, that benefit the economy, the loss of skilled workers can be a challenge, and there may be social and economic consequences, in terms of family separation and adjustment to a new culture.

While developing and underdeveloped economies are characterized by „push factors” that discourages and moved migrants out of the home economies. Industrialized and advanced economies are however characterized by” pull factors”, which encourages, entices, pull and draw migrants into them. The interplay of „pull and push“ factors is a key driver of migration. People often leave their home countries due to push factors and are drawn to other countries because of pull factors. The relationship of capital flight and economic growth can be complex and contextspecific. While capital flight typically involves the outflow of capital. In some cases, it might not necessarily lead to negative economic consequences; it depends on various factors, including the reasons for capital flight, the scale of outflows, and the impact on the overall economy. For the study of capital flight in Malaysia, it’s interesting that a positive and significant relationship was found between political risk and the outflow of capital. High political risk could be political instability and uncertainty. This can be driving force for capital flight. Investors may seek more stable and secure environments for their capital, when they perceive political risks in their country. This underscores the importance of political stability and risk management for economic stability and attracting investment. Understanding specific drivers of capital flight in a particular country is crucial for policy makers to implement measures that can mitigate it’s negative effects and promote economic growth³³.

It is not surprising that changes in the domestic economy and political environment can affect capital flows, including capital outflow. In the case of China its political structure and economic policies can have a significant impact on the movement of capital, both inflow and outflow. Political stability, rule of law, and government policies, play a crucial role in shaping investors’ confidence and the flow of capital. Any significant shifts in the political environment or economic policies can influence the decisions of investors and businesses, potentially leading to capital outflows or inflows. The use of econometric models like the ARDL is to analyze these relationships is a valuable tool for researchers and policy makers to better understand the

dynamics of capital flows and make informed decisions, regarding economic and political reforms. The findings of such research can be instrumental in developing strategies to manage capital flows³⁴.

The impact of capital flight was studied on a long term economic growth. This was done using varying methodologies for a set of 75 economies for 9 years, with the panel data spanning 1994 to 2003. Pooled cross section analysis was employed based on the fixed assets model estimated by feasible generalized least squares method and the results were presented. This study highlights a common concern associated with capital flight, especially in developing and less developed countries. When capital flight is significant, it can indeed have adverse effects on long term economic growth and GDP per capita. This is because capital flight often results in a drain of resources that could have been invested domestically to promote economic growth. The findings suggest a negative impact on GDP per capital growth in countries with her capital outflows, aligning with the idea that capital flight can exacerbate economic hardship, particularly in countries that are already facing economic challenges. Such studies can help policy makers understand the importance of addressing the factors that drive capital flight and implementing measures to encourage domestic investment and economic stability. Efforts to reduce capital flight and attract investment often involve policies aimed at improving the business environment, enhancing governance and addressing issues like corruption and political instability. This can help create a more conducive environment for economic growth³⁵.

The study on capital flight from Thailand during 1980-2000, along with its findings highlights some essential economic relationships and consequences. The discovery of cointegration between capital flight, foreign reserves, external debt, foreign direct investment and the current account balance with GDP suggests that these factors are interconnected and can impact the country's economic performance. The negative impact of capital flight on the economy is a common concern, as it typically reflects a loss of resources that could otherwise be

invested domestically to promote economic growth. The recommendation to create an enabling environment for profitable investment aligns with a common strategy to mitigate capital flight. Government often aim to improve the investment climate, reduce political risk, enhance governance and encourage foreign and domestic investments to keep capital within the country and support economic growth and development³⁶.

It is common for studies to be country-specific, because each country has its unique economic, social and political context. A study focused on the Philippines. OLS was used in the analysis for modeling relationship between the variables, but the specific methodology is dependent on the goals of the research. The decision to ignore human development indices or include a pull factor in the analysis may depend on the research question and what the study aims to investigate. Research design and methodology can vary depending on the research objectives and available data³⁷.

2.3.2 Evidence from Developing Countries

The practice of developing countries resorting to external borrowing to finance growth and development. However, the impact of capital flight on economic growth can complicate this process, as capital outflows can offset the benefits of external borrowing. The use of statistical tests like ADF and OLS is a standard approach to examine these relationships. The positive relationship between the proxies of capital flight and GDP in the study suggests that capital flight can indeed have a counterproductive impact on economic growth. The recommendation to pay more attention to foreign debt servicing and capital outflow is valid, as addressing these issues is crucial for ensuring that the benefits of external borrowing is not eroded by capital flight, which can hinder economic growth and development. Policy makers should focus on creating an environment that encourages and reduces the incentives for capital flight³⁸.

It is imperative to consider the impact of capital flight on economic growth. It has been empirically sought by researchers and policy makers to find out the short-run and the long-run implications of capital flight on economic growth in Nigeria from 1986-2015, employing Augmented Dickey Fuller (ADF) test, bound test and ARDL³⁸. It was found that capital flight has reduced the development resources of the nation in a considerable measure, thereby leading to embarking on foreign debt in the economy. The findings of capital flight reducing development resources and potentially leading to foreign debt are a concern for a country's economic growth and stability. This highlights the importance of policies targeted at curtailing capital flight and promoting economic growth and development. A research was carried out on the causes of capital flight from Nigeria between 1980-2014, using the vector correction mechanism (VECM) on variables, such as interest rates, capital flight, political instability and GDP.¹⁹ Findings revealed that a negative relationship existed between capital flight and economic growth, suggesting that capital flight may have had a detrimental impact on a country's economic growth and development. However, there exists a positive and significant relationship between capital flight and interest rates, implying that higher interest rates may attract capital flight which might be a concern for economic stability. These findings may be valuable to policy makers in addressing issues related to capital flight and its impact on Nigerian economy³⁹.

The positive relationship between capital flight and the discomfort index ,a proxy for poverty ,suggests that capital flight may have contributed to an increased poverty or discomfort in Nigeria, during 1986- 2014. The findings underscore the potential negative impact on the wellbeing of the citizens. It is essential for policy maker to consider measures to address capital flight so as to mitigate its adverse effects on poverty and the overall economic wellbeing⁴⁰.

The research findings regarding the relationship between capital flight and human development index, HDI in Nigeria are valuable. The positive relationships between capital and

financial account deficits ,external debt servicing and external reserves with HDI suggests that these factors might contribute to human development in the country. On the other hand, the negative relationship FDI outflows and HDI implies that FDI outflows may hinder human development. The significance of capital and financial account deficits, external reserves and

FDI outflows reinforces the importance of these variables in influencing human development. The recommendation to judiciously use external debt for infrastructural development to encourage investment and economic growth is a sensible policy suggestion. This could help improve the overall wellbeing and qualities of life of Nigerians. It is essential for policy makers to strike a balance between managing external debt and leveraging it for sustainable development⁴¹.

Capital flight, whether normal or abnormal has a damaging effects on the economy of the domestic country. It is generally known that shortage of funds to finance economic growth and development is a major challenge confronting the African continent. This is a significant challenge in many African countries. Thus, encouraging the inflows of foreign capital through foreign investment cannot be overemphasized in order to bridge the existing resource-gap in developing countries. However, it is crucial for countries to manage external borrowing carefully to ensure that the borrowed funds are invested in projects that yield returns and contribute to long term economic growth and development, leading to unsustainable debt burdens. Balancing domestic resource mobilization and foreign investment is essential for sustainable economic growth and development in these countries. Many developing countries have resorted to external borrowing as a means of bridging their savings-investment gap⁴².

Capital flight is a challenge for many developing countries of the world. It is more severe in developing countries like Nigeria, where domestic investment has been terribly affected. The study undertakes an empirical investigation of the impact of capital flight on domestic investment in Nigeria between 1980 and 2017. Deploying the Auto-regressive Distributed Lag Model (ARDL). The findings are significant. The negative and significant impacts of capital

flight on domestic investment highlight the challenges posed by capital flight for the country's economic growth and development. Also, the study observed that the qualities of institutions in Nigeria serve as a disincentive to domestic investment. This underscores the importance of improving governance and institutional frameworks. The recommendation to strengthen institutions to ensure the availability of investible funds is crucial for fostering a conducive environment for domestic investment and economic growth. Addressing the issue of capital flight and improving institutional qualities are vital steps toward attracting and retaining domestic and foreign investments in Nigeria. Strengthening of institutions is necessary in order to guarantee the availability of investible funds⁴³.

Human capital flight otherwise known as brain drain is a significant concern for many developing countries. When professionals emigrate to other countries, in search of better qualities of life, it exacerbates existing challenges, like poor human development, high unemployment, rising poverty rates, poor medical care and insecurity among others⁴⁴. The loss of human capital can impede a country's progress and developmental efforts. Many developing nations tried to address brain drain with the aid of policies that attract and encourage the retention of skilled professionals and the creation of opportunities that makes them to stay and contribute their expertise to the domestic economy⁴⁵.

2.3.3 Evidence from African Countries

The fact that total capital flight from African countries over the period of 1970-2018, represents 94 per cent of the total GDP of those countries. It indicates the magnitude of capital flight relative to the economic output of these countries during the time frame. Also, that it accounted for 85 per cent of the total GDP of all African countries in 2018 highlights the substantial impact of capital flight on the continent economies. This emphasizes the need for measures to address and reduce capital flight to ensure that more resources remain within African countries to support their economic growth and development⁴⁶. The significant growth in capital, reaching

\$85 billion between 2010-2018 is a concern. The variation in capital flight among African countries underscores the need for targeted efforts to address this menace. It is promising to note that stopping illicit capital flight could potentially cut the annual financing gap of \$200 billion that the continent faces in order to achieve the Sustainable Development Goals in half. This highlights the substantial financial resources that could be redirected towards development and poverty reduction. The potential gain of \$89 billion annually by curbing illicit financial flows further emphasizes the importance of addressing capital flight in the African continent. These resources could be channeled towards critical areas of infrastructure, healthcare, and education to foster sustainable development and growth on the continent⁴⁶.

Capital flight, though not a novel issue but a significant concern in many African countries.

Capital flight as a percentage of GDP for Congo Republic, Seychelles and Sierra Leone from 1970-2018. Capital flight has potentially exceeded the debt liabilities in African countries. Capital flight from all over the world is facilitated by a number of causes. Natural resource export embezzlement, tax evasion, corruption, transfer pricing and outright capital smuggling from Africa could all be causes⁴⁷.

Traders in emerging nations may have various incentives to engage in practices of imports under-invoice and export over-invoice, especially when foreign currency is limited in supply. Some of the incentives include; currency controls, tax evasion, access to credit, profit margins, and securing foreign currency. One of the conceivable motivations for attempting to bring money back into the country that was unlawfully moved outside for investment purposes through export over-invoicing, which is a method of laundering illegal money through a legal channel. Looking at it from an economic growth perspective, the money coming back to African countries is good, it comes through illegal means and may be spent for activities that may be harmful to countries⁴⁸.

It is an obvious fact that in terms of health and access to basic social infrastructures, the continent of Africa significantly trails behind the targets and other regions of the world. These make Africa capital flight problem worse off comparatively with the rest of the world. Academicians and policy makers wanted to investigate capital flight once it was identified as a

persistent impediment to growth and development in Africa. New empirical investigations have piqued the academic community's interest⁴⁸.

Capital increases government insolvency through both flight of private wealth (tax base erosion) and embezzlement of public resources as a result of corruption, which has affected the psyche of the Africans. Consequently, private agents worried about future tax burdens and allow the flight of their capital to abroad for safe haven. This would reduce the demand for domestic assets, leading ultimately to lower private domestic investment. Over all, the reduction in domestic assets from the private side together with depletion of public revenues would results in reduction of total domestic investments, which ultimately affected economic growth severely⁴⁸.

A study investigated the effect of capital flight on investment taking emerging economies as a geographical scope between the periods of 1975-2000. The result revealed the negative effect of capital flight on private investment, whereas the effect of financial liberation on capital flight is found statistically insignificant. This suggests that when capital flight occurs, it can reduce the amount of capital available for domestic private investments, potentially hampering economic growth and development. The study also found out that the effects of financial liberation measures implemented during these period .The findings emphasized the importance of addressing capital flight as it can undermine investment and economic development. Policy makers may need to consider measures beyond financial liberalization to combat capital flight and promote private investment in the region⁴⁹.

Africa has experienced economic growth in recent decades. However, persistent poverty and inequalities remain significant challenges on the continent. Addressing these requires a multi-faceted approach including investments in education, healthcare, infrastructure and policies that promote inclusive economic development. Among the fundamental problems Africa is still suffering from are their inability to sustain high growth rates to generate meaningful gains in

poverty reduction and the low level of investment, as one of the structural constraints. The shortage of long-term domestic financing is argued in the literature as one of the reasons for Africa's low level of domestic investment⁶. Capital flight, mostly in Africa is caused by trade mis-invoicing, transfer pricing manipulation and domestic tax losses , to mention but a few⁵⁰.

Another study analyzed the magnitude of capital flight in Kenya, in the East African country, using different methods of estimation. The study empirically determined the causal factor of capital flight, placing importance on macroeconomic variables. It concluded that capital flight peaked usually in the year of balance of payment crisis. This indicates obviously that capital flight was used to hedge against the poor economic conditions. It also suggests that in the absence of credible reforms been put in place by the policy makers in the economy, economic growth would lead ultimately to increased capital flight. Another study, among the study carried out in Nigeria estimated the determinants of capital flight in Nigeria from 1970-2000. The data were analyzed using OLS. The result showed that domestic inflation, availability of capital, parallel market premium and competitive growth rate of the economy are the major determinants of capital flight in Nigeria⁵¹.

Creation of a harmonious framework for capital flight policies in Africa is very crucial, especially with the obvious evidence of severe poverty affecting the continent. Such policies can help mitigate the economic challenges and promote sustainable development in Africa. It assessed how common measures can be adopted by sampling countries on the cause of extreme poverty. The data set is sub-divided into fundamental characteristics of African capital categorized on income levels, legal foundations, natural resources, political stability, regional proximity and religious domination. The main findings show that, from a projection date of 2010, a feasible timeframe for harmonious policies is between 2016 and 2023. The timeframe

coincides with the beginning of the post-2015 agenda on sustainable development goals⁵². Economic theory espouses that domestic investment is a decreasing function of capital flight. However, is there a possibility that reversals in capital flight might lead to a decline in investment levels in Nigeria? The study investigated these possibilities. Employing the nonlinear autoregressive distributed lag model, (ARDL) the study finds evidence of asymmetric impact of capital flight on investment undertaken at the national level. However, investment by sub-national governments revealed the existence of symmetry, while overall total public sector investments, indicated the existence of asymmetric effects between positive and negative deviations of capital flight. The paper maintained the need for the strengthening of institutions and policy measures that goes beyond the conventional manners in tackling the issue of capital flight, that has for years affected the growth and development of the African continent⁵³.

To investigate the effect of institutions on economic growth in Africa, a study used generalized methods of moment (GMM), fixed effects (FE) and Random effects (RE) models in 1996-2016. Institutional qualities like political stability appear to be the most significant factor in explaining the real GDP per capita growth in Africa⁹. An investigation of the determinants of capital flight in Sierra Leone and the causality between capital flight and the key variables were made, within the context of the Autoregressive Distributed lag (ARDL), estimation technique and the granger causality test. The long-run estimates that real exchange rate, corruption and external debt are the main determinants in Sierra Leone. The findings indicate that the real exchange rate, high level of corruption, which is the order of the day in African countries and the accumulation of external debt, results in an increase in capital flight⁵⁴.

Despite the level of developmental process, capital flight still poses a great danger in the growth and development of national economies. The reason is that it symbolizes a share of forgone investment. In view of this, the study examines the impact of capital flight on economic growth in Nigeria, using annual time series data of 1980-2019, using autoregressive distributed lag (ARDL) model. Findings revealed the presence of a long-run and short-run relationship between real GDP, capital flight, foreign reserve, external debt and domestic investment⁵⁵.

Another study provides theoretical and empirical insights into the puzzling simultaneous rise in foreign direct investment inflows in Africa and capital flight from the continent over the past decades. The paper explores three questions: (1) does foreign direct investment fuel capital flight? In other words, is there a FDI-fuel capital flight? (2) Is national resource endowment a possible channel for the capital flight –FDI link? (3) Does the quality of institutions mitigate the impact of national resources on capital flight? The paper develops a theoretical model that conceptualizes the linkages and sets the stage for an econometric investigation of these questions. The results was based on the sample of 30 African countries over 1970-2015. The result showed that FDI flows are positively related to capital flight, suggesting a possible FDI – fuelled capital flight⁵⁶.

To examine the role of political governance crisis in the relationship between hard mineral resources exports and capital flight in the Central African Republic between 1978-2010. The result of the short-run effect showed that official development assistance and gross national expenditures have a negative and significant impact on capital flight while the interaction of political governance crisis, hard mineral resources, and GDP per capita have a positive and significant impact with capital flight. Moreover, governance crisis and export of hard mineral resources has a negative and insignificant impact on capital flight⁵⁷. On the other hand, the result of the long-run showed a negative and significant impact on governance crisis, official development assistance and gross of national expenditures. The interaction term between hard mineral resources, exhibits a positive but insignificant impact on capital flight. A paper provides evidence on the adverse effect on covid-19 induced capital flight on the bonds and foreign exchange markets in Ghana. The study found significant portfolio reversals after the first case of covid-19 was recorded in the country. This has a far reaching negative effect on nominal exchange rate. The findings implied that over reliance on foreign portfolio renders the bond and foreign exchange markets vulnerable to unanticipated external shocks⁵⁸.

Cote d'Ivoire is the highest exporter and producer of cocoa, accounting for 40 percent of global supply. At the end of 2018, it had lost \$55 billion through capital flight alone. The value of cocoa is accrued to powerful politicians and the common people in Cote d'Ivoire loses, as they lack basic services. South Africa, another richly endowed country also suffers from capital flight through embezzlement of state resources. Capital flight, especially from Africa is the reincarnation of the colonial state-led plunder of the African continents resources, leaving behind an impoverished population⁵⁹.

Evidence suggests that capital flight is not essentially the outcome of portfolio choice normally by African wealth holders. Policies aimed at increasing returns to domestic investment, though are desirable, they are still not effective in stopping capital flight. However, strengthening the human and technical capabilities and effectiveness of special institutions is a better strategy. Also, macroeconomic stability, though are desirable but cannot be sufficient enough to deter capital flight. Strong institution and rules are required to keep corruption in check, and probably reduce to the barest minimum the menace of corruption. The public needs to know how much revenue accrues to the government and how much is produced and exported. With this in place, the African public can hold their governments' accountable⁶⁰.

African countries loose more as a result of capital flight, even with the aids and grants received from international organizations and also from investment. Illicit financial flows are widespread and vulnerable and its impact is felt more. In finding solution to the impasse, countries like Kenya and Angola are working on well-intentioned policy initiative in order to combat corruption and nib in the bud illicit outflow⁶⁰.

An investigation was done of the effect of capital flight on Ghana's economic growth. This was done with the aid of non-linear ARDL estimation techniques and the data was sourced from 1976-2020. The result revealed that positive change in capital outflow has a negative and significant effect on economic growth. The study therefore recommended that the government

through her policies aimed at recovering the outflow from corrupt public officials, in order to aid domestic investment. Capital outflow from Ghana in 2004 was estimated to be 98.7 percent of GDP. FDI inflows to African countries have steadily increased over the years, to a fast rate⁶¹.

Another paper also presented an updated methodology for estimation of the cash outflow, using the residual method in countries of the West African Monetary Union Zone. The results therein showed that four countries have experienced significant real capital flight over the last four decades. The countries involved are Burkina Faso, Cote d'ivoire, Niger and Senegal. The results suggested that political stability, and accountability reduces capital flight, while their collective effect through political governance is not significant in the long-run⁶².

2.3.4 Evidence from Nigeria

Capital flight weakens financial regulations, transparency and accountability; it erodes institutional competence and allows capital flight to thrive continually and unabated. Economic growth discourages capital flight. It does so by instilling hope in the psyche of the savers. However, poor economic indicators, such as low GDP and fluctuating inflation encourages capital flight. Capital flight has for decades been a recurring problem in many developing countries, particularly West Africa, given the small size of resources and limited markets. The problem of capital flight needs serious attention. One of the main factors that weaken savings and resource mobilization is capital flight. Capital flight decreases economic growth, both in the short-run and in the long-run. Though adequate attention is given to capital flight, it remains a problem and it negatively affects the economic growth of West Africa countries. External sources of capital have become an all-important means to achieve a sustained growth. These are channeled into the provision of infrastructure that generates revenue and service the external

debt shock, especially at the time of emergency and unforeseen contingencies. The sub-Saharan Africa

(SSA) is perceived to be heavily indebted, as her foreign assets exceed her foreign liabilities. However, these assets are owned by private entities, while the people own huge liabilities through their government⁶³.

Public funds that can be committed into provision of social services like education and health are instead committed to debt servicing, and a fraction is used to fuel capital flight. Interestingly, capital flight and external debt have become interwoven, intertwined and interrelated. External debt is said to fuel capital flight and capital flight on the other hand induces more external borrowing. Similar studies have considered the relationship between capital flight and economic growth. It has always been a negative relationship. This is attributable to an increase in the transfer of funds from the domestic economy, which reduces the available funds and resources required to finance growth and development in the home country⁶⁴.

Another study examined the effect of capital flight on macroeconomic performance in Nigeria for the period of 1981-2019. It also ascertained the determinants of capital flight in Nigeria for the period. The error correction model was used because the unit root test revealed all variables were stationary at first difference. The study revealed that capital flight negatively affects economic growth and investment in Nigeria. The study therefore recommends amongst others, that external debt and foreign direct investment should be used for productive purposes such that capital flight as a result of inflow of funds from abroad is impossible and that stable exchange rate policies should be adopted to avoid devaluation which is a determinant of capital flight in Nigeria⁶⁵.

A study examined the impact of capital flight on economic growth in Nigeria for the period between 1990-2017. The Augmented Dickey Fuller test (ADF) was employed in testing for

stationarity of the time series. The Ordinary Least Square (OLS) econometric method of data analysis was used for the study. The T-test showed the existence of a positive relationship between the proxies of capital flight and GDP serving as proxy for economic growth. It was recommended that policy makers and the relevant authorities should pay more attention to the issue of capital flight and foreign debt servicing in order to stem the tide of its counterproductive impacts on economic growth. However, a study revealed that increased population growth rate and poor life expectancy increases the likelihood of migrating out of Nigeria. It was affirmed that the increasing population has always been to the disadvantage of the Nigerian economy⁶⁶.

A study equally examined the impact of capital flight and its determinants on the Nigerian economy, using the Autoregressive distributed lag model (ARDL) to analyze the data sourced from 1981-2015. The variables used are current account balance, inflation rate, external debt, foreign reserves, foreign direct investment, capital flight, external debt and the real gross domestic product. The result indicated that capital flight has a negative impact on the economic growth of Nigeria. The study recommended that there is need for government to implement policies that will promote domestic investment as well as discourage capital flight from Nigeria⁶⁷.

A study examined the impact of capital flight on economic growth in Nigeria within the context of the Autoregressive distributed lag (ARDL) estimation technique. The study utilized annual data for the period 1981-2019, sourced from the statistical bulletin of the Central Bank of Nigeria (CBN) and World Bank Development Index (WDI) data on Nigeria. The result confirms the existence of cointegration and that capital flight has a negative impact on the economic growth of Nigeria. The study recommends that government should create a business-friendly climate by increasing its foreign reserve and reducing external indebtedness as well as invest in basic infrastructure to attract foreign direct investment (FDI)⁶⁸.

The effect of capital flight on financial savings in Nigeria has also been examined. The result showed that capital flight exerted negative and significant effects on financial savings. It was recommended inter alia that investments be directed and focused on infrastructural development and the real sectors of the economy, in order to accelerate the level of capital formation and induce further growth of both private and foreign investments, which will equally generate additional savings for further investments in the long run⁶⁹.

A study on the effects of capital flight on tax revenue in Nigeria was carried out. Using ordinary least squares (OLS) model, based on time series data, quantifying capital flight under the hot money or balance of payment approach. It was found that a unit increase in capital flight caused a 2 per cent decrease in tax revenue in Nigeria. Among the variables included in the model, only lagged capital, fiscal balance and exchange rate were to be significant in influencing capital flight in the country. The study therefore concluded that unless sound macroeconomic measures were taken to address these factors, capital flight would continue to paralyze economic activities in Nigeria⁷⁰.

A study examined the effect of capital flight on the Nigerian economic growth between 1985 and 2010. The indicator of economic growth used in the study was Gross Domestic Product (GDP) while the determinants of capital flight variables adopted were Foreign Direct Investment (FDI), Inflation Rate (INF), Exchange Rate (EXGR) and Fiscal Deficit (FISD). The ordinary least square (OLS) and the co-integrating analytical technique were used for analysis and the result shows that both the parameters and the model were significant. Specifically, the short run analysis shows that capital flight is mostly caused by inflation while the long run shows that both inflation rate and exchange rate significantly determine capital flight which in turn adversely affects economic growth⁷¹.

The relative effect of capital outflows on the growth rate of GDP in Nigeria was explored empirically. To accomplish this task, three models of GDP growth rate were specified with each model, incorporating a different measure of capital flight from Nigeria. The variables in the models were examined for possible co-integration. Research findings shows that capital flight impacts adversely on the growth rate of GDP and such growth rate effect of capital outflow is significant, and capital control is insignificant in stimulating GDP growth rate in Nigeria, exchange controls are weak. Industrial output is a veritable resource of GDP growth rate in Nigeria, public expenditure has significant positive impact on GDP growth rate in Nigeria and that the growth effects of domestic investment is insignificant in Nigeria⁷².

An Investigation reveals the determinant, measurement and impact of capital flight on the economic growth in Nigeria using ordinary least square technique, multiple regression and descriptive statistics. Time series data from 1980 to 2011 were also employed. The quantitative results reveal that, large capital outflows from the Nigerian Niger Delta Region is accounted for by political instability, high fiscal deficits, high interest rate and high profile external debt servicing GDP ratio⁷³.

The impact of capital flight on the economic growth of Nigeria was investigated. The study adopted the ordinary least square (OLS) regression method for analysis, supplemented by various tests including Augmented Dickey Fuller (ADF) unit root tests, Autoregressive

Distributed Lag Model (ARDL), Co-integration and Bounds test (long run) and Granger Causality tests. The findings showed that there is a negative and non-significant relationship between capital flight and the economy; a negative and statistically significant relationship between foreign direct investment and economic growth; while external borrowing had a positive and statistically significant relationship with the economy⁷⁴.

Capital flight is seen as legal or illegal outflows of financial resources due to high political or economic instabilities in the originating country or higher investment returns in the destination country. Capital flight involves the movement of transfer of capital funds/assets across international boundaries. It can be legal, when foreign investors decides to withdraw their

investments from a country due to economic or political instabilities, or illegal when capital funds mostly looted are transferred to developed countries without given due concentration to the law⁷⁵.

It was examined that capital flight is an unrecorded movement of funds between a country and the rest of the World. It encompasses resources which comes in or should have come into the country due to trade and other financial transactions between domestic and foreign partners, which are not documented in the country's official statistics. It can only be seen as financial outflows that can occur from an illegal; allocation or mis-use of resources, through stealing and looting of public resources, trade mis-invoicing and corruption. All the monies from the above channels are likely to disappear from any documented record in the domestic country, while any earnings on the invested capital in foreign countries do not return to the domestic country. This form of capital flight is often referred to as illicit financial flows⁷⁶.

The effects of capital flight and poverty in Nigeria were examined. This study employed the Augmented Dickey Fuller (ADF) test, Philip Peron (PP) test; Kwiatkowski, Philips, Schmidt and Shins (KPSS), all forms of unit root tests; Johansen test for co-integration and Dynamic Ordinary Least square (DOLS) for long-run estimates. The study found that an increase in poverty level in the country would be preceded by raising flight coupled with increasing dependence ratio and decline in economic growth⁷⁷.

Capital flight and economic growth has generated a reasonable number of contradictions in economic thinking. Some studies opined that capital flight reduces economic growth, whereas others argued that capital flight enhances economic growth. Some even argued that capital flight has no significant effect on economic growth. A study examined the impact of capital flight and its determinants on the Nigerian economy between 1981 and 2015, using the autoregressive distributed lag (ARDL) model. Findings revealed that there exists a long run relationship between the variables. Furthermore, the result indicates that capital flight has a negative impact on the economic growth of Nigeria. Again, it was sought to find out the short run and long run implications of capital flight on economic growth in Nigeria from 1986 to 2015, employing Augmented Dickey-Fuller (ADF), bound test and ARDL. It was found that capital flight has

reduced the development resources of the nation, thereby leading to embarking on foreign debt in the economy⁷⁸.

The empirical relationships between capital flight and macroeconomic variables have been the thrust of several studies. A link between capital flight and external debt in Nigeria was found. He particularly noted that outflow of capital persistently aggravates balance of payment deficits. An empirical document has it that outflow of capital is the major cause of currency overvaluation, excessive fiscal deficit and high inflationary tendencies in the domestic economy. Capital flight stimulates poor private domestic investment, it significantly exacerbate financial repression and risk premium. It was discovered that exchange rate misalignment is a critical determinant of capital flight. To them, if a currency were overvalued, economic agents would expect the currency to be devalued in future, and in order to protect their assets against exchange rate risk; domestic wealth holders would shift out the domestic assets into foreign assets to avoid potential capital loss. The narrowness of the domestic money and capital markets in terms of their financial instruments and proclaim that narrow markets limit the availability of investment opportunities, which is further compounded by financial regression, which renders investments in domestic economy less attractive was examined. Thus, holding assets in foreign financial instruments provide a viable and profitable alternative⁷⁹.

Error correction mechanism (ECM) was employed to investigate the speed of adjustment between capital flight and economic growth in Nigeria using annual time series data from 1970 to 2010. The analysis begins with testing the stationarity status of the time series by employing ADF to confirm the number of integrating order. For most of the periods, capital flight estimates had positive sign indicating the residents consistently took capital out of Nigeria. The study further documented that exchange rate volatility and high inflation rate are the important means through which capital flight is effected in Nigeria ,with evidences that

confirmed the existence of financial relationship between capital flight and external indebtedness in Nigeria. The study therefore submits inter alia, repatriating of flight capital to boost the growth initiative with selective controls on capital outflow changes in Nigeria tax laws and a bias toward poor wages⁸⁰.

An examination reveals that one of the factors in the capital flight literature is loan disbursement or debt service payment. Some economists have argued with him that loan disbursement is a major cause of capital flight in the sense that the availability of foreign exchange to pay for foreign debt obligations increases the potentials for graft and corruption. He examined the impacts of capital flight on economic growth of Nigeria between 1980 and 2012. The study used co-integration, OLS and ECM as its estimation techniques. The evidence however showed that capital flight, foreign reserve, external debt, foreign direct investment and current account balance cointegrate with gross domestic product (GDP) in Nigeria, within the year of study. It was also discovered that capital flight had negative impact on the economy. Based on the empirical findings, it was recommended that the government should create an enabling environment for profitable investment and offer foreign investors attractive incentives, as this will reduce the occurrence of capital flight from Nigeria and lead to sustainable growth and development in the economy⁸¹.

The impact of illicit financial flows on economic growth and development in Nigeria was examined using annual time series data with the time scope being 1980-2015. Using a cointegration analysis, the results showed the presence of long-run relationship among the variables and that the illicit financial flows had a significant impact, both on economic growth and development in Nigeria. The relationship between capital flight, labour migration and economic growth in Pakistan was examined, using annual time series data of 1983 to 2014. To estimate data collected, granger causality test, ordinary least squares and two-stages least square

are employed. Findings from the two-stage least square indicate that political instability, labour migration, unemployment and capital flight have a negative impact on the economic growth of Pakistan; while the granger causality test reveals a bi-directional causality between capital flight and economic growth⁸².

Moreover, the findings thereof indicate the existence of long-run relationship among the variables, and that capital flight has a negative impact on economic growth in Nigeria, for the period under consideration, capital flight from Saudi Arabia reached over USD 212 billion in

2010, resulting to declining growth of 3.57%. The author further provides new estimates of illicit capital flight in Saudi Arabia for the period of 1971 to 2015 using a residual method. Impact of capital flight on domestic investment was examined using time series data covering 1980 to 2017 by employing the ARDL model. Results showed the presence of long-run relationship among the variables and that capital flight established a negative and significant effect on domestic investment in Nigeria⁸³.

From a short-run perspective, the impact of capital flight on the Nigerian economy was investigated, based on two different approaches. The author restricts the estimation only to short-run analysis, in order to avoid likely pitfalls associated with uncertainty over the direction of effect of possible long-run variables. Results show that trade deficits, nominal exchange rate and capital control are important determinants of short-run capital flight in Nigeria⁸⁴.

A study aims to fill the observed gap in the literature related to capital flight and its determinants. Annual time series data between 1970-2015 were used for empirical investigations through the application of the newly introduced quantile autoregressive distributed lag model. Following the extensive investigation, these evidences emerged: A long-run relationship exists between global economic uncertainties, exchange rate volatilities, and capital flight in Nigeria and other affected economies. Also, the effect of exchange rate volatility and global uncertainty are sensitive to different quantiles of capital flight distributions. Capital flight shows strong evidence of hysteresis in all quantiles. Therefore, if the fight against capital migration must be

won in Nigeria, stabilization of the exchange rate among other things is of paramount importance. The overall findings have strong policy implications for the fight against capital flight⁸⁵.

A study ascertained the directional effect of institutional qualities through contract intensive money and effective governance index to economic growth in Nigeria using annual time series data covering 1979-2018. The study hinges on Solow-swan neoclassical growth model and Washington consensus to provide insight on the policy necessity for institutional qualities. The study employed the Johansen co-integration and OLS approach. The estimates revealed joint relationship among the variables. The OLS model shows that economic growth responds positively to institutional governance and it is statistically significant, while effective governance index exert positive and insignificant influence on the economy. The empirical results further revealed that economic growth respond both positively, negatively and significantly to the effect from the variables of domestic investment and foreign direct investment⁸⁶.

Another study examined capital flight and human development index in Nigeria. Capital flight was proxied by foreign direct investment abroad, external debt servicing, external reserves, capital and financial account deficits. The Augmented Dickey Fuller test used revealed that the variables were integrated at level and first difference, necessitating the use of ARDL lag/ bounds test to explore the long-run relationship existing among the variables. The result showed that capital and financial account deficits, external debt servicing and external reserves were positively related to human development index while foreign direct investment was negatively related to human development index. Also, capital and financial account deficits, external reserves and FDI were significant while external debt servicing was significant. The study therefore recommend amongst others, that external debt acquired should be judiciously used for

infrastructural development that would encourage investments, which would ultimately bring about economic growth and enhance human development in Nigeria⁸⁷.

Migration is a part of humanity. As noted by scholars over time, people migrate for different reasons. Some of the reasons are political, economic, family, educational, medical, career, and search for greener pastures or better qualities of life. This is not a function of gender, age, educational attainment, male and female, old and young; learned and unlearned. It was opined that emigrant's characteristics and distribution differs across countries and regions. The age being belief that a good life exists only outside Nigeria and learning the borders of Nigeria emerged as a trending culture)⁸⁸.

An examination of the impacts of capital flight on domestic investment in Nigeria between 1980-2017. By adopting the ARDL, the study revealed that capital flight has a negative and significant impact on domestic investment. Its long-run effect is more severe than the short-run effect. The indication of this is that capital flight exerts a negative effect on domestic investment over time. The study recommended that the real sector must be grown, in-order to boost the currency value. This will ultimately attract investment and reduce the occurrence of capital flight in the economy. Capital flight and economic growth was examined between 1990 and 2017, using ordinary least squares and augmented dickey fuller test, granger causality test and cointegration test. The study revealed that net foreign investment abroad; external debt servicing and external reserves being proxies for capital flight have an impact on economic growth proxied by gross domestic product⁸⁹.

Unemployment and inflation are critical economic indicators that impact a country's overall economic stability and growth. Maintaining low and stable unemployment, along with relatively stable prices, is a key goal for policy makers to foster economic growth and development. This involves implementing various policies and strategies, especially monetary

and fiscal policies to strike a balance between these two factors. The study investigates the effect of unemployment and inflation on economic growth in Nigeria, using the annual time series data of 1986-2020. To examine the model coefficient, ordinary least square is employed. Findings implied that the coefficient of unemployment has a negative and significant effect on economic growth in Nigeria, while inflation exerts a positive effect. This can be valuable to policy makers as it suggests that addressing unemployment and managing inflation effectively could contribute to fostering economic growth and development. The study recommends that relevant agencies should formulate policies to encourage self-employment and reduce the cost of doing business, create an enabling environment for businesses to thrive. This shall be done, coupled with strong governance in order to achieve a high, rapid and sustainable economic growth and development⁹⁰.

An article examined the impact of capital flight on economic growth in Nigeria. The model covered 1980-2012. The variable in the model was estimated for possible cointegration. The findings revealed that capital flight have adverse effect on the GDP. Recommendations were made on how to check the menace of capital flight in Nigeria. Also, there is need for the policy makers to set up appropriate institutions to check the volume of capital that flows out of the domestic economy. There should also be restrictions on external borrowing by all levels of government and agencies and the private sectors. Competitive and stable exchange rate policy should be maintained by the government⁹¹.

A study examined the effect of capital flight on macroeconomic performance in Nigeria for 1981-2019. The error correction model was used as the unit root test revealed all variables were stationary at first difference. The study utilized secondary data sourced from the World Bank. The result showed that external debt in the current period and the first lag, external debt, foreign direct investment, current account balance, interest rate and reserves are significant determinants of capital flight in Nigeria. It also showed that capital flight negatively affects economic growth and investment in Nigeria. Understanding these determinants is crucial for policy makers and economists. This helps in designing strategies to mitigate the effect of capital flight and its potential adverse effects on the country's economic growth. The study recommends

that external debt and foreign direct investment should be used for productive purposes, such that capital flight, as a result of inflow of funds from abroad is impossible and that stable exchange rate policies should be adopted to avoid devaluation, which is a determinant of capital flight in Nigeria⁹².

Capital flight increased up to its peak of \$4,407.2million in 2006. Cote d'ivoire is among the top countries in sub Saharan African countries with the highest capital of \$45.4billion or 194.1% of GDP. Nigeria and Angola are the richest countries in terms of natural resources, especially in oil and gas and they are equally where the capital flight is most massive. The Middle East and North Africa recorded the largest growth in illicit financial flows (31.5% per year), closely followed by sub Saharan African countries at 19.8%. With this, it is realized that the exodus of capital from African countries is becoming a source of concern. Countries cannot afford to ignore the role of capital flight and its reversal in their quest for economic growth. With West African countries having low level of domestic resource mobilization, it's of utmost importance to critically consider and analyze the extent and magnitude of capital flight to measure its impact on economic growth⁹³.

Examination of the impact of capital flight on economic growth in Nigeria in line with the World Bank residual approach to measuring capital flight was done. This was done with the aid of ARDL model to estimate the model coefficients on time series data from 1970 to 2016, the result showed the presence of a negative relationship between capital flight and economic growth⁴⁶. Using a panel framework, investigation of the effect of corruption and institutional governance indicators on capital flight using a portfolio choice framework through GMM and fixed effect regression on panel data from 32 countries in Sub-Saharan Africa over a sample period of 2000-2012. The result showed that corruption encourages capital flight on the continent and thus retards economic growth in the long-run⁹⁴.

Also, another work in the same vein examined the impact of capital flight on economic growth in Nigeria between 1990- 2017. The ADF test was employed to test for time series stationarity. The OLS Econometric method of data analysis was employed for the study. The Ttest showed a positive relationship between capital flight proxies and GDP as a proxy for economic growth⁹⁵.

To study empirically the relationship between capital flight and economic growth in a panel of West African countries, a dynamic heterogeneous panel regression as a panel-ARDL model is set up and the dynamic fixed effects (DFF) estimation technique is applied from 1970-2016. For the DFF estimator, only the individual effects allow for sample heterogeneity, while the coefficients of the exogenous variables are assumed to be constant. This technique is often used in estimation technique⁹⁶.

2.4 Conceptual Framework

The Uzawa growth model was adapted in this Study. The Uzawa growth model is a neoclassical model that incorporates human capital accumulation into the standard Solow growth model. This provides a theoretical foundation that allows for a deeper understanding of the endogenous factors driving economic growth in the specific context of Nigeria⁹⁹. This model allows for testing hypotheses derived against empirical evidence, contributing to a more nuanced analysis of the complex interplay between capital flight and institutions and its combined effects on Nigerian economic growth. The adapted model is modified to involve introducing variables that capture the impact of capital flight on human capital accumulation and technological progress. The model explicitly incorporates institutional qualities as a determinant of human capital accumulation and technological progress. Factors that might influence the relationship between capital flight, institutional qualities and economic growth, like external shocks were looked into. The production function in the Uzawa growth model is given by:

$$Y(t) = A(t) * [K(t)^{1-\alpha}] * [H(t)^\alpha] \quad (2.1)$$

Where $Y(t)$ represents the output at time t , $A(t)$ represents the level of technological progress at time t , $K(t)$ represents the stock of physical capital at time t , $H(t)$ represents the stock of human capital at time t , α is the output elasticity of human capital.

It is assumed that the change in physical capital stock over time is governed by the following equation:

$$\Delta K(t) = I(t) - \delta * K(t) \quad (2.2)$$

Where $\Delta K(t)$ represents the change in physical capital stock at time t , $I(t)$ represent the investment at time t , δ is the depreciation rate of physical capital.

Also, change in human capital stock over time is given by:

$$\Delta H(t) = s * Y(t) - n * H(t) \quad (2.3)$$

Where $\Delta H(t)$ represents the change in human capital stock at time t , s is the savings rate, representing the proportion of output allocated to investment in human capital, n is the rate of population growth.

The change in technological progress over time is described by:

$$\Delta A(t) = \eta * A(t) * \left[\frac{H(t)}{L(t)} \right]^\beta \quad (2.4)$$

Where $\Delta A(t)$ represents the change in technological progress at time t , η is the rate of technological progress, $L(t)$ represents the labor force at time t , β is a parameter representing the elasticity of technological progress with respect to human capital.

Thus, as these dynamics occur, output changes:

$$\Delta Y(t) = \Delta(A(t) * [K(t)^{1-\alpha}] * [H(t)^\alpha]) \quad (2.5)$$

This is transform as:

$$\Delta Y(t) = \Delta A(t) + (1-\alpha)\Delta[K(t)] + \alpha\Delta[H(t)] \quad (2.6)$$

Hence, equations (2) - (4) are inserted into equation (6):

$$\Delta Y(t) = \eta * A(t) * \left[\frac{H(t)}{L(t)}\right]^\beta + (1 - \alpha)(I(t) - \delta * K(t)) + \alpha(s * Y(t) - n * H(t)) \quad (2.7)$$

However, the researcher extends the model to incorporate the effects of capital flight (both physical and human) and institutional qualities on economic growth. This is so because, we are adapting the theoretical framework. We introduced additional variables and assumptions from equation (2.1) in the theoretical framework. It should be noted that physical capital flight (CFP)(t) and human capital flight (CFH)(t) represent the level of capital flight in physical and human capital, respectively, at time t, Q(t) represents the level of institutional qualities at time t. Based on these variables, The Researcher modifies the production function in the Uzawa growth model to include the effects of human capital and institutional

qualities^{99,100}:

$$Y(t) = A(t) * [K(t)^{1-\alpha}] * [H(t)^\alpha] * [Q(t)^\gamma] \quad (2.8)$$

Where α and γ are the output elasticity of human capital and institutional qualities, respectively. In the face of Capital Flight in physical capital and human capital, Physical capital accumulation is affected by investment, depreciation, and capital flight:

$$\Delta K(t) = I(t) - \delta * K(t) - CFP(t) \quad (2.9)$$

while Human capital accumulation is influenced by investment in education ($s * Y(t)$ - s is investment rate) and capital flight in human capital:

$$\Delta H(t) = s * Y(t) * H(t) - CFH(t) \quad (2.10)$$

The change in technological progress over time is described by:

$$\Delta A(t) = \eta * A(t) * [H(t)/L(t)]^\beta \quad (2.11)$$

Where $\Delta A(t)$ represents the change in technological progress at time t , η is the rate of technological progress, $L(t)$ represents the labor force at time t , β is a parameter representing the elasticity of technological progress with respect to human capital.

Thus, as these dynamics occur, output changes:

$$\Delta Y(t) = \Delta(A(t) * [K(t)^{1-\alpha}] * [H(t)^\alpha] * [Q(t)^\gamma]) \quad (2.12)$$

To linearise, this is transformed as:

$$\Delta Y(t) = \Delta A(t) + (1 - \alpha)\Delta[K(t)] + \alpha\Delta[H(t)] + \gamma\Delta[Q(t)] \quad (2.13)$$

Hence, equations (2.4) in the theoretical framework, (2.9) and (2.10) are inserted into equation (2.5):

$$\Delta Y(t) = \eta * A(t) * [H(t)/L(t)]^\beta + (1 - \alpha)(I(t) - \delta * K(t) - CFP(t)) + \alpha(s * Y(t) - n * H(t) - CFH(t)) + \gamma\Delta[Q(t)] \quad (2.14)$$

Equation (2.14) is divided by Y to obtain the growth rate model

$$\frac{\Delta Y(t)}{Y(t)} = \eta * A(t) * \left[\frac{H(t)}{Y(t)L(t)} \right]^\beta + \frac{(1 - \alpha)(I(t) - \delta * K(t) - CFP(t))}{Y(t)} + \alpha \left(\frac{s * Y(t)}{Y(t)} - n * \frac{H(t)}{Y(t)} - \frac{CFH(t)}{Y(t)} + \frac{\gamma\Delta Q(t)}{Y(t)} \right) \quad (2.15)$$

Where $g(t)$ = growth rate, A = constant, H = human capital, L = Labor, I = investment, K = capital, CFP = capital flight (physical), saving rate, output, CFH = capital flight (human), Q = institutional qualities.

2.5 Summary of Gaps in the Literature Reviewed

Works has been done in the past by many authors and some of these were reviewed. Empirical results showed different and varying results. The focus of many of the works done in the past was mainly on the effects of physical capital flight on economic growth. Evidence is lacking on

the effect of human capital flight on economic growth. Many of these studies looked at political risk, at the expense of other qualities of institutions, driving capital flight for economic growth. The empirical results conveyed in the literatures reviewed suggest that capital flight have negative effects on economic growth. Some said the effect is positive. Others say it is context specific, while some say it is not necessarily negative, but it is dependent on some factors, such as scale of outflows and political risk^{37,38}. In spite of government huge spending and energy expended on how to improve capital flows and institutional qualities, capital flight persists. This leads to ask whether institutional qualities needs to get to a level before it can stem the tide of capital flight, to promote economic growth, hence its thresholds.

As the government strives to improve the institutional qualities, both positive and negative events may occur that may strengthen or weaken the qualities of institutions, in the presence of capital flight. Thus, given this shocks, to what extent does economic growth respond, even in the face of capital flight. The foregoing empirical reviews convey two relevant points. First, the studies underline the negative impact of capital flight from developed and developing economies⁹⁷. It also considered Nigerian economy on human capital flight otherwise known as brain drain and capital flight in terms of funds⁹⁸. Human capital flight affects economic growth and its effects become unambiguously negative when the emigration rate is very high. Secondly, lack of economic growth encourages and motivates professionals to emigrate^{28,29,35,44,45}. Many of the studies reviewed did not consider the effects of the interaction between capital flight and institutional qualities on economic growth. Hence, this study. Empirical studies reviewed discussed the threshold level of some of the institutional qualities, but not on all of the institutional qualities“ variables considered in this study.

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Chapter Three

Methodology

This Chapter focuses on the methodology adopted for this Study. It presents the models drawn from the Theoretical Framework (in 2.5) for the objectives of the Study (section 3.1). Also, models for the objectives 1-4 were presented (section 3.11, 3.12, 3.13 and 3.14). Section 3.2 discusses the measurement of variables. Also, section 3.3 and 3.4 respectively discussed sources of data collected and model estimation techniques.

3.1. Baseline Models for the Objectives

3.1.1 Model for the Effect of Capital Flight on Economic Growth

Equation (3.1) becomes the baseline model for this study as it is drawn to examine the effect of capital flight on economic growth, presented in equation 3.1:

$$g_t = \varphi + \sigma h_t + \vartheta k_t + \pi d_t - p cfp_t + \alpha i_t - \tau cfh_t + \omega q_t + \varepsilon_t \quad (3.1)$$

To obtain the equation for economic growth, the baseline equation it is divided by Y to obtain an econometric equation¹. Thus; $g_t = \varphi + \sigma h_t + \vartheta k_t + \pi d_t - p cfp_t + \alpha i_t - \tau cfh_t + \omega q_t + \varepsilon_t$

Where $g = \Delta Y(t)/Y$, $h = H/YL$, $k = (\Delta I(t))/Y$, $d = \Delta(\delta K(t))/Y$, $cfp = \Delta CFP/Y$, $i = \Delta/Y$, $cfh = \Delta CFP/Y$, $L = (\eta A(t))/Y$ is a constant, $\vartheta = 1 - \alpha$, σ , π , p , α , τ , ω are coefficients and ε_t is the error term while t is time. Where, g is growth in real gross domestic product, h is human capital, k is capital, d is capital depreciation, cfp is physical capital flight, i is investment in human capital, cfh is human capital flight and q is a vector of institutional qualities, including

government stability (GS), control of corruption (CC), law and order (LO),

democratic accountability (DA), and bureaucratic regulation (BR). It is expected, however, that

$\sigma < 0$, $\vartheta > 0$, $\pi > 0$, $p < 0$, $\alpha > 0$, $\tau > 0$, $\omega > 0$.

3.1.2 Model for the Role of Institutional Qualities

In order to study the role institutional qualities play in the relationship between capital flight and economic growth, the baseline equation is further modified².

$$g_t = \varphi + \sigma h_t + \vartheta k_t + \pi d_t - \rho cfp_t + \alpha i_t - \tau cfh_t + \omega q_t + \theta cfp^* q_t + \varepsilon_t \quad (3.2)$$

It is expected, that $\sigma > 0$, $\vartheta > 0$, $\pi > 0$, $\rho < 0$, $\tau > 0$, $\omega > 0$, $\theta < 0$, $\varepsilon < 0$.

3.1.3 Model for the Threshold Level of Institutional Qualities

Further, the model to be estimated to study the threshold level of institutional qualities that will reduce capital flight for economic growth, equation (3.2) is further modified³.

$$g_t = \varphi + \sigma h_t + \vartheta k_t + \pi d_t - \rho cfp_t + \alpha i_t - \tau cfh_t + \omega q_t + \theta cfp^* q_t + \varepsilon cfh^* q_t + Y_1 cfp^* q_t^2 + Y_2 cfh^* q_t^2 + \varepsilon_t \quad (3.3)$$

Where ρcfp is the coefficient of physical capital flight

It is expected that $\sigma > 0$, $\vartheta > 0$, $\pi > 0$, $\rho < 0$, $\tau > 0$, $\omega > 0$, $\theta < 0$, $\varepsilon < 0$.

Thus, the threshold level will be obtained as given in equations (3.4) and (3.5):

$$\frac{\partial g_t}{\partial q_t} = \omega + \theta cfp_t + \varepsilon cfh + 2Y_1 cfp^* q_t + 2Y_2 cfh^* q_t = 0 \quad (3.4)$$

$$q^* = \frac{-(\omega + \theta cfp_t + \varepsilon cfh)}{2(Y_1 cfp^* + Y_2 cfh^*)} \quad (3.5)$$

3.1.4 Model for Economic Growth Response to Shocks

Finally, the VAR model, according to economic theory, is employed to study the response of economic growth to shocks in institutional qualities in the presence of capital flight using equation (3.4)^{4,5,6}.

3.2 Description, Measurement and Sources of Variables

The variables are described and measured, as presented in Table 3.1.

Variable Description Measurement		
Economic Growth (g)	It is an increase in the value of an economy's goods and services. It is the process by which a nation's wealth increases over time	Productivity Output of Labour
Human Capital (h)	This is composed of knowledge, skills, and health, invest in by people and accumulates over time, which enables them to realize the potential as a productive member of the society.	Human Capital Index
Capital (k)	This refers to cash or liquid assets held or obtainable for expenditure.	Gross Fixed Capital Formation
Depreciation of Capital (d)	This refers to loss in the economic value of an asset.	Depreciation Rate*Gross Fixed Capital Formation

Investment in Human Capital		This can be done by investment in training, education, and motivation of employees.	Expenditure on Education, Health and Social Service
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(i)

Human Capital	Flight		Income approach
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(cfh)

This is the emigration or immigration of private individuals, who have received advanced training at home. The net benefit goes to the receiving country, and it is known as brain gain, while the net costs, for the sending country is brain drain.

Institutional Qualities (q)

This implies the institutional qualities governing laws, traditions, and government property rights, among others, in order to achieve an upward economic and social convergence.

Evaluation of corruption, governance, regulation, rule of law, and social participation

Physical Capital	Flight		
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(cfp)

It is the diversion of scarce resources away from domestic investment and productive activities.

Difference between capital inflows and the sum of current account deficits and the increases in the official reserves.

Interaction between
Human Capital Flight and
Institutional Qualities
(cfh*q)

This is direct involvement of
institutional qualities in human
capital flight

Income approach
with the indicators
of institutional
qualities.

Interaction between
Physical Capital
Flight and
Institutional Qualities

It is the interaction of institutional
qualities on physical capital flight.

Difference
between capital
inflows and the
sum of current

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(cfp*q)

account deficits
increases in the
official reserves and
how institutional
qualities responds.

Source: Researcher's Computation, 2023

3.3. Sources of Data Collection

The study focused on the effect of capital flight on the growth process of Nigerian economy and the roles, institution played. Time series data was used for the analysis. The secondary data was obtained from such publications as World Bank Digest of Statistics,

Central Bank of Nigeria statistical bulletin, Annual Abstract of Statistics of the Bureau of Statistics (NBS), 2022 and peer review surveys (PRS).

3.4. Model Estimation Techniques

The behaviour of the data as well as the Pre-Estimation tests (Unit Root test and CoIntegration test) determined the appropriate estimation techniques used. However, the unit root test presents a combination of I(0) and I(1) variables and there was co-integration among the variables, hence, objective one to three was achieved using the Autoregressive Distributed Lag (ARDL) Model. ARDL is well suited for modeling time series data, making it more appropriate for studying economic variables over time. Also, ARDL is commonly used for cointegration among variables. The study involves examining whether there is a long term equilibrium relationship among the variables; hence the use of ARDL is a suitable choice. Finally, ARDL allows analysis of both short-run and long-run dynamics.

Objective four was achieved using the Vector Autoregressive (VAR) Model in the

Toda-Yamamoto framework (except the variables are $I(0)$'s or $I(1)$'s). This approach involves testing and modeling Granger causality in a VAR framework. VAR models are more flexible, compared to other models, like Vector error correction (VEC). This implies that VAR models can be used, even if the variables in the data set do not have long-term relationships. Also, VAR models are more simple to estimate and interpret. VAR models can be more

straightforward for forecasting short-term movements in the variables. They capture the short-term dynamics between variables. Using VAR in Toda-Yamamoto framework is robust to various data-generating processes, making it applicable to a wide range of empirical settings. By including lagged values of variables in the model, VAR within Toda-Yamamoto framework captured the temporal dynamics of causal relationships. Toda-Yamamoto approach does not require specifying the direction of causality beforehand, hence the use of VAR.

Endnotes

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Chapter Four

Results and Discussion of Findings

Chapter four presents the data for this Study and their analysis based on the objectives drawn. Section one presents the preliminary analysis for the data, such as graphical analysis, descriptive analysis, correlation analysis and covariance analysis. Section two reports on the Preliminary tests carried out on the data which include; Unit Root test and Cointegration test. Section three to section six presents the analysis done on the data to achieve objectives one to four, respectively while the last section discusses the findings.

4.1 Preliminary Analysis

4.1.1 Graphical Analysis

Figure 4.1 presents the growth of Output in Nigeria from 1986 to 2022. It is observed that there is a fluctuation in the values of the output growth in the year under review. There is both an upward and downward trends. An upward trend in the percentage of output growth implied that the output or economic activity increases over time. It is considered, a positive sign, indicating an economic expansion or growth, suggesting that the economy is producing more goods and services, leading to a positive multiplier effect, among which are; higher employment, increased income and living standards.

For the years experiencing downward trends in the percentage output growth, its implication is that output or economic activity decreases over time, indicating economic recession, and that the economy is producing fewer goods and services. This ultimately leads to job losses, reduced income and potentially lower living standards.

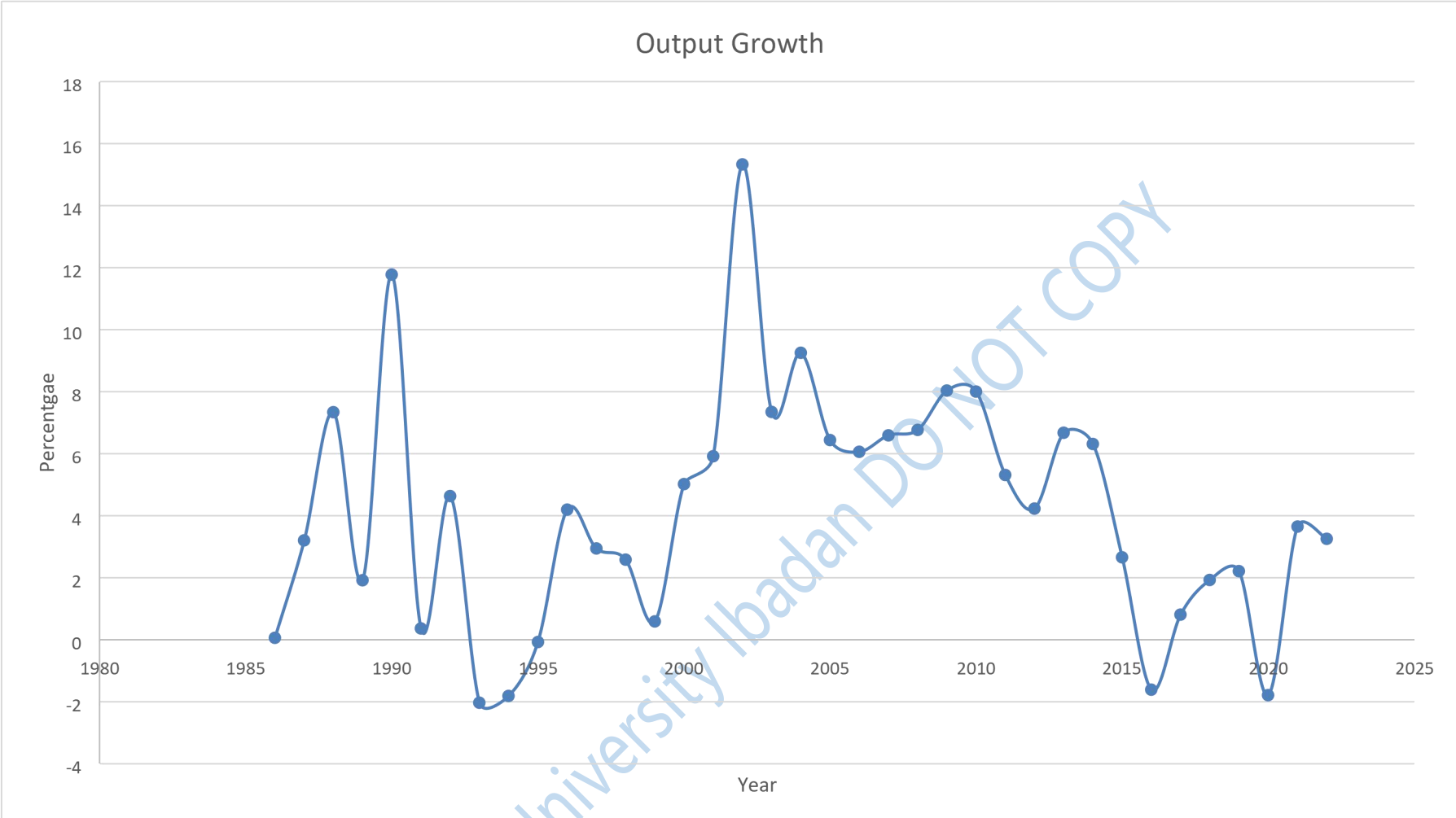


Fig 4.1: Growth of Output
 Source: Researcher's compilation, 2023

Figure 4.2 expresses capital flight in terms of physical. The values were expressed in US Dollars. More capital leaves the country in the year 2004, until 2007, when it started experiencing a decline from 2008, till 2011. It rose again in 2012, came down in 2015 and the fluctuation continued, till 2022. When more capital leaves a country, it is seen as a negative sign for the country's economy, because it can indicate a lack of confidence in the country's economic and political stability. Investors may be moving their capital away from the domestic economy due to concerns about unfavourable business conditions, political uncertainty, or economic instability. However, the downward trend in the capital flight (physical), implied that more capital are returning to or being invested in the economy. This is viewed as a positive sign because it signifies increased confidence in the country's economic prospects, political stability and business environments, thereby attracting domestic and foreign investments, ultimately leading

to job creation and economic growth in the domestic economy.

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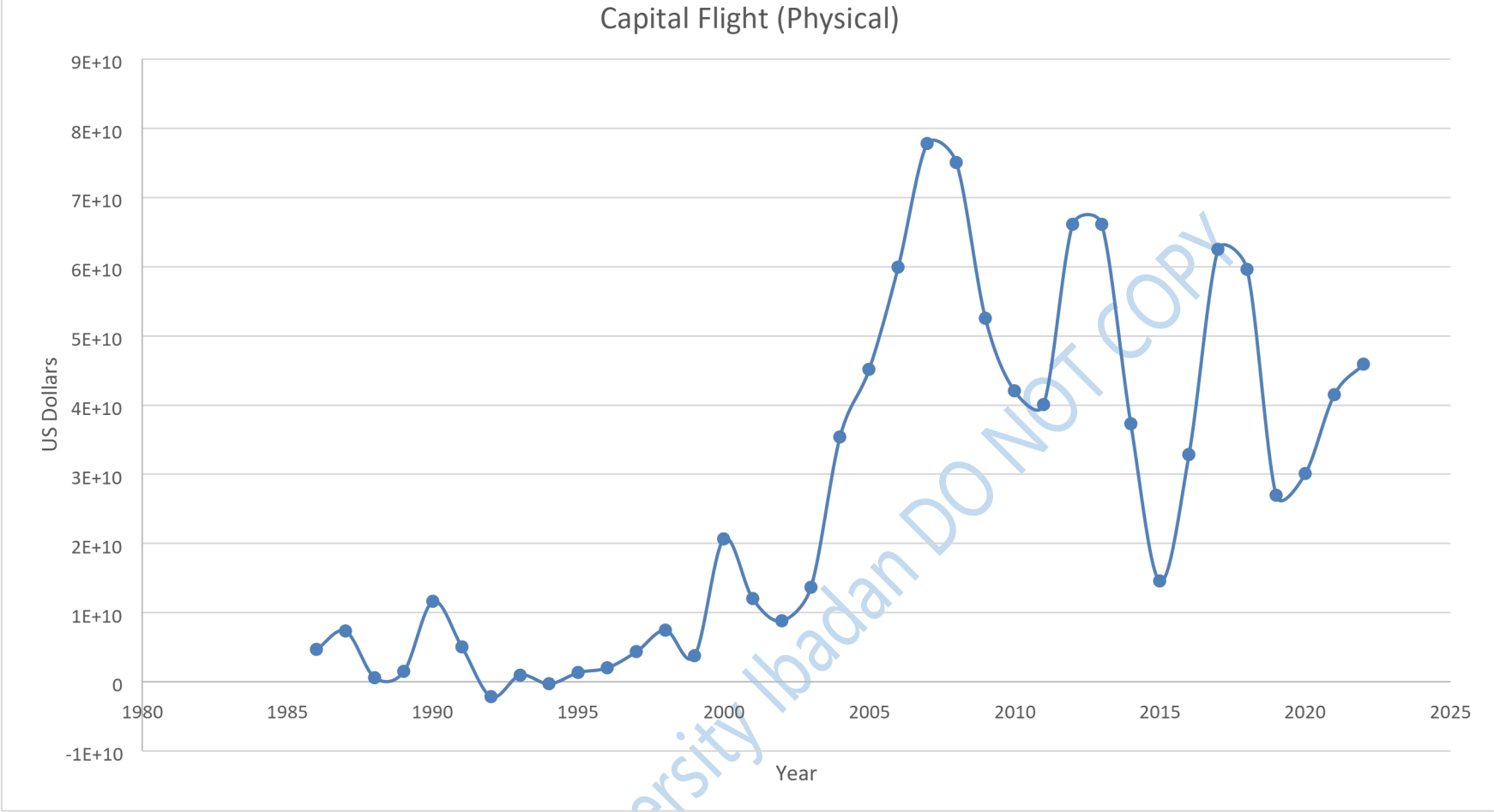


Fig 4.2 Capital flight (Physical)

Source: Author's computation, 2023

Expressing capital flight in human form in fig 4.3 otherwise known as brain drain, from the figure are both positive and negative trends. It could be observed that from 2005 to 2009, the value of human capital flight is negative, it rose slightly again in 2010 and started dropping in 2013, till it reached the lowest point in 2015. Its value continued to fluctuate again, till 2022. The upward trend in the values of human capital flight indicates that more highly skilled individuals are leaving the country. This could result from factors such as limited economic opportunities, lack of job prospects, inadequate infrastructures, political instability, insecurity or the absence of academic and research resources within a country. However, the decline in the value of the human capital flight is seen as a positive development. This connotes that more skilled individuals are returning to or are choosing to stay within the home country. This may results from improved economic opportunities, political stability, investment in education and research or favorable living conditions that attract skilled professionals back to their home country, or encourage them to remain.

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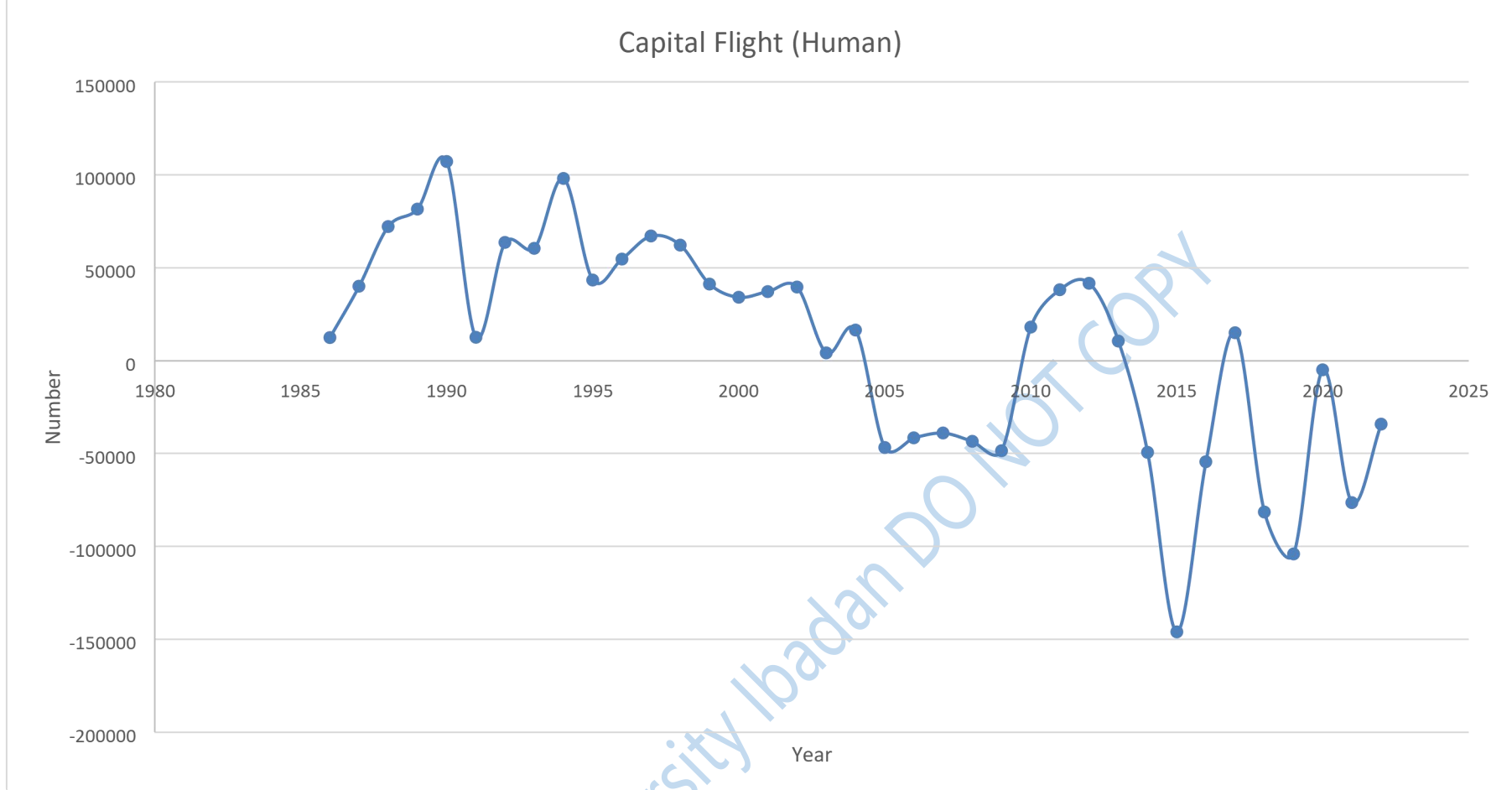


Fig 4.3 Capital flight (Human)
Source: Author's computation, 2023

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Institutional qualities, represented by government stability, control of corruption, law and order, democratic accountability, and bureaucratic qualities were expressed in percentage in fig 4.4. These are the changes in the effectiveness, integrity and the overall performance of a country's institutions. These trends have profound implications for a nation's governance, economic development and social well-being. When there is an upward trend in the institutional qualities, it suggests that a country's institutions are improving and becoming more effective, transparent and accountable. This implies a positive sign, signifying progress in areas like the rule of law, anti-corruption measures, protection of property rights, and efficient public services. On the other hand, a decline in institutional qualities signifies that a country's institutional qualities are deteriorating or becoming less effective, potentially due to corruption, political instability, inadequate governance or other factors. This decline can erode public trust, hinder economic growth and development, and lead to social and political instability.

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Institutional Qualities

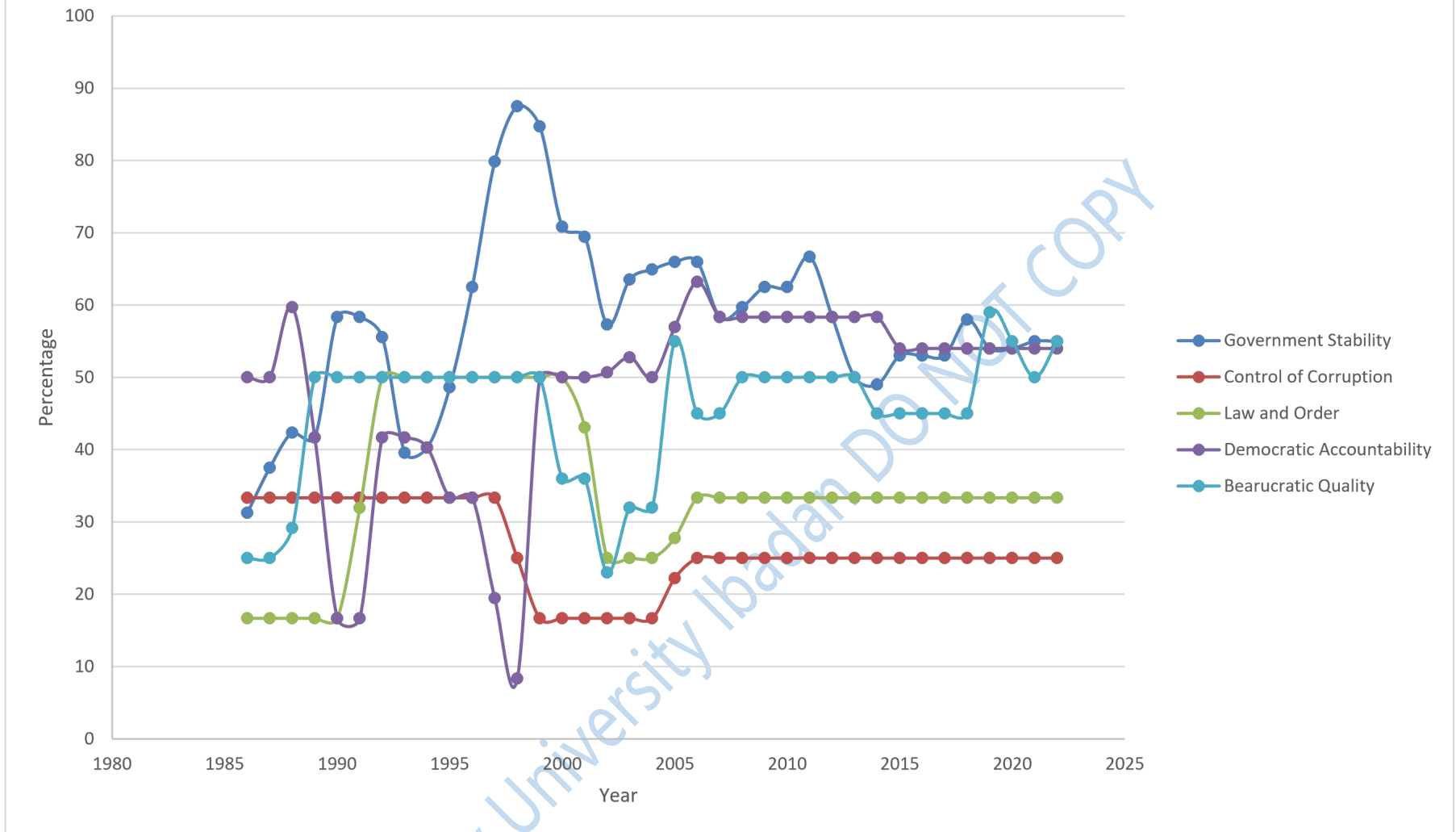


Fig 4.4 Institutional Qualities
Source: Author's Computation, 2023

Fig 4.5 refers to changes in the availability and deployment of financial or economic capital within an economy. As seen from the graph, an increase in the trend of capital suggests that there is an increase in the availability and deployment of financial resources in an economy. This can indicate factors such as increased investment, improved access to financing higher savings rates or foreign direct investment inflows. However, a downward trend capital signifies a decrease in the availability or deployment of financial resources in an economy. This might results in from factors such as capital flight, reduced investment, financial crisis, or a decline in savings rates. A decrease in capital can lead to economic stagnation and potentially job losses.

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Capital

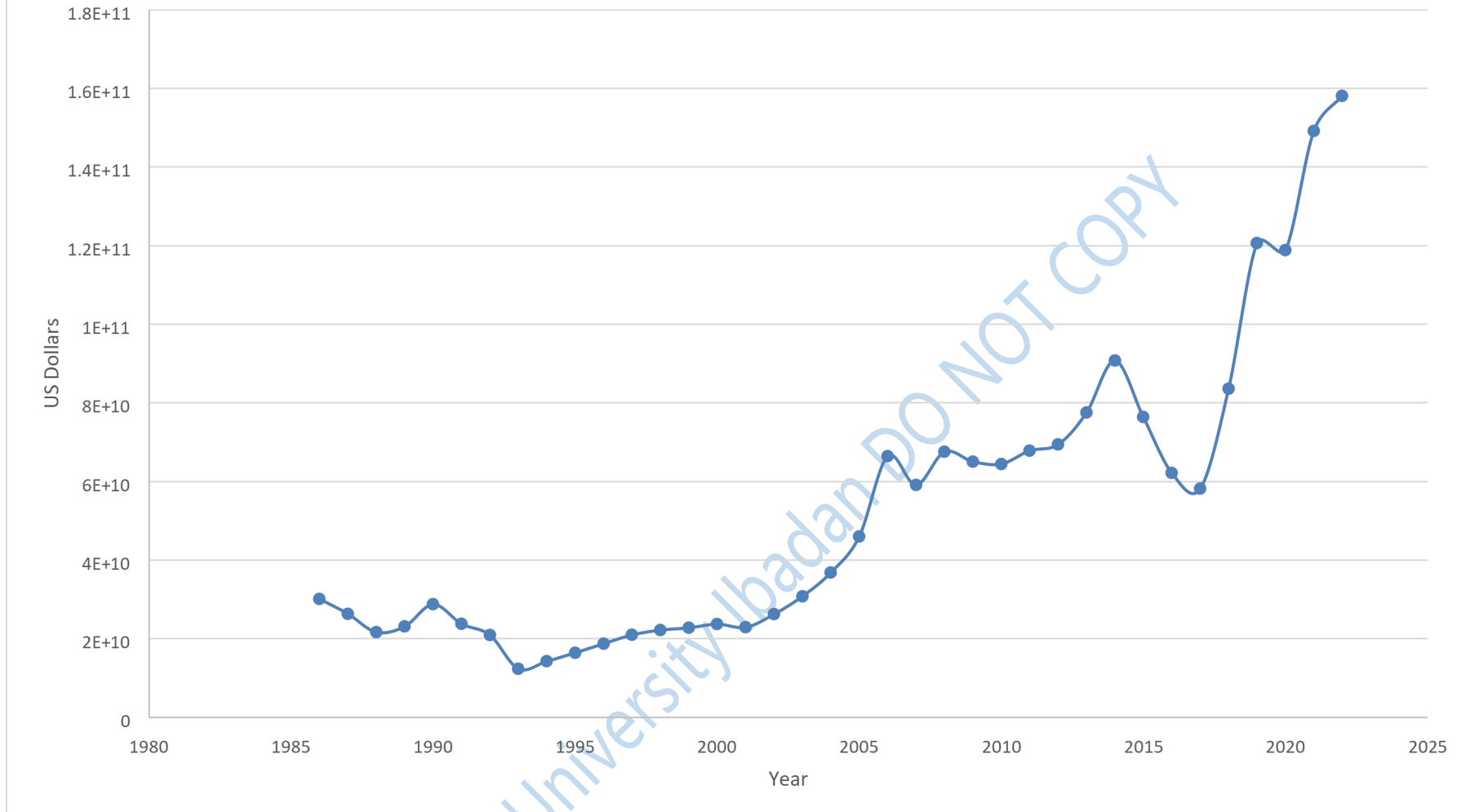


Fig 4.5 Capital

Source: Author's Computation, 2023

Human capital in fig 4.6 refers to changes in the development, education and skills of a population, within a specific country. An increase in human capital signifies an improvement in the education, skills and overall knowledge of the population. It is seen as positive sign for a country as it suggests that more individuals are obtaining higher levels of education, vocational training and skills development. An increase in human capital as seen in the graphical illustration above lead to a more skilled and productive workforce, which is often associated with higher economic growth, innovation and improved living standards. A downward trend suggests a

decline in the education and skills of the population.

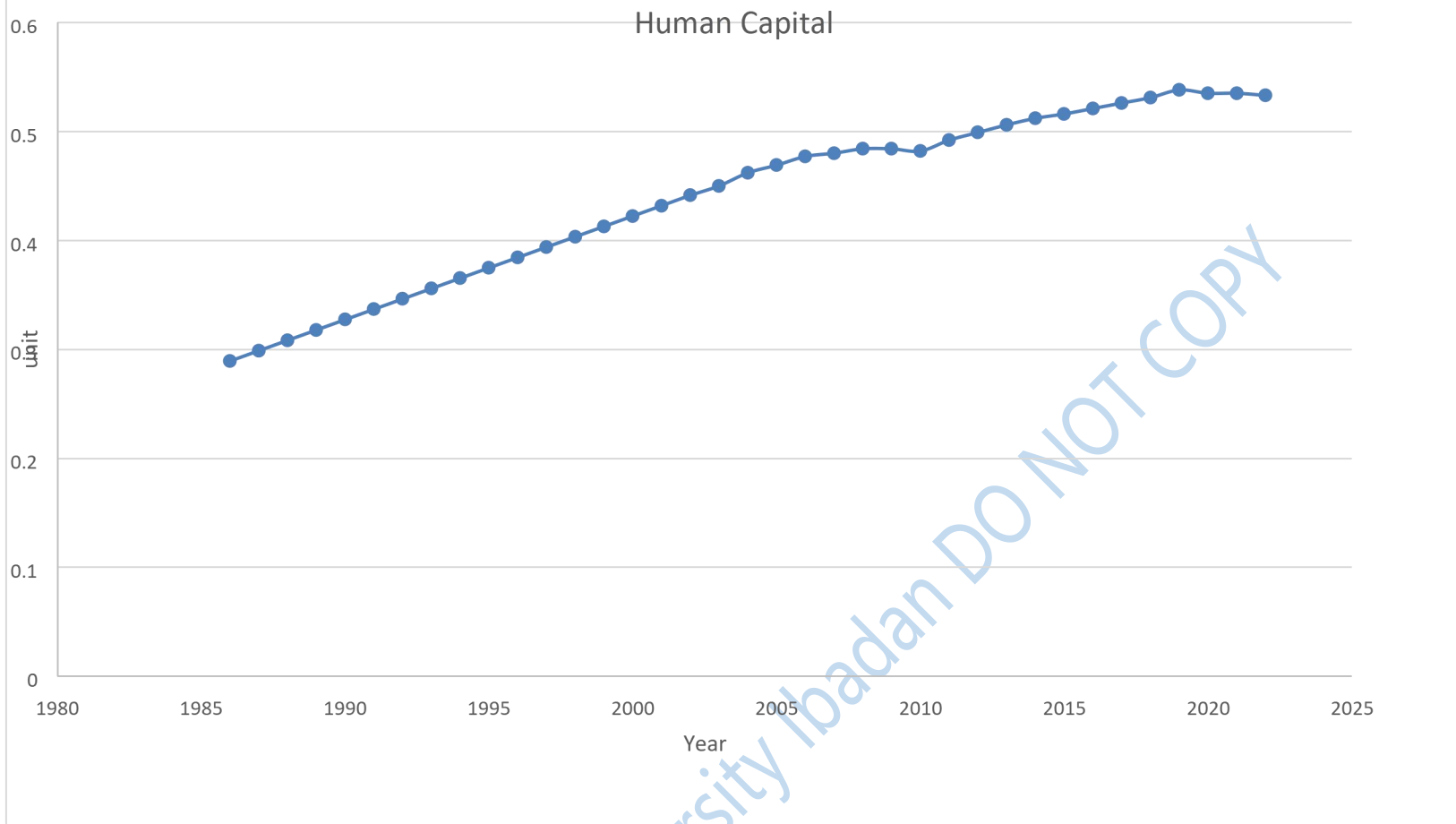


Fig 4.6 Human Capital

Source: Author's Computation, 2023

Depreciation connotes changes in the rate at which assets lose their value over time. It is a reduction in the value of an asset. From the figure, there was an upward increase in the values of depreciation from 1986-2006. It decline and rose again to 2009 came down again in 2010 before it rose again until 2022. The upward trend indicates that assets are losing their value at an increasing rate over time. This can be a sign of aging equipment, poor maintenance, or a shift in technology that renders assets obsolete faster. It may results to higher expenses for businesses. On the other hand, downward trend in depreciation suggests that assets losing their value at a decreasing rate over time. This could be due to effective maintenance, technological advancement that extends the useful life of assets or other efficiency improvements. A decrease in depreciation expenses can positively impact a company's financial statements, as it reduces the cost associated with asset depreciation.

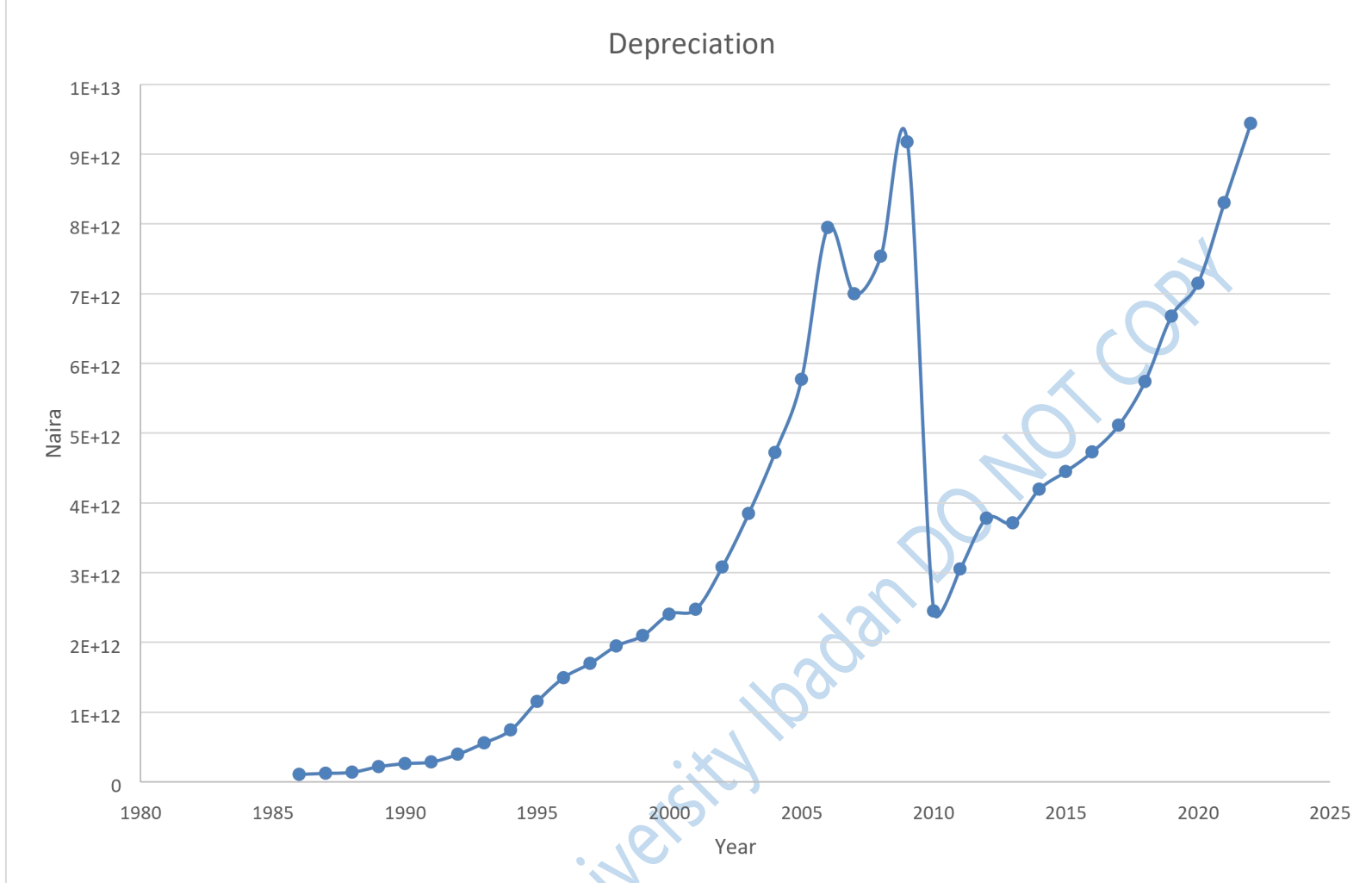


Fig 4.7 Depreciation

Source: Author's Computation, 2023.

4.1.2 Descriptive Analysis

This section presents the descriptive statistics on the variables selected for this study. For each of the variables, the mean, standard deviation, minimum, maximum, skewness, kurtosis and Jacque-Bera statistics were presented. The aim of this, was to ascertain the nature of the variables employed for this study, that is its distributive feature. For each variable, data was obtained from 1986-2022, which makes a total of 37 observations.

For economic growth (g), the average growth for this period was 4.62%, having a minimum growth of -2.03% and a maximum growth of 15.33%. Comparing this statistics with the standard deviation of 3.85%, it can be concluded that the series of g is not too spread from the mean value. This equally indicates periods of both high and low economic growths, potentially reflecting economic fluctuations. The positive skewness value of 0.516 suggests that the data may be slightly right skewed meaning that there might be some higher values on the right side of the distribution. This positive skewness suggests that while the majority of the observations might cluster around the mean, there are relatively high values on the right side of the distribution, indicating occasional periods of rapid economic growth. The kurtosis value of 3.456, higher than the kurtosis of normal distribution of 3, suggests that the data has heavier tails and may exhibit more extreme values than a normal distribution. This implies that the economic growth rates exhibit more variability and may be susceptible to sudden changes. The Jacque-Bera Test value of 1.96 with its probability value of 0.37 indicates that the data may be close to normality. Hence, it can be said that g exhibits features around normal distribution.

The descriptive analysis of the institutional qualities was looked into. These are government stability (GS), control of corruption (CC), law and order (LO), democratic accountability (DA) and bureaucratic regulation (BR). The close alignment of the mean and the median suggests a

stable and relatively consistent level of human capital investment in the economy. The consistency can have a positive implication for the country's long term growth prospects, indicating that human capital development can be beneficial for planning and policy making. The range and the standard deviation indicate that there is more variability in human capital levels across different sectors and regions. The leftward skewness in the data suggests that there might be areas with relatively lower levels of human capital. The kurtosis value suggests the presence of potential extreme values in human capital. Identifying these can help policy makers address specific areas with unusual human capital patterns. Succinctly put, analysis of human capital data suggests a foundation of stability and consistency but also reveals variability and challenges within the human capital landscape.

For the capital, the median is relatively lower at 3.68, compared to the mean of 5.25. This suggests that the average capital is relatively higher. The range of capital values with maximum at 1.58 and minimum at 1.23 suggests a significant spread of capital levels within the data set. The standard deviation of 3.77 signifies a substantial degree of variability in capital levels suggesting that the data points are quite spread out from the mean indicating a considerable variability in capital investment. The skewness of 1.194893 suggests a rightward skew in the distribution of capital data, implying that there might be some observations with relatively high capital levels, while the majority might be concentrated on the lower end. Kurtosis value of 3.821512 indicates that the data has a high likelihood of extreme values. The Jacque-Bera Test yields a statistic of 9.845017 with low probability of 0.007281 indicating a strong departure from normality. The high capital level suggests a strong level of capital investment in the economy, which is advantageous in the economy as they provide resources for investment and expansion. The wide range and high standard deviation suggests significant variations in capital levels and the right skewness indicates that there might be certain sectors with high

capital investment. The mean of capital flight (physical) is 2.74 and the median is 2.06, suggesting that on the average, the economy experiences a moderate level of physical capital flight. If well managed, it may not be deteriorating to the economy. The data set displays a wide range of physical capital flight, with the maximum value at 7.78 and the minimum value ranges between 1.23 and 2.17,

indicating a significant variability in the levels of capital flight. The standard deviation of 2.49 implies a notable degree of variability in the data suggesting that capital flight levels vary considerably from the mean. The positive skewness valued at 0.507565 suggests a rightward skew in the distribution of physical capital flight implying that there might be some observations with the relatively high capital flight levels, while the majority might have low lower levels. Kurtosis value of 1.915218 indicates that the data may have a moderate likelihood of extreme values.

The difference in the values of the mean and the median depicts that the median is substantially higher. This indicates that a significant discrepancy. The data set display a wide range of human capital flight, with the maximum value at 107212.0 and the minimum value of -145917. The negative value indicates both emigration and immigration of human capital. This means that the major sectors and regions of the economy have relatively high human capital flight. The high standard deviation of 58734.12 signifies a substantial degree of variability in the data indicating that human capital flight levels vary considerably. The negative skewness value of -0.58887 implies that there might be some observations with relatively low levels of human capital flight, while the majority might have higher levels. The kurtosis value of 2.789695 indicates that the data may have a moderate likelihood of extreme values. The Jacque-Bera test yields a statistic of

2.206592 with a probability of 0.331776 suggesting that the data does not strongly depart from normality, indicating a relatively normal distribution.

The descriptive analysis of the institutional qualities variables were looked at. These are government stability (GS), control of corruption (CC), law and order (LO), democratic accountability (DA) and bureaucratic regulation (BR). The close alignment between the mean and the median suggests a relatively stable government environment, which is generally positive for economic growth and investment. The range of government stability is at maximum at 87.50000, minimum been at 31.25000. This signifies the variability in government stability. The standard deviation of 12.20134 signifies a moderate degree of variability in government stability, suggesting that government stability levels can fluctuate. The positive skewness suggests that while the majority of the observations may be closer to the mean, there could be some outliers with higher stability scores. The kurtosis value of 3.402033 indicates that there may be some extreme values in government stability. The Jacque-Bera value suggests a relatively normal distribution. For the control of corruption, the values of the mean and the median suggests that there is a relatively consistent level of control of corruption, a positive for economic growth and investment, as a stable and low corruption environment attracts businessmen and investors. The range suggests variability in the control of corruption across regions or periods. The standard deviation implies a moderate degree of variability in the control of corruption. The skewness depicts with the negative sign that there may be some outliers with lower corruption scores. The kurtosis value indicates that there may be some extreme values in the control of corruption. The Jacque-Bera Test yields a statistic of 1.453465 with a probability of 0.483501, indicating that the data does not significantly depart from normality, suggesting a relatively normal distribution. For law and order, the mean and the median values suggest a relatively stable law and order environment. This is conducive to economic growth, investment and business development,

providing security and confidence. The range indicates some variability in law and order, across regions or time periods. The standard deviation signifies a moderate degree of variability in law and order. The positive skewness suggests that there may be some observations with relatively higher law and order. The kurtosis suggests the potential presence of extreme values in law and order. The Jacque-Bera Test yield indicates a normal distribution. The kurtosis result shows that there are areas of exceptional high or low law and order.

In the case of democratic accountability, the median is notably higher than the mean, indicating a significant discrepancy between the mean and the median. The range signifies considerable variability in democratic accountability levels across different regions or time periods. The standard deviation signifies a moderate variability in the data. The negative skewness suggests that the majority of observations may be clustered on the higher side of the distribution. The kurtosis value indicates extreme values in democratic accountability. The Jacque-Bera Test result signifies strong departure from normality. Finally, the bureaucratic regulation mean and median values indicate a significant discrepancy. The range signifies considerable variability. The standard deviation signifies a moderate degree of variability in the data. The negative skewness value of -1.17655 implies that the majority of the observations may be clustered on the data side of the distribution. The kurtosis value indicate likelihood of higher extreme values and the Jacque-Bera Test results yield a statistic of 8.744345 with a probability of 0.01126241 indicating that it is not normally distributed.

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4.1.3 Correlation Analysis

The correlation analysis in Table 4.2 provides valuable insights into the relationships between various variables. Examining the associations with variable G, we observe positive correlations with HC (0.07), K (-0.04), CFP (0.22), GS (0.246), and DA (0.173). This suggests that as G increases, there's a slight tendency for HC, a moderate increase in CFP, and a moderate positive association with DA. Moving on to HC, it positively correlates with G (0.07) and exhibits a strong positive correlation with DA (0.551). Interestingly, HC has a substantial negative correlation with CFH (-0.72), indicating that an increase in HC corresponds to an increase in G and DA, while it decreases as CFH increases.

In the case of K, a strong positive correlation with HC (0.78) is observed, indicating a robust relationship between these variables. K also exhibits a moderate positive correlation with DA (0.484). However, K shows negative correlations with CC (-0.596), LO (-0.169), DA (0.484), and BR (0.393). This implies that K strongly increases with HC, moderately increases with DA, and tends to decrease with CC, LO, and BR. Further exploration of the relationships reveals positive correlations for CFP with HC (0.74), K (0.60), GS (0.109), and DA (0.594). As CFP increases, there's a tendency for HC, K, GS, and DA to increase.

Examining CFH, we find negative correlations with HC (-0.72), K (-0.70), CFP (-0.54), GS (0.010), and CC (0.349). CFH decreases as HC, K, and CFP increase, while exhibiting weak positive correlations with GS and CC. GS shows positive correlations with G (0.246), HC

(0.266), CFP (0.109), CC (-0.536), LO (0.443), and BR (0.232). This indicates that GS tends to increase with G, HC, CFP, LO, and BR, while decreasing with CC.

CC exhibits negative correlations with G (-0.382), HC (-0.596), K (-0.232), CFP (-0.367), LO (0.029), DA (-0.444), and BR (0.198). CC decreases with G, HC, K, CFP, LO, and DA, but has a weak positive correlation with BR. Looking at LO, negative correlations are observed with G (0.380), CC (-0.029), and DA (-0.304), suggesting that LO decreases with G, CC, and DA. However, LO shows positive correlations with HC (0.075), GS (0.443), and BR (0.430), indicating an increase with HC, GS, and BR.

For DA, positive correlations are found with HC (0.551), K (0.484), CFP (0.594), and BR (0.430), signifying that DA tends to increase with HC, K, CFP, and BR. Finally, examining BR, positive correlations are observed with HC (0.357), K (0.393), CFP (0.242), GS (0.232), LO (0.430), and CC (0.198). BR decreases with G (-0.345), indicating an inverse relationship, while it increases with HC, K, CFP, GS, LO, and CC.

Table 4.2: Correlation Analysis of the Variables

	G	HC	K	CFP	CFH	GS (Government Stability)	CC (Control of Corruption)	LO (Law and Order)	DA (Democratic Accountability)	BR (Bureaucratic Regulation)
G	1									
HC	0.07	1								
K	-0.04	0.78	1							
CFP	0.22	0.74	0.60	1						
CFH	0.04	-0.72	-0.70	-0.54	1					
GS	0.246	0.266	-0.065	0.109	0.010	1				
CC	-0.382	-0.596	-0.232	-0.367	0.349	-0.536	1			
LO	-0.380	0.075	-0.169	-0.169	0.143	0.443	-0.029	1		
DA	0.173	0.551	0.484	0.594	-0.524	-0.245	-0.444	-0.304	1	
BR	-0.345	0.357	0.393	0.242	-0.168	0.232	0.198	0.430	-0.167	1

Source: Author's computation, 2023

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4.1.4 Covariance Analysis

The covariance analysis reveals significant relationship between the variables. The covariance between growth and human capital is at 0.021. This signifies a tendency for both variables to move in the same direction. Similarly, growth and capital exhibits a notably higher covariance of 6155457051, indicating a robust positive relationship, suggesting that an increase in growth correspond to an increase in capital. Moreover, the covariance between growth and physical capital flight stands at 2.0893, reaffirming a positive trend. These findings collectively indicate a positive relationship among growth, human capital, capital, and physical capital flight, highlighting their interconnectedness. The covariance of 9238.908 reflects a positive relationship that as growth increases; human capital flight also tends to increase. The covariance between growth and government stability is 11.259, suggesting a positive association. However, for growth and control of corruption, the covariance is -8.263, signaling a negative relationship. As growth increases, control of corruption tends to decrease. A similar negative relationship is observed for growth and law and order with covariance of -15.340, indicating that as growth increases, law and order tends to decrease. These distinct covariances denote varying relationships among the variables, underscoring the diverse and contrasting dynamics. Another covariance of 8.795 of growth and democratic accountability indicate a positive relationship. Conversely, the covariance between growth and bureaucratic regulation is calculated at -11.754, signifying a negative relationship. These covariances underscore differing associations between growthG, democratic accountability and bureaucratic regulation.

Distinct relationships emerge between human capital and capital, computed at 2.26, indicate a positive relationship.. Similarly, the covariance between human capital and physical capital flight is calculated at 1.42, affirming a positive relationship. Conversely, the covariance between

human capital and human capital flight stands at -3246.644, revealing a negative relationship. Additionally, the covariance of human capital and government stability computes at 0.247781, signifies a positive relationship. Furthermore, the covariance between human capital and control of corruption is computed at -0.262451, indicating a negative relationship. The examination of covariances revealed varied relationships among the variables. Human capital and law and order computes at 0.061948, indicating a positive relationship. Moreover, the covariance between human capital and democratic accountability (0.569917) and human capital and bureaucratic regulation (0.247734) both suggest positive relationships. Regarding capital, its covariance with physical capital flight is at 1.39, suggesting a positive relative relationship. Conversely, the covariances between capital and human capital flight and government stability, capital, and control of corruption and capital and law and order, are all negative. The covariance between human capital flight and physical capital flight computes at -7.67723, indicates an inverse relationship. Moreover, the covariance of 32247497172 between physical capital flight and government stability, suggests a positive relationship. Conversely, the covariance of 51299371867 between physical capital flight and control of corruption implies an inverse relationship. Similarly the covariance between physical capital flight and law and order of 44217671087 suggests that as physical capital flight increases, law and order tends to decrease. On the other hand, the covariance of 1.95138 between physical capital flight and democratic accountability suggests that as physical capital flight increases, democratic accountability tends to increase as well. The covariance of 533955475298 between physical capital flight and bureaucratic regulation indicates a positive relationship. Also, the covariance of 3356461309 between human capital flight and government stability implies a positive relationship.

Furthermore, the positive covariance of 114863.699 between human capital flight and control of corruption suggests these variables tend to increase together. Also, the positive

covariance of 88199.8167 between human capital flight and law and order implies that as human capital flight increases, law and order tends to increase as well. Conversely, the covariance of 495398.44 between human capital flight and democratic accountability indicates an inverse relationship. In the same vein, the covariance of -87147.962 between human capital flight and bureaucratic regulation, suggests that as human capital flight increases, bureaucratic regulation tends to increase as well. The covariance of 32.36344 between government stability and control of corruption suggests a tendency for these variables to increase together. Conversely, the covariance of -1.741606 between government stability and law and order implies an inverse relationship. Also, the negative covariance of -33.75329 between democratic accountability and bureaucratic regulation indicates an inverse relationship. Additionally, the positive covariance of 112.7338 between control of corruption and law and order suggests that these variables tends to increase together.

The negative covariance of -43.1855 between control of corruption and democratic accountability suggests an inverse relationship. Conversely, the covariance of 40.97138 between control of corruption and bureaucratic regulation indicates a positive relationship. Regarding law and order and democratic accountability, the negative covariance of -39.4331 suggests an inverse relationship. Also, the positive covariance of 25.01359 between law and order and bureaucratic regulation, indicates a positive relationship. The negative covariance of -19.99886 between democratic accountability and bureaucratic regulation, suggests an inverse relationship. Furthermore, the covariance of 40.97138 between bureaucratic regulation and control of corruption exhibits a positive relationship. Analysing bureaucratic regulation relationship with other variables. There is positive covariances with government stability (10.12837), law and order (25.01359), human capital (0.247734) and a negative covariance with growth (11.754009),

indicating respective positive and negative relationships. Moreover, the covariance of -87147.962 between bureaucratic regulation and human capital flight and 53395547529 with physical capital flight and 1.31274 with capital suggests that an increase in bureaucratic regulation is associated with a decrease in human capital flight and an increase in physical capital flight and capital.

These covariance values provide valuable insights into the tendencies of these variables to move together or in opposite directions, informing potential relationships and patterns within the dataset.

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Table 4.3: Results of Covariance Analysis of the variables

	G (stability)	HC (Corruption)	K (Order)	CFP (Accounting)	CFH (regulation)	Government and economic	CC(Contractic)	GS(Governance)	Level of LO (Law)	(Democracy)	DA (Bureaucracy)	BR
G	14.4523609											
HC	0.0211102	0.00599										
K	6155457051	2.26E+09	1.39E+21									
CFP	2.0893E+10	1.42E+09	5.49E+20	6.05E+20								
CFH	9238.90822	-3246.644	-1.51197E+15	-7.67723E+14	3356461309							
GS	11.258632	0.247781	-29300898536	32247497172	6686.37767	144.849						
CC	-8.2627684	-0.262451	-49295063170	-51299371867	114863.699	-36.677	32.36344					
LO	-15.340474	0.061948	-66980713317	-44217671087	88199.8167	56.63623	-1.741606	112.7338				
DA	8.79499054	0.569917	2.41278E+11	1.95138E+11	-405398.44	-39.4331	-33.75329	-43.1855	178.5724			
BR	-11.754009	0.247734	1.31274E+11	53395547529	-87147.962	25.01359	10.12837	40.97138	-19.99886	80.45118		

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4.2.1 Unit Root Test

The Augmented Dickey-Fuller (ADF) unit root tests were conducted to assess the stationarity properties of the variables at both their original levels and after taking the first difference. Thus,

G, HC, GK, LCFH, GS, LCFP, BR, GD, LCFHB, LCFHD, LCFHG, LCFHL, LCFPB, LCFPC, LCFPD, and LCFPG exhibit ADF statistics below the critical values, indicating they are integrated of order 0 ($I(0)$) and are stationary at their original levels. Whereas, CC, LO, DA, LCFHC, LCFHL, and LCFPG show ADF statistics above the critical values, suggesting that their first differences are stationary ($I(1)$). As a result, the result the variables for the study are combination of $I(0)$ and $I(1)$.

4.2 Preliminary Tests

Table 4.4 Results of Unit Root Tests

Variable	At Level		At First Difference		Conclusion
	ADF Stat	T Table	ADF Stat	T Table	
G	-4.037	-3.627***			I(0)
HC	-5.320	-3.627***			I(0)
GK	-4.683	-3.627***			I(0)
LCFH	-5.437	-3.627***			I(0)
GS	-3.055	-2.948**			I(0)
CC	-2.241	-2.613	-3.439	-2.948**	I(1)
LCFP	-3.979	-3.689***			I(0)
LO	-2.922	-2.948	-3.645	-3.633**	I(1)
DA	-2.415	-2.612	-5.795	-3.633***	I(1)
BR	-3.093	-2.946**			I(0)
GD	-6.007	-3.627***			I(0)
LCFHB	-4.000	-3.627***			I(0)
LCFHC	-2.736	-2.612*	-8.105	-3.633***	I(1)
LCFHD	-3.821	-3.627***			I(0)
LCFHG	-3.179	-2.946**			I(0)
LCFHL	-2.564	-2.612	-6.812	-3.633***	I(1)
LCFPB	-4.026	-3.627***			I(0)
LCFPC	-3.442	-2.968**			I(0)
LCFPD	-3.591	-2.972**			I(0)
LCFPG	-2.544	-2.612	-7.301	-3.633***	I(1)

Note: *,** and *** represents 10%,5% and 1% level of significance respectively

4.2.2 Co-Integration Test Results

The results of the bounds test for cointegration were conducted and presented in Table 4.5. In the model where G is regressed on LCFP, LCFH, GS, CC, LO, DA, and BR, the F statistic was 4.358 with 7 degrees of freedom. Comparing this with critical values at 1%, 5%, and 10%, the conclusion is that the variables are cointegrated. This is for objective one. For objective two, two

models were estimated where G is regressed on LCFP, LCFH, LCFPG, LCFPC, LCFPL, LCFPD, and LCFPB, yielded an F statistic of 6.086 with 7 degrees of freedom, leading to the conclusion of cointegration. As well as the model with G regressed on LCFP, LCFH, LCFHB, LCFHC, LCFHD, LCFHG, and LCFHL, whose F statistic was 5.267 with 7 degrees of freedom, supporting the conclusion of cointegration.

For objective three, two models were also estimated. G was regressed on LCFPGSQ, LCFPCSQ, LCFPPLSQ, LCFPDSQ, LCFPBSQ which resulted in an F statistic of 7.322 with 12 degrees of freedom, indicating cointegration. Also, G was estimated on LCFHGSQ, LCFHSQ, LCFHLSQ, LCFHDSQ, LCFHBSQ. The F statistic was 10.887 with 12 degrees of freedom, leading to the conclusion of cointegration. Thus, in all models, the F statistic exceeded critical values at various significance levels, providing evidence for cointegration among the variables. This suggests a long-term relationship, emphasizing the interconnectedness of the specified variables in each model.

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Table 4.5 Results of Bounds Approach to Cointegration Test

Model	F stat		K	1%		5%		10%		Conclusion
	I(0)	I(1)		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	
g= lcfp,lcfh, gs,cc,lo,da, br)	4.358		7	2.96	4.26	2.32	3.5	2.03	3.13	cointegrated
g= f(lcfp,lcfh, lcfpg,lcfpc, lcfpl, lcfpd, lcfpb)	6.086		7	2.96	4.26	2.32	3.5	2.03	3.13	cointegrated
g= f(lcfp,lcfh, lcfhb,lcfhc, lcfhd, lcfhg, lcfhl) g= f(lcfp,lcfh, lcfpg,lcfpc, lcfpl, lcfpd, lcfpb,lcfpgs	5.267		7	2.96	4.26	2.32	3.5	2.03	3.13	cointegrated
lcfpsq, lcfplsq, lcfpdsq,lcfpbsq)	7.322	12		2.54	3.86	2.06	3.24	1.83	2.94	cointegrated
g=f(lcfp,lcfh, lcfhg,lcfhc,lcfhl,lcfhd,lcfhb,lcfhgsq, lcfhsq, lcfhlsq, lcfhdsq, lcfhbsq)	10.887		12	2.26	3.6	1.82	2.99	1.6	2.72	Cointegrated

Source: Author's Computation, 2023

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4.3: Effect of Capital Flight on Economic Growth in Nigeria

The model for the effect of capital flight on economic growth was estimated and the results for both the Long run and the short run models have been presented in Table 4.6. The long run result stipulates that a percentage increase in physical capital flight (LCFP) produced an increase of 0.0020 basis point increase in economic growth although it is not statistically significant ($p > 0.05$). This suggests that changes in physical capital flight may not have a statistically significant impact on long-term economic growth in Nigeria according to the current model. It could have occurred by chance, rather than as a result of the variable. On the other hand, a 1% increase in human capital flight (LCFH) shows a positive and statistically significant coefficient of 0.018 (T-statistic of 2.663 at the 5% significance level). This implies that the net movement of labor from Nigeria to other countries is associated with a positive and significant effect on long-term economic growth. For every 1% increase in human capital flight, there is a corresponding increase of 0.018 in the variable. The increase is statistically significant, implying that it is not likely due to random chance but it is a meaningful relationship between the two variables.

Government stability (GS) has a positive coefficient of 0.172, indicating that an increase in government stability is linked to higher economic growth in the long run. However, the statistical significance is not very high (T-statistic of 1.658). The control of corruption (CC) variable exhibits a positive coefficient of 0.227, but it is not statistically significant at conventional levels (T-statistic of 1.038). This suggests that the level of corruption control may not have a statistically significant impact on long-term economic growth in Nigeria according to the current model. And it is likely not due to random chance. Law and order (LO) shows a negative

coefficient of -0.270, and it is statistically significant at the 5% level (T-statistic of -2.200). This implies that a better law and order situation is associated with lower long-term economic growth. This reflects a meaningful association between law and order and economic growth.

Democratic accountability (DA) has a negative coefficient of -0.014, but it is not statistically significant (T-statistic of -0.211). This suggests that changes in democratic accountability may not have a statistically significant impact on long-term economic growth in Nigeria based on the current model. An increase in democratic accountability is associated with a decrease in economic growth. The association could be potentially due to random chance. Bureaucracy (BR) exhibits a negative coefficient of -0.063, but it is not statistically significant (T-statistic of -0.492). This implies that the efficiency and effectiveness of the bureaucracy may not have a statistically significant impact on long-term economic growth in Nigeria according to the current model. An increase in Bureaucracy is associated with a decrease in economic growth.

Hence, it can be concluded in the long run that, net human capital flight (LCFH) appears to be a significant factor positively influencing long-term economic growth in Nigeria. However, other variables, including physical capital flight (LCFP), government stability (GS), control of corruption (CC), democratic accountability (DA), and bureaucracy (BR), do not show statistically significant associations with long-term economic growth in the context of this model.

In the Short run, the constant term is -16.178, and it is statistically significant at the 1% level. Changes in government stability from the previous period ($\delta (G(-1))$) have a negative and statistically significant effect on short-run economic growth, with a coefficient of -0.406. This implies that fluctuations in government stability negatively impact economic growth in the short term. This suggests that an increase in government stability is associated with a decrease in economic growth in the short-run.

The first difference of the natural logarithm of physical capital flight ($\delta(\text{LCFP})$) has a negative coefficient of -0.165, and it is statistically significant at the 10% level. This suggests that changes in physical capital flight negatively influence short-run economic growth at the 10% significance level. The lagged changes in physical capital flight ($\delta(\text{LCFP}(-1))$) have a negative and statistically significant effect on short-run economic growth, with a coefficient of -0.201. This indicates that past changes in physical capital flight continue to impact economic growth negatively in the short term.

Changes in the natural logarithm of human capital flight ($\delta(\text{LCFH})$) have a positive and statistically significant effect on short-run economic growth, with a coefficient of 0.294. This implies that variations in human capital flight positively influence economic growth in the short term. Lagged changes in human capital flight ($\delta(\text{LCFH}(-1))$) have a negative and statistically significant effect on short-run economic growth, with a coefficient of -0.339. This suggests that past changes in human capital flight continue to impact economic growth negatively in the short term.

The first difference of control of corruption ($\delta(\text{CC})$) has a positive and statistically significant effect on short-run economic growth, with a coefficient of 0.608. This indicates that changes in the control of corruption positively influence economic growth in the short term. Changes in law and order ($\delta(\text{LO})$) have a negative and highly statistically significant effect on short-run economic growth, with a coefficient of -0.531. This implies that variations in law and order negatively impact economic growth in the short term at the 1% significance level. Changes in bureaucracy ($\delta(\text{BR})$) negatively impact short-run economic growth, with a coefficient of -0.167, and this effect is statistically significant at the 1% level. Additionally, lagged changes in

bureaucracy ($\delta(BR(-1))$) have a negative and statistically significant effect on short-run economic growth, with a coefficient of -0.108. This suggests that both current and past changes in bureaucracy negatively influence economic growth in the short term.

The lagged error correction term ($ECM(-1)^*$), with a coefficient of -0.685, is statistically significant at the 1% level. This indicates that deviations from the long-run equilibrium in the previous period are negatively and significantly corrected in the short run, signifying a quick adjustment to restore equilibrium in the short term.

In summary, the short-run model suggests that various factors, including changes in government stability, physical and human capital flight, control of corruption, law and order, and bureaucracy, play significant roles in influencing short-run economic growth in Nigeria. The error correction term indicates a rapid adjustment to restore equilibrium in the short term. Policy considerations should be informed by these findings to address the short-term dynamics of

economic growth.

Table 4.6 Regression Results for the Effect of Capital Flight on Economic Growth in Nigeria

Objective 1

Long-run

Variable	Coefficient	std error	t-statistic
LCFP	0.214	0.486	0.440
LCFH	1.814	0.681	2.663**
GS	0.172	0.104	1.658
CC	0.227	0.219	1.038
LO	-0.270	0.123	-2.200**
DA	-0.014	0.067	-0.211

BR	-0.063	0.128	-0.492
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Note: ** represent 5% level of significance

Short-run			
Variable	Coefficient	std error	t-statistic
C	-16.178	2.380	-6.797***
δ (G(-1))	-0.406	0.087	-4.657***
δ (LCFP)	-0.165	0.084	-1.968*
δ (LCFP(-1))	-0.201	0.068	-2.935***
δ (LCFH)	0.294	0.127	2.311**
δ (LCFH(-1))	-0.339	0.153	-2.215**
δ (CC)	0.608	0.149	4.094***
δ (LO)	-0.531	0.067	-7.899***
δ (BR)	-0.167	0.046	-3.606***
δ (BR(-1))	-0.108	0.055	-1.972*
ECM(-1)*	-0.685	0.098	-7.015***

Note: *,** and *** represents 10%,5% and 1% level of significance respectively

Source: Author's computation,2023.

The post-estimation tests provide valuable insights into the reliability and validity of the regression model. The normality test indicates that the residuals are normally distributed, supporting the assumption of normality. Similarly, the serial correlation test suggests no systematic correlation between errors, affirming their independence. The heteroscedasticity test indicates consistent variability in residuals across observations. Additionally, the omission of variable test finds no evidence of important variables being left out.

Moreover, graphical stability tests, including the Cusum graph and Cusum of Squares graph, show that the model remains stable over time without significant indications of structural instability or specification errors. Collectively, these findings reinforce the robustness and

appropriateness of the regression model, instilling confidence in the reliability of the estimated coefficients and the overall validity of the analysis.

Result of Post Estimation Tests

Test	Statistics	Conclusion
Normality	1.827806(0.4010)	Normally distributed
Serial correlation	1.355036(0.2878)	No serial correlation
Heteroscedasticity	1.030893(0.4754)	No presence of Heteroscedasticity
Omission of variable	0.134657(0.7148)	No omission of variables
Stability: Cusum	graph	stable
Cusum of squares	graph	stable

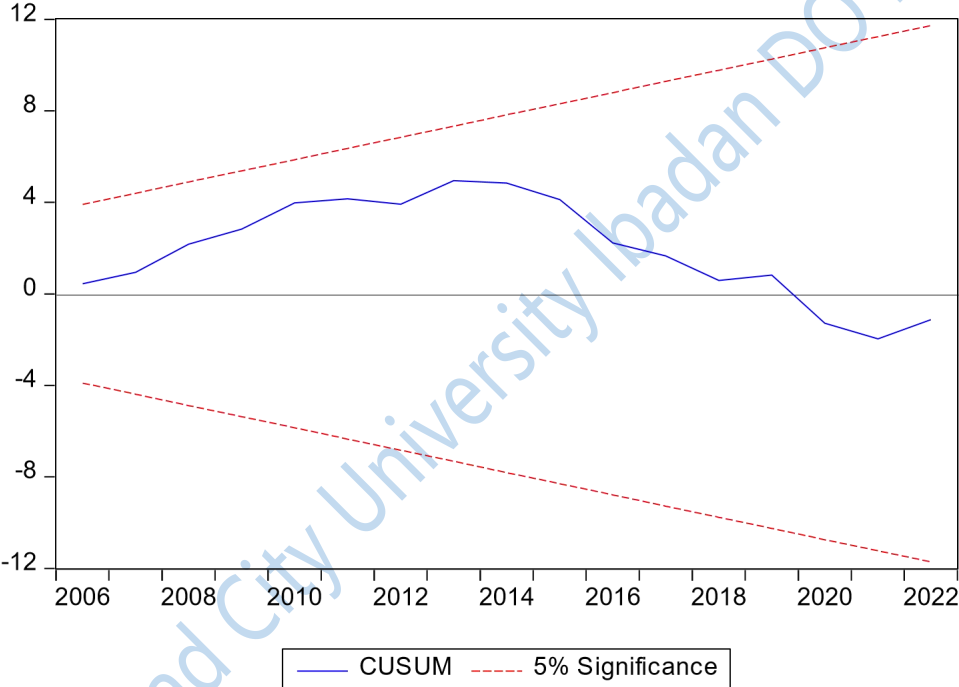


Fig 4.8 CUSUM

Source: Author’s computation, 2023

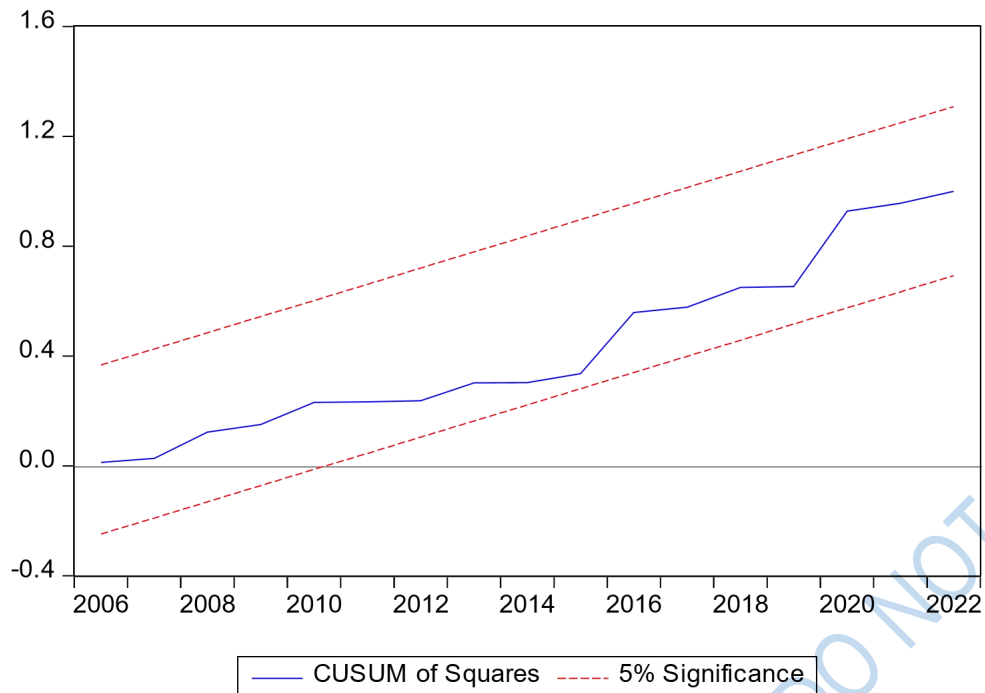


Fig 4.9 CUSUM of Squares

Source: Author's computation, 2023

4.4 To Examine the Role Institutional Qualities Play in the Relationship between Capital Flight and Economic Growth

The results for the long and short run models for the role institutional qualities play in the relationship between capital flight and economic growth are presented in the next two subsections (4.4.1 and 4.4.2).

4.4.1 The Roles Institutional Qualities Play in the Relationship between Physical Capital Flight and Economic Growth

The results for the long and short run model for the role institutional qualities play in the relationship between physical capital flight and economic growth are presented in Table 4.7, It depicts that in the long run, physical capital flight (LCFP) does not exhibit a statistically

significant ($p > 0.1$) direct effect on economic growth, although as physical capital flight increases by 1%, economic growth increases by 0.003% basis point. However, human capital flight (LCFH) exhibit a statistically significant ($p < 0.01$) direct effect on economic growth, where a 1% increase in human capital flight increases economic growth by 0.176% basis point

Also, results in Table 4.6 revealed the role institutions play in the relationship between physical capital flight and economic growth. Results presents that bureaucracy (LCFPB) does not have a statistically significant effect in the relationship between physical capital flight and economic growth. Bureaucracy in the face of capital flight causes economic growth to reduce by 0.004%. This implies that institutional qualities do not play a role in the relationship between physical capital flight and economic growth. Similarly, Law and Order (LCFPL) play a statistically significant role of 1% level of significance in the relationship between physical capital flight and economic growth. Thus, Law and Order in the face of capital flight causes economic growth to reduce by 0.01%. However, Democratic Accountability (LCFPD) do not have a statistically significant role it plays in the relationship between physical capital flight and economic growth On the other hand, the control of corruption (LCFPC) does not have a statistically significant role it plays in the relationship between physical capital flight and economic growth such that control of corruption in the face of capital flight causes economic growth to increase by 0.011. However, at 5% level of significance, Government Stability (LCFPG) plays a positive role. The result of the short-run model provides valuable insights into the role institutions play in the relationship between capital flight and economic growth.

Results presents that bureaucracy (LCFPB) plays a negative and statistically significant role in the relationship between physical capital flight and economic growth in that, bureaucracy, in the face of capital flight, causes economic growth to reduce by 0.008%. Likewise, 1% increase

in bureaucracy a period ago, reduces economic growth by 0.004% which is also significant at 1%. Similarly, Law and Order (LCFPL) has played a statistically significant role of 1% level of significance in the relationship between physical capital flight and economic growth thus, Law and Order in the face of capital flight causes economic growth to reduce by 0.03% with a significant level of 1%.

The error correction term, with a significant coefficient of 71.6%, underscores a rapid adjustment process towards long-run equilibrium in the short run at 1% level of significance which implies a swift correction mechanism to restore balance in the economic system.

Objective 2,model 1

Table 4.7
Long-run

Variable	Coefficient	std error	t-statistic
LCFP	0.275	0.491	0.560
LCFH	1.755	0.606	2.894***
LCFPB	-0.004	0.004	-1.145
LCFPC	0.011	0.008	1.251
LCFPD	-0.000	0.002	-0.054
LCFPG	0.007	0.003	2.085**
LCFPL	-0.010	0.003	-3.832***

Variable	Coefficient	std error	t-statistic
Short-run			
C	-17.087	2.170	-7.874***
$\delta(G(-1))$	-0.368	0.080	-4.590***
$\delta(LCFH)$	0.285	0.120	-2.773**
$\delta(LCFH(-1))$	-0.359	0.142	-2.520**
$\delta(LCFB)$	-0.008	0.002	-4.219***
$\delta(LCFB(-1))$	-0.004	0.001	-3.804***
$\delta(LCFPC)$	0.026	0.004	7.162***
$\delta(LCFPL)$	-0.022	0.002	-8.716***
ECM(-1)*	-0.716	0.877	-8.163***

Note: *, ** and *** represents 10%, 5% and 1% level of significance respectively

Source: Author's computation, 2023

The post-estimation tests conducted on the regression model yield reassuring results, affirming the robustness of the model. The normality test, with a test statistic of 1.841615 and a p-value of 0.3982, indicates that the residuals follow a normal distribution. This suggests that the assumption of normality for the residuals is satisfied, contributing to the reliability of the model. The serial correlation test, reflected in a test statistic of 1.546603 and a p-value of 0.2415, reveals no evidence of serial correlation in the residuals. This implies that the errors are not systematically correlated with each other, supporting the assumption of independent errors and enhancing the validity of the regression results. The test for heteroscedasticity yields a test statistic of 0.814668 and a p-value of 0.6525, suggesting no significant presence of

heteroscedasticity in the residuals. This implies that the variability of the errors is constant across observations, meeting the assumption of homoscedasticity and bolstering the reliability of the model.

The omission of variable test, with a test statistic of 0.182577 and a p-value of 0.6742, indicates no significant omission of variables in the model. This suggests that the included variables adequately capture the relationships under investigation, supporting the comprehensiveness of the model. Graphical stability tests, including the Cusum graph and Cusum of squares graph,

both indicate stability. This implies that the model remains stable over time, with no significant indication of structural instability or specification errors. These findings collectively affirm the validity and reliability of the regression model, reinforcing confidence in the accuracy of the estimated coefficients and the overall robustness of the analysis.

Post Estimation Test

Test	Statistics	Conclusion
Normality	1.841615(0.3982)	Normally distributed
Serial correlation	1.546603(0.2415)	No serial correlation
Heteroscedasticity	0.814668(0.6525)	No presence of Heteroscedasticity
Omission of variable	0.182577(0.6742)	No omission of variables
Stability: Cusum	graph	stable
Cusum of squares	graph	stable

Source:

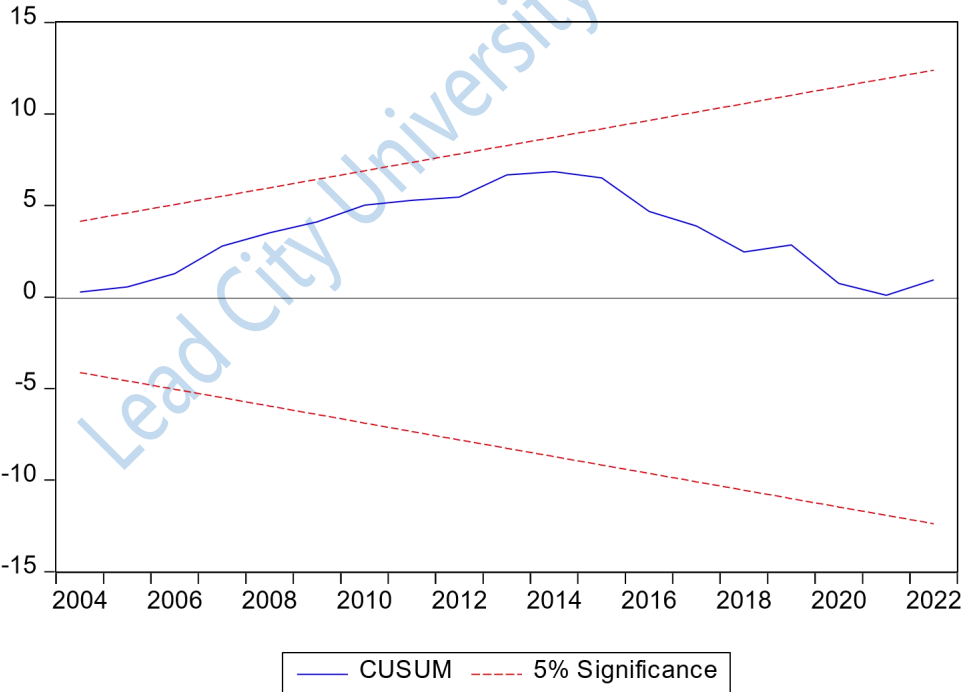


Fig 4.10 CUSUM

Source: Author's computation, 2023

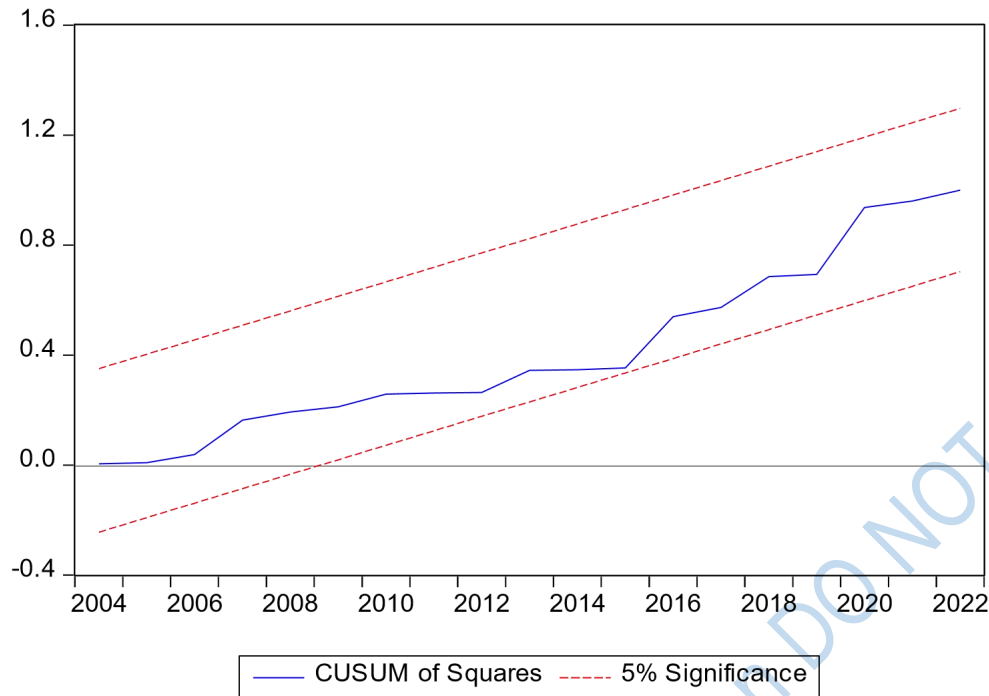


Fig 4.11 CUSUM of Squares

Source: Author's computation, 2023

4.4.2 The Roles Institutional Qualities play in the Relationship between Human Capital Flight and Economic Growth.

The results for the long-run and the short-run model for the role institutional qualities play in the relationship between human capital flight and economic growth are presented in table 4.8. This indicates that, in the long-run, human capital flight (LCFH) is not statistically significant. Also, the result revealed institutional qualities role in the relationship between human capital flight and economic growth. The result showed that bureaucracy does not have a statistical significance in the relationship between human capital flight and economic growth. In the face of human capital flight, it causes economic growth to reduce by 0.001%. The result implied that institutional qualities do not play a role in the relationship between human capital flight and economic growth. In the same vein, democratic accountability, do not have a statistically significant relationship

between human capital flight and economic growth. In the face of human capital flight, it causes economic growth to reduce by 0.005%. The result for the control of corruption and government stability, even though are not statistically significant, but in the face of human capital flight, causes economic growth to increase by 0.017% and 0.016 respectively.

However, the result of the short-run model equally provides valuable and useful insights into the role institutional qualities play in the relationship between human capital flight and economic growth. The results depicts that bureaucracy and law and order, are statistically significant in the relationship between human capital flight and economic growth. They cause economic growth to reduce respectively by 0.013% and 0.050%. For the control of corruption, there is a statistical significance in the relationship between human capital flight and economic growth and it cause economic growth to increase by 0.043%. The error correction term, with a significant coefficient of 54.5%, underscores the rapid adjustment process towards long-run equilibrium in the short-run at 1% level of significance, implying a swift correction mechanism to restore balance in the economic system.

Objective 2, model 2

Table 4.8
Long-run

Variable	Coefficient	std error	t-statistic
LCFP	0.131	0.567	0.231
LCFH	2.037	1.626	1.25
LCFHB	-0.001	0.017	-0.046
LCFHC	0.017	0.027	0.642
LCFHD	-0.005	0.011	-0.455
LCFHG	0.016	0.011	1.485
LCFHL	-0.276	0.011	-2.572**

Note: *,** and *** represents 10%,5% and 1% level of significance respectively

Short-run

Variable	Coefficient	std error	t-statistic
C	-12.492	1.678	-7.443***
δ (G(-1))	-0.477	0.090	-5.314***
δ (G(-2))	-0.153	0.097	-1.578
δ (LCFP)	-0.280	0.800	-3.500***
δ (LCFP(-1))	-0.162	0.065	-2.474**
δ (LCFHB)	-0.013	0.004	-3.611***
δ (LCFHB(-1))	0.007	0.002	-2.648**
δ (LCFHC)	0.043	0.008	5.603***
δ (LCFHL)	-0.050	0.005	-9.182***
ECM(-1)	-0.545	0.071	-7.713***

Note: *,** and *** represents 10%,5% and 1% level of significance respectively

Source: Author's computation, 2023

The post-estimation tests conducted on the regression model provide a comprehensive assessment of its reliability and adherence to key statistical assumptions. The normality test, with a test statistic of 1.282989 and a p-value of 0.5266, indicates that the residuals of the model conform to a normal distribution. This adherence to normality enhances the credibility of the model's findings. The serial correlation test, reflected in a test statistic of 1.550083 and a p-value of 0.2444, suggests the absence of systematic correlation among the residuals. This supports the assumption of independent errors, bolstering the credibility of the regression results. The heteroscedasticity test yields a test statistic of 1.157399 and a p-value of 0.3831, indicating no significant presence of heteroscedasticity in the residuals. This implies that the variability of errors remains constant across observations, aligning with the assumption of homoscedasticity and reinforcing the reliability of the model.

The omission of variable test, with a test statistic of 0.004593 and a p-value of 0.9468, indicates no significant omission of variables in the model. This suggests that the included variables sufficiently capture the relationships under investigation, supporting the model's comprehensiveness. Stability tests, including the Cusum graph and Cusum of squares graph, both confirm the model's stability over time. The absence of significant structural instability or specification errors adds further confidence in the accuracy of the estimated coefficients and the overall robustness of the analysis.

In summary, the post-estimation tests collectively affirm the model's reliability, indicating normal distribution of residuals, no serial correlation, no heteroscedasticity, no omission of relevant variables, and overall stability over time. These findings contribute to the validity of the regression results and enhance the credibility of the model's conclusions.

Post Estimation Test

Test	Statistics	Conclusion
Normality	1.282989(0.5266)	Normally distributed
Serial correlation	1.550083(0.2444)	No serial correlation
Heteroscedasticity	1.157399(0.3831)	No presence of Heteroscedasticity
Omission of variable	0.04593(0.9468)	No omission of variables
Stability: Cusum	graph	stable
Cusum of squares	graph	stable

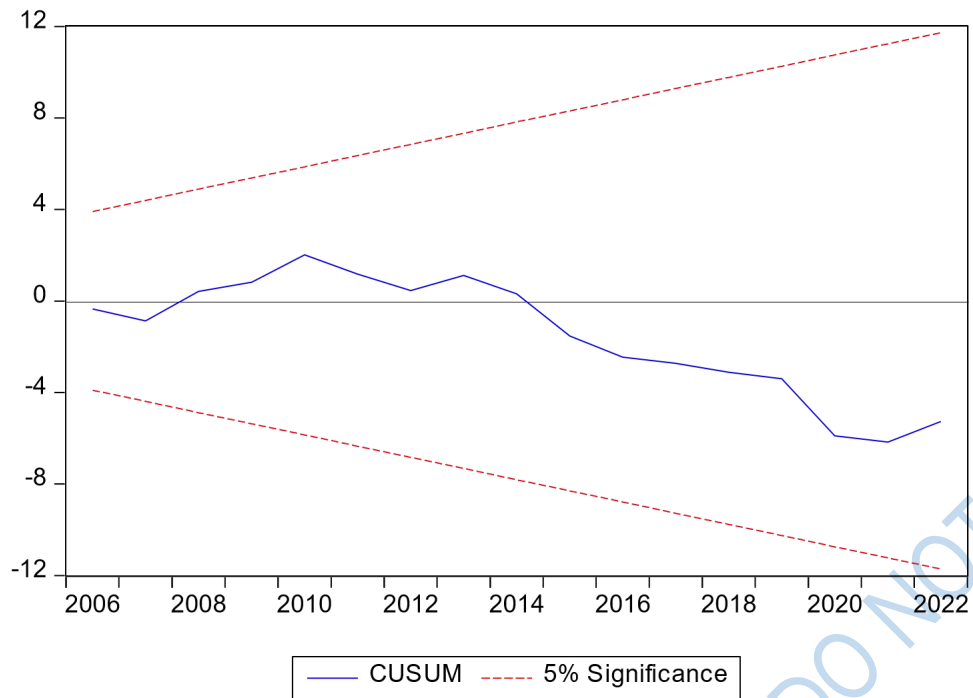


Fig 4.12 CUSUM

Source: Author's computation, 2023

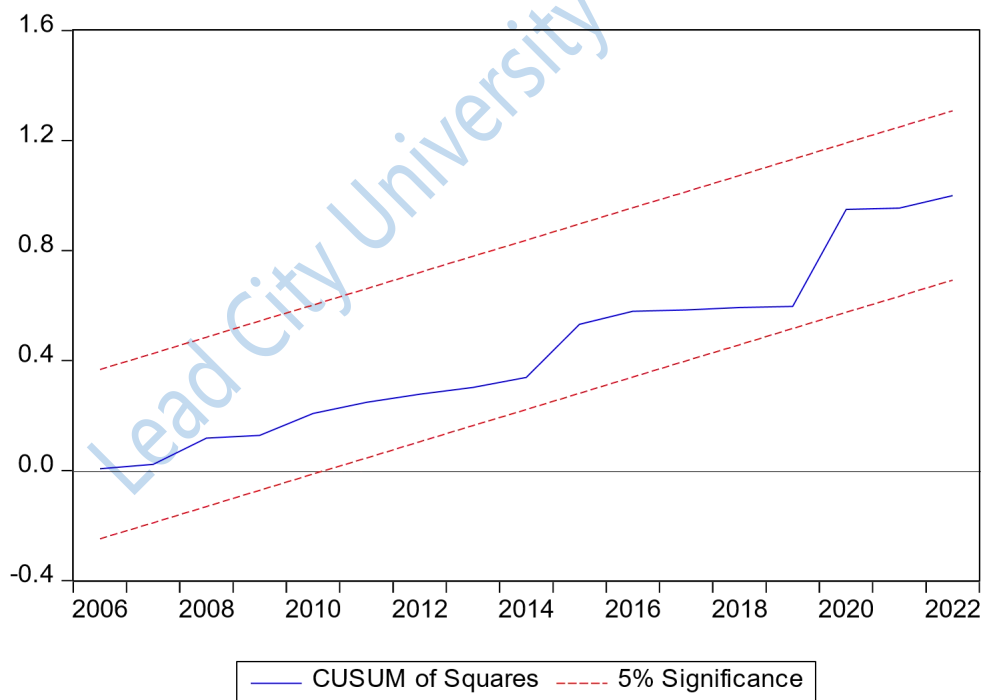


Fig 4.13 CUSUM of Squares

Source: Author's computation, 2023

4.5 The Threshold Level of Institutional Qualities that will Reduce Capital Flight for Economic Growth.

A unit increase in LCFP is associated with a significant decrease of -2.146 units in the dependent variable, as indicated by the regression analysis (T-statistic =1.429). This association demonstrates marginal statistical significance at the 10% level, suggesting a potential relationship between LCFP and dependent variable. An increase of one unit in LCFP corresponds to a substantial increase of 1.403 units in the dependent variable, evidenced by the regression analysis (T-statistic =2.328). This association demonstrates statistical significance at the 5% level, suggesting a robust relationship between LCFP and the dependent variable.

LCFPG (0.072), LCFPC (0.051), LCFPL (-0.095), LCFPD (-0.038), LCFPS (0.052), LCFPGSQ (-2.670), LCFPCSQ (-5.580), LCFPLSQ (5.500), LCFPDSQ (2.670), LCFPBSQ (-2.690):

Coefficients represent the impact of these variables on the dependent variable. LCFPG, LCFPS, LCFPGSQ, LCFPLSQ, and LCFPDSQ are statistically significant at conventional levels. The value of C (2.325) indicates that when the independent variables included in the ECM model are at zero, the estimated value of the dependent variable is 2.325. This intercept term forms the baseline point for the dependent variable, before considering the effects of the other explanatory variables in the model. δ (LCFP) (0.299) suggests that a one unit change in the first difference of LCFP is associated with a 0.299 unit change in the dependent variable. Similarly, δ (LCFH) (0.229), indicates that a one unit change in the first difference of LCFH is associated with a 0.229 unit change in the dependent variable. Additionally, δ (LCFP) (DLCFH), δ (LCFPG) (δ LCFPB) and δ (LCFPBSQ) are statically significant at conventional levels. This implies that these variables first differences are found to be statistically significant in influencing the dependent variable at commonly accepted significance levels.

In an Error Correction Model, ECM(-1) (-0.596), represents the coefficient estimated for the lagged error correction term. This term measures the speed of adjustment of the dependent variable towards its equilibrium position in response to deviations from the long-term equilibrium relationship between the variables in the model. The value of -0.596 indicates the rate at which the dependent variable adjusts towards equilibrium level following a deviation from the long-term relationship. In this case, the negative sign implies that there is a tendency for the dependent variable to adjust towards equilibrium, if there is a deviation.

Table 4.9 Long-run

Objective 3, model 1

Variable	Coefficient	std error	t-statistic
LCFP	-2.146	1.501	-1.429
LCFH	1.403	0.603	2.328**
LCFPG	0.072	0.027	2.642**
LCFPC	0.051	0.088	0.581
LCFPL	-0.095	0.046	-2.063*
LCFPD	-0.038	0.015	-2.583**
LCFPS	0.052	0.036	1.427
LCFPGSQ	-2.670	1.010	-2.652**
LCFPCSQ	-5.580	8.010	-0.696
LCFPLSQ	5.500	2.940	1.874*
LCFPDSQ	2.670	8.880	3.100***
LCFPBSQ	-2.690	1.760	-1.532

Short-run

Note: *, ** and *** represents 10%, 5% and 1% level of significance respectively

Variable	Coefficient	std error	t-statistic
C	2.325	0.269	8.659***
δ (LCFP)	0.299	0.183	1.635
δ (LCFH)	0.229	0.083	2.757**
δ (LCFPG)	0.050	0.004	13.232***
δ (LCFPB)	-0.03	0.008	-4.057***
δ (LCFPLSQ)	-2.520	2.800	8.993***
δ (LCFPBSQ)	1.270	3.760	3.378***
ECM(-1)	-0.596	0.046	-12.906***

Note: *, ** and *** represents 10%, 5% and 1% level of significance respectively

Source: Author's computation, 2023

Post Estimation Tests:

Normality Test: The model residuals are normally distributed (p-value: 0.986741).

Serial Correlation Test: No evidence of serial correlation in the residuals (p-value: 0.3633).

Heteroscedasticity Test: No evidence of heteroscedasticity in the residuals (p-value: 0.3353).

Omission of Variable Test: No evidence of omitted variables in the model (p-value: 0.6410).

Stability Tests (Cusum and Cusum of Squares Graphs): Both tests suggest stability, indicating that the model parameters remain consistent over time.

LCFP has a marginally significant negative impact on the dependent variable in the long run.

LCFH has a statistically significant positive impact on the dependent variable in the long run.

Nonlinear Effects: Some variables (LCFPG, LCFPS, LCFPGSQ, LCFPLSQ, LCFPDSQ, and LCFPBSQ) exhibit nonlinear effects, and their squared terms are significant.

Short-Term Dynamics: Short-term adjustments are influenced by various variables such as LCFP, LCFH, LCFPG, LCFPB, LCFPLSQ, and LCFPBSQ, as indicated by the ECM

coefficients.

Post Estimation Tests: The model appears well-specified with no apparent issues of normality, serial correlation, heteroscedasticity, or omitted variables. Stability tests suggest that the model parameters remain stable over time.

Post Estimation Test		
Test	Statistics	Conclusion
Normality	0.026695(0.9867)	Normally distributed
Serial correlation	1.089377(0.3633)	No serial correlation
Heteroscedasticity	1.239306(0.3353)	No presence of Heteroscedasticity
Omission of variable	0.226476(0.6410)	No omission of variables
Stability: Cusum	graph	stable
Cusum of squares	graph	stable

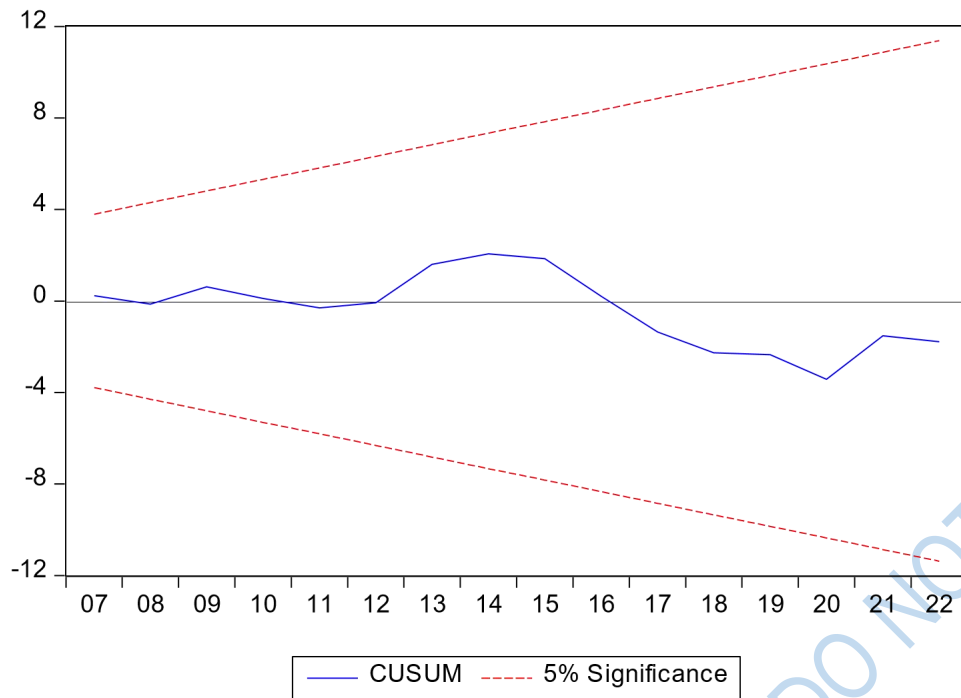


Fig 4.14 CUSUM

Source: Author's computation, 2023

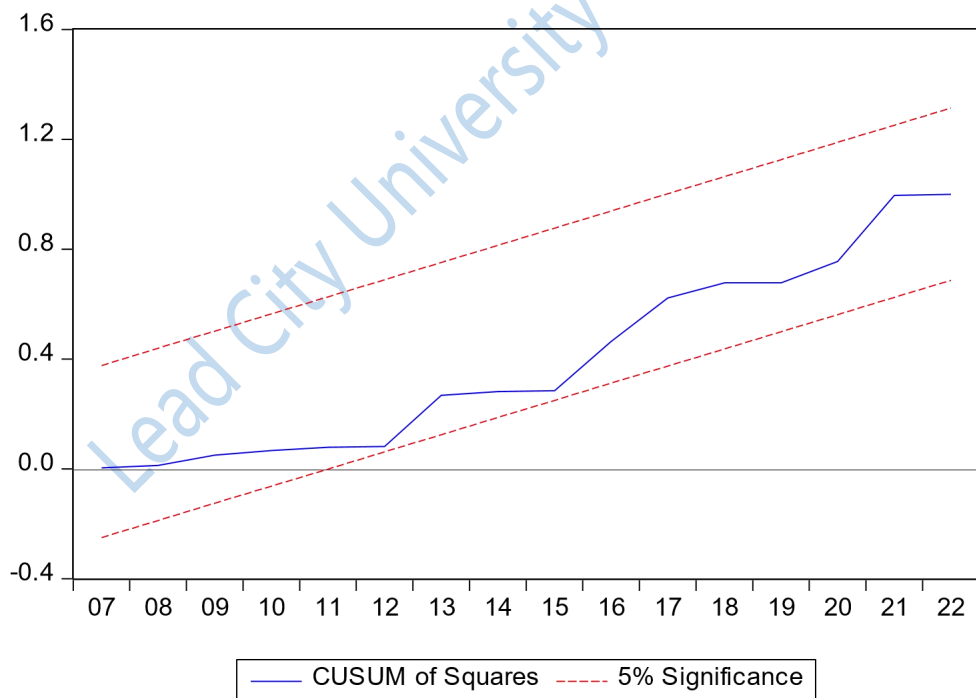


Fig 4.15 CUSUM of Squares

Source: Author's computation, 2023

4.5.1 The Threshold Level of Institutional Qualities that will reduce Capital Flight for Economic Growth

To determine the threshold level of institutional qualities that reduces capital flight for economic growth, the ARDL techniques was used to estimate the model in equations 3.4 and 3.5. Upon the result generated (see Appendix) were the thresholds for each institutional qualities estimated using the differentiation process and the results are presented in Table 4.8 both for physical capital flight and human capital flight.

The equation generated after obtaining the differentiation of the growth equations for both the long run and short run with respect to physical capital flight include; Long Run:

$$g = -2.146lcfp + 1.403lcfh + 0.072lcfpg + 0.051lcfpc - 0.095lcfpl - 0.038lcfpd + 0.052lcfpb - 2.67lcfpg^2 - 5.58lcfpc^2 + 5.5lcfpl^2 + 2.67lcfpd^2 - 2.69lcfpb^2 \quad 4.1$$

$$\frac{\partial g}{\partial \Delta lcfp} = -2.146 + 0.072g + 0.051c - 0.095l - 0.038d + 0.052b - 2(2.67g) - 2(5.58c) +$$

$$2(5.5l) + 2(2.67d) - 2(2.69b) = 0 \quad 4.2$$

Short Run:

$$g = 2.325 + 0.299\Delta lcfp - 0.229\Delta lcfh + 0.05\Delta lcfpg - 0.03\Delta lcfpb - 2.52(\Delta lcfpl)^2 + 1.27\Delta lcfpb^2 - 0.596ecm(-1) \quad 4.3$$

$$\frac{\partial g}{\partial \Delta lcfp} 0.299 + 0.05g - 0.03b + 2(2.52l) - 2(1.27b) = 0 \quad 4.4$$

From equation 4.2, to derive the threshold level of each institutional qualities, other institutional qualities were held constant and the respective institutional qualities are derived and presented in Table 4.9.

In examining the long-run model, the identified threshold levels for various institutional qualities variables offer crucial insights into the determinants of economic growth, particularly in the presence of physical capital flight. The negative impact of physical capital flight on economic growth is influenced by the levels at which institutional variables operate. When government stability falls below -40.74%, the adverse effects of physical capital flight on economic growth are pronounced, highlighting the significance of a stable governance environment in mitigating such impacts.

Control of corruption plays a vital role, with economic growth suffering significantly when it drops below -19.32%. This underscores the importance of addressing corruption issues alongside managing physical capital flight to foster sustainable economic development. The rule of law emerges as a positive factor, with economic growth experiencing a notable increase when the rule of law surpasses 19.68%. In the presence of physical capital flight, a robust legal framework becomes crucial for supporting economic growth over the long term.

Democratic accountability becomes a key determinant, positively impacting economic growth when it exceeds 40.48%. Strengthening democratic institutions may act as a mitigating factor against the negative consequences of physical capital flight, fostering an environment conducive to economic prosperity. Conversely, bureaucracy demonstrates a substantial negative impact when falling below -40.28%, indicating that effective bureaucratic systems are essential for managing physical capital flight and sustaining economic growth in the long run.

Turning to the short-run model, the focus on physical capital flight reveals that government stability plays a critical role. A substantial positive impact on short-term economic growth is observed when government stability exceeds 598%. This suggests that immediate efforts to

enhance stability can counteract the adverse effects of physical capital flight and stimulate shortterm economic growth.

While the specific threshold values for control of corruption and democratic accountability in the short run are not provided, the positive impact of the rule of law and bureaucracy on shortterm economic growth is evident when they exceed 5.93% and 11.91%, respectively. Managing physical capital flight in the short run involves a focus on legal frameworks and bureaucratic efficiency to create conditions conducive to economic growth.

In summary, understanding and managing physical capital flight necessitate a nuanced approach, considering the thresholds of key institutional variables. Enhancing government stability, addressing corruption, strengthening the rule of law, ensuring democratic accountability, and fostering effective bureaucracy are essential strategies to counteract the negative effects of physical capital flight and promote sustainable economic growth in both the short and long run.

Table 4.10: Threshold Level of Institutional Qualities

LONG RUN		
Institutional Qualities	Model	Threshold
Government Stability	$-2.146 - 5.286G = 0$	-40.74%
Control of Corruption	$-2.146 - 11.109C = 0$	-19.32%
Rule of Law	$-2.146 + 10.905L = 0$	19.68%
Demoncratic Accountability	$-2.146 + 5.303D = 0$	40.48%

Bureaucracy	$-2.146 - 5.328B = 0$	-40.28%
SHORT RUN		
Government Stability	$0.299 + 0.05G = 0$	598%
Control of Corruption		
Rule of Law	$0.299 - 5.04L = 0$	5.93%
Demoncratic Accountability		
Bureaucracy	$0.299 - 2.51B = 0$	11.91%

Source: Author's computation, 2023

ARDL RESULT FOR OBJECTIVE 3

Variable	Coefficient	std error	t-statistic	
LCFP	-0.187	0.130	-1.44	
LCFH	-0.624	1.157	-0.539	
LCFHG	0.152	0.051	2.997	***
LCFHC	0.054	0.112	0.482	
LCFHL	-0.104	0.071	-1.459	
LCFHD	-0.126	0.036	-3.526	***
LCFHB	0.041	0.067	0.611	
LCFHGSQ	-0.000	3.550	-2.907	***
LCFHCSQ	-9.870	0.000	-0.530	
LCFHLSQ	0.000	8.710	1.342	
LCFHDSQ	0.000	3.570	3.651	***
LCFHBSQ	-5.280	6.660	-0.794	

ARDL RESULT FOR OBJECTIVE 3

Variable	Coefficient	std error	t-statistic	
δ (LCFHC)	0.093	0.008	11.275	***
δ (LCFHL)	-0.200	0.015	-13.460	***
δ (LCFHD)	0.063	0.008	-8.393	***
δ (LCFHLSQ)	0.000	1.650	11.038	***
δ (LCFHDSQ)	6.430	8.810	7.295	***
ECM(-1)	-0.855	0.056	-15.359	***

Post Estimation Test

Test	Statistics	Conclusion
Normality	0.584847(0.746452)	Normally distributed
Serial Correlation	0.769126(0.4798)	No serial correlation
Heteroscedasticity	0.804260(0.6749)	No presence of Heteroscedasticity
Omission of variable	0.037260(0.8492)	No omission of variables
Stability: Cusum	graph	stable
Cucum of squares	graph	stable

4.5.2 Threshold Level of Institutional Qualities in Human Capital Flight

In the examination of the long-run model, the identified thresholds for various institutional qualities variables offer valuable insights into the dynamics of economic growth, particularly in the presence of human capital flight. Government stability emerges as a pivotal factor, revealing a critical threshold at 411%. This signifies that economic growth is significantly influenced by improvements in government stability when faced with the challenges of human capital flight. The control of corruption is another vital consideration, with a threshold at 3.17%. Below this level, the detrimental impacts of human capital flight on economic growth are pronounced,

emphasizing the need to address corruption issues to mitigate these effects. An intriguing finding is observed in the rule of law, where a significant positive impact on economic growth is identified when it falls below -600%. This suggests that a robust legal framework is essential for counteracting the adverse effects of human capital flight. Democratic accountability demonstrates a critical threshold at -495.24%, indicating that, beyond this level, democratic governance positively influences economic growth, acting as a mitigating factor against the challenges posed by human capital flight.

Bureaucracy, too, plays a crucial role, revealing a significant impact on economic growth when falling below -5.93%. This underscores the importance of an effective bureaucratic system in managing the repercussions of human capital flight and sustaining economic growth over the long term. Turning to the short-run model, while the specific thresholds for government stability, control of corruption, rule of law, democratic accountability, and bureaucracy are not provided, the absence of these values makes it challenging to precisely interpret their impacts on economic growth in the context of human capital flight.

In summary, the nuanced relationship between human capital flight and economic growth involves careful consideration of institutional qualities variables. Improving government stability, addressing corruption, strengthening the rule of law, enhancing democratic accountability, and fostering effective bureaucracy are pivotal strategies to mitigate the adverse effects of human capital flight and promote sustainable economic growth in both the short and long run.

Table 4.11: Threshold Level of Institutional Qualities in Human Capital Flight

LONG RUN		
Institutional Qualities	Model	Threshold
Government Stability	$-0.624 + 0.152g = 0$	411%
Control of Corruption	$-0.624 - 19.68c = 0$	3.17%

Rule of Law	$-0.624 - 0.104l = 0$	-600%
Demoncratic Accountability	$-0.624 - 0.126D = 0$	-495.24%
Bureaucracy	$-0.624 - 10.51B = 0$	-5.93%
SHORT RUN		
Government Stability	$0.093c = 0$	Undefined
Control of Corruption	-	-
Rule of Law	$-0.2l = 0$	Undefined
Demoncratic Accountability	$12.93d = 0$	Undefined
Bureaucracy	-	-

Source: Author's computation, 2023

The equation generated after obtaining the differentiation of the growth equations for both the long run and short run with respect to physical capital flight include;

$$g = -0.187lcfp - 0.624cfh + 0.152cfhg + 0.054cfhc - 0.104cfhl - 0.125cfhd + 0.041cfhb - 9.87cfhc^2 - 5.28cfhb^2 \quad 4.5$$

$$\frac{\partial g}{\partial lcfp} = -0.624 + 0.152g + 0.054c - 0.104l - 0.126d + 0.041b - 2(9.87c) - 2(5258b) = 0 \quad 4.6$$

From equation 4.2, to derive the threshold level of each institutional qualities, other institutional qualities were held constant and the respective institutional qualities are derived and presented in Table 4.9.

Short Run:

$$g = 0.093\Delta lcfhc - 0.2\Delta lcfhl + 0.063\Delta lcfhd + 6.43\Delta lcfhd^2 - 0.596ecm(-1) \quad 4.7$$

$$\frac{\partial g}{\partial \Delta lcfp} 0.093c - 0.2l + 0.063d + 2(6.43d) = 0 \quad 4.8$$

4.6.1. To Investigate how Economic Growth Respond to Shocks in the Institutional Qualities in the Presence of Capital Flight

Table 4.12: Lag Length Selection Criteria

Exogenous Variables: G LCFP LCFH LCFPB LCFHD LCFPC D(LCFPG)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1122.26	NA	1.67e+20	66.42695	66.74120	66.53412
1	-1024.77	149.0980*	1.02e+19*	63.57476	66.08877*	64.43211*
2	-971.41	59.63850	1.17e+19	63.31825*	68.03201	64.92577

LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

* indicates lag order selected by the criterion

Source: Author's Compilation, 2023

4.6: Economic Growth Response to Shocks in the Institutional Qualities in the Presence of Capital Flight

The LR test statistic is used to assess the overall significance of adding lags to the model.

The asterisk (*) indicates the lag order selected by this test.

FPE measures the goodness of fit of the model, considering the trade-off between model complexity and fit.

A lower FPE indicates a better fit.

The asterisk (*) indicates the lag order selected by this criterion.

AIC balances the fit of the model with its complexity, penalizing overfitting.

A lower AIC suggests a better trade-off between goodness of fit and simplicity.

The asterisk (*) indicates the lag order selected by this criterion.

SC is similar to AIC but penalizes complex models more heavily. A lower SC suggests a better balance between fit and simplicity.

The asterisk (*) indicates the lag order selected by this criterion.

HQ is similar to AIC and SC but penalizes complex models more strongly.

A lower HQ indicates a better trade-off between fit and model simplicity.

The asterisk (*) indicates the lag order selected by this criterion.

The selected lag order varies across criteria, with different criteria favoring different orders. For example, the LR test selects lag 1, while AIC and SC select lag 2, and FPE and HQ select lag

1.

The choice of lag order depends on the specific criterion used and the trade-off between model fit and complexity.

Models with lower values of FPE, AIC, SC, and HQ are considered better in terms of fit and simplicity.

The lag order selected by each criterion reflects the compromise between capturing the underlying patterns in the data and avoiding overfitting.

The sequential modified LR test helps assess the overall significance of adding lags to the model.

A significant test statistic suggests that adding lags improves the model's explanatory power.

The criteria provide different perspectives on the trade-off between model fit and complexity.

Specific goals of the analysis and the balance between capturing the data's complexity and avoiding overfitting were considered.

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.

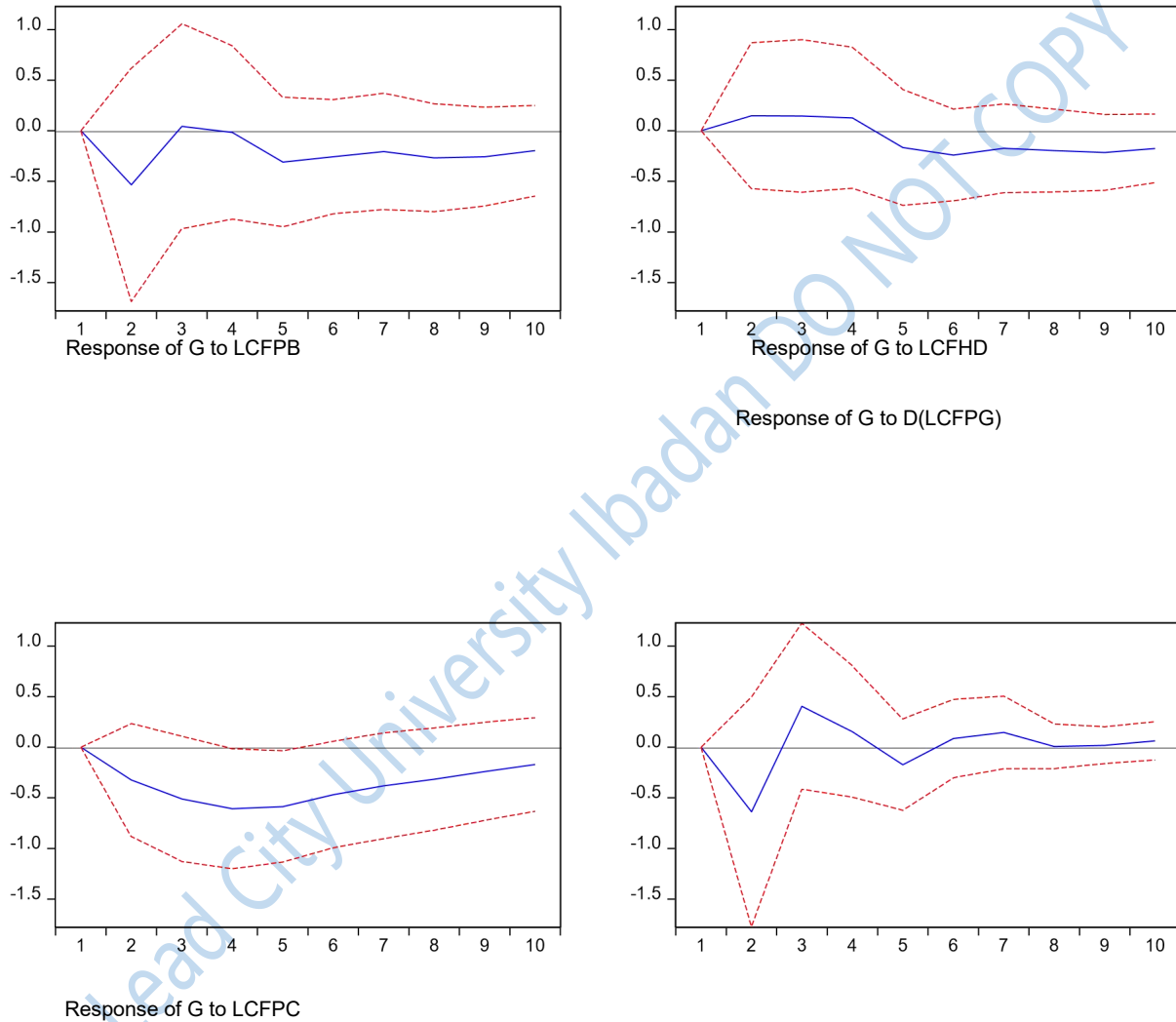


Fig 4.16: Impulse- Response Function

Source: Author's Computation, 2023 **Response of G to LCFPB**

The graph initially dips downward at period 1, to period 2, reflecting a negative response to the shock. It spikes upward from period 2 to period 3. At period 3 to period 4, the graph exhibits

minimal change, indicating that G is not significantly affected by the shock. From period 4 to period 10, it dips down again, reflecting a negative response to the shock.

Response to G to LCFHD

There is a slight increase in the standard deviation from period 1 to period 2. There was minimal change from period 2 to period 3. It dips down marginally from period 3 to period 4. From period 4; it came down significantly to negative in period 5. And from period 5, to period 10, it exhibits a minimal change.

Response to G to LCFPC

The standard deviation dips downward from period 1 to period 5. It rose slightly from there to period 10.

Response of G to D (LCFPG)

There was a sharp downward trend from period 1 to period 2. It rose significantly from period 2 to period 3. It dip down again from period 3 to period 5. However, it rose again from period 5 to period 6. From period 6, it continued to rise slightly, until period 8, until period 9 when it became stable and it slightly rose again till period 10.

4.6.2: Variance Decomposition Result

In the initial period, the entirety of the variability in economic growth (G) is attributed to its own shocks, with no discernible influence from other variables such as physical capital flight (LCFP), human capital flight (LCFH), bureaucracy (LCFPB), and others. As we progress to the second period, a notable shift occurs in the variance decomposition. Economic growths own shocks now account for 78.85% of the variability, indicating a decreasing reliance on its own

fluctuations to explain changes. Simultaneously, the shocks from physical capital flight (LCFP) contribute

3.92% to the variability, while human capital flight (LCFH) plays a substantial role at 11.89%.

The influence of other variables, including bureaucracy (LCFPB), democratic accountability (LCFHD), control of corruption (LCFPC), and the lagged value of government stability ($\delta(\text{LCFPG})$), becomes evident, contributing 1.86%, 0.14%, 0.69%, and 2.66%, respectively.

This trend persists over subsequent periods. By the third period, the contribution from physical capital flight (LCFP) increases to 7.59%, and human capital flight (LCFH) further influences economic growth at 11.24%. The roles of other variables continue to evolve, illustrating a dynamic interplay among these factors. This pattern continues through the tenth period, showcasing a diminishing role of economic growth's own shocks (now at 63.35%), with an increasing influence from shocks of other variables such as LCFP, LCFH, and others.

In summary, the variance decomposition results highlight a dynamic relationship where the explanatory power of economic growth's own shocks diminishes over time, while the contributions from external factors, represented by shocks from other variables, become increasingly important in explaining the observed variability in economic growth from the first to the tenth period

Table 4.13 Variance Decomposition Result:**G LCFP LCFH LCFPB LCFHD LCFPC D(LCFPG)**

Period	S.E.	G	LCFP	LCFH	LCFPB	LCFHD	LCFPC	D(LCFPG)
1	3.383	100.000	0.000	0.000	0.000	0.000	0.000	0.000
2	3.917	78.847	3.916	11.885	1.864	0.144	0.686	2.658
3	4.059	73.459	7.590	11.244	1.749	0.264	2.226	3.469
4	4.109	71.666	7.414	10.969	1.707	0.353	4.366	3.524
5	4.183	69.152	7.820	10.586	2.197	0.497	6.177	3.570
6	4.267	66.489	9.408	10.217	2.473	0.795	7.146	3.472
7	4.305	65.388	9.631	10.057	2.655	0.945	7.800	3.525
8	4.335	64.565	9.675	9.923	2.998	1.137	8.226	3.477
9	4.363	63.783	9.894	9.801	3.303	1.364	8.420	3.434
10	4.380	63.353	9.984	9.734	3.480	1.513	8.507	3.428

Source: Author's Computation, 2023

4.6.3: Lag Length Selection Criteria

The LR test statistic is 87.83 for lag 1 and drops to 191.61 for lag 2. This suggests that including one lag significantly improves the model, but the improvement is less pronounced with the addition of a second lag.

FPE measures the goodness of fit of the model, considering the trade-off between model complexity and fit.

A lower FPE indicates a better fit.

The asterisk (*) indicates that the lag order selected by FPE is 1.

AIC balances the fit of the model with its complexity, penalizing overfitting.

A lower AIC suggests a better trade-off between goodness of fit and simplicity.

The asterisk (*) indicates that the lag order selected by AIC is 2.

SC is similar to AIC but penalizes complex models more heavily.

A lower SC suggests a better balance between fit and simplicity.

The asterisk (*) indicates that the lag order selected by SC is 2.

HQ is similar to AIC and SC but penalizes complex models more strongly.

A lower HQ indicates a better trade-off between fit and model simplicity.

The asterisk (*) indicates that the lag order selected by HQ is 2.

The selected lag order varies across criteria, with different criteria favoring different orders. The choice of lag order depends on the specific criterion used and the trade-off between model fit and complexity.

Models with lower values of FPE, AIC, SC, and HQ are considered better in terms of fit and simplicity.

The sequential modified LR test helps assess the overall significance of adding lags to the model. The drop in the LR test statistic from lag 1 to lag 2 suggests diminishing returns in model improvement with the addition of more lags.

The criteria provide different perspectives on the trade-off between model fit and complexity.

Specific goals of the analysis and the balance between capturing the data's complexity and avoiding overfitting were considered.

Table 4.14 Lag Length Selection Criteria

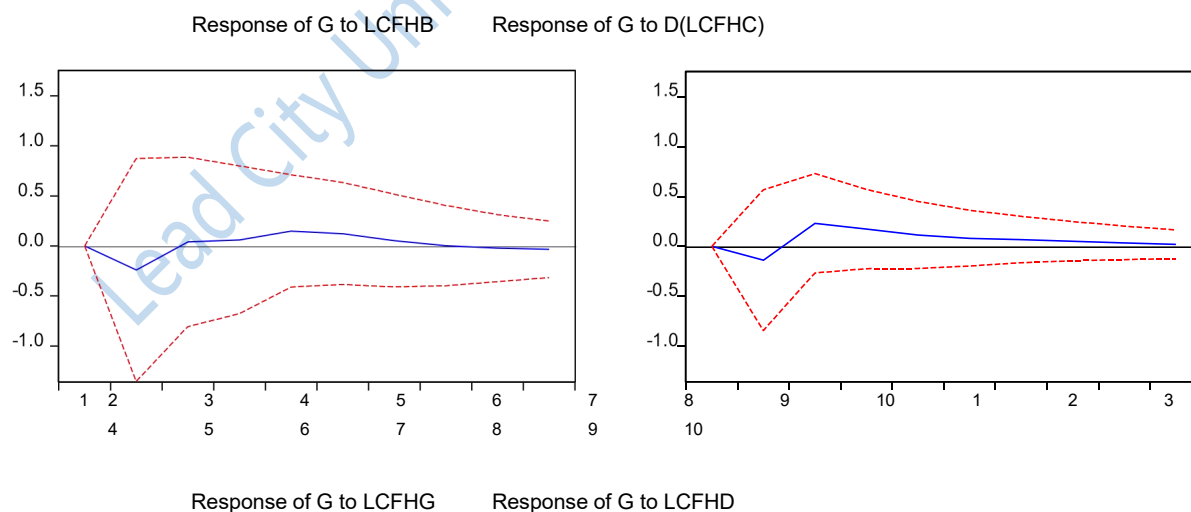
Exogenous Variables: G LCFP LCFH LCFHB D(LCFHC) LCFHG LCFHD D(LCFHL)						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	- 1248.87	NA	1.77e+22	73.93335	74.29249	74.05583
1	- 1118.58	191.6056	3.98e+20	70.03383	73.26612*	71.13613
2	- 1030.75	87.82999*	1.95e+20*	68.63207*	74.73751	70.71420*

LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

* indicates lag order selected by the criterion

Source: Author's Compilation, 2023

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.



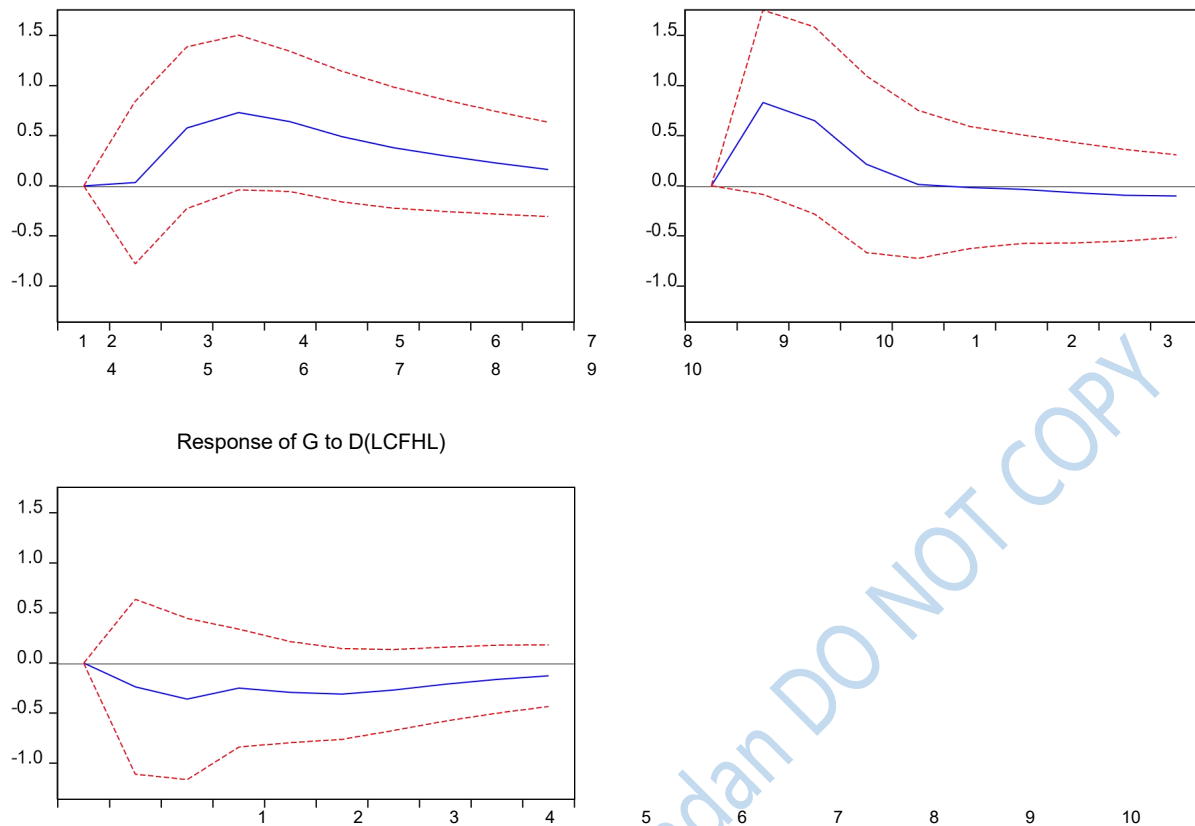


Fig 4.17 : Impulse-Response Function

Source: Author's Compilation, 2023

There is a divergence. This divergence signifies a deviation from an expected trend.

Table 4.15 Variance Decomposition Result

G LCFP LCFH LCFHB D(LCFHC) LCFHG LCFHD D(LCFHL)

Period	S.E.	G	LCFP	LCFH	LCFHB	D(LCFHC)	LCFHG	LCFHD	D(LCFHL)
1	3.472	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	3.806	84.243	0.200	9.852	0.398	0.133	0.007	4.777	0.391

3	3.984	76.860	0.263	11.750	0.373	0.456	2.107	7.011	1.180
4	4.090	73.257	0.400	11.741	0.376	0.610	5.190	6.930	1.497
5	4.175	70.357	0.723	11.858	0.490	0.658	7.334	6.652	1.927
6	4.222	68.805	0.856	11.647	0.563	0.680	8.521	6.506	2.423
7	4.249	67.933	0.870	11.497	0.572	0.696	9.209	6.428	2.795
8	4.267	67.404	0.866	11.412	0.567	0.705	9.626	6.402	3.019
9	4.278	67.069	0.861	11.369	0.567	0.707	9.858	6.419	3.150
10	4.285	66.864	0.859	11.344	0.572	0.707	9.970	6.456	3.229

Source: Author's Compilation, 2023

4.6.4: Variance Decomposition Result

In the first period of the Vector Autoregressive (VAR) model analysis, the entirety of the variability in economic growth (G) is exclusively attributed to its own shocks, contributing 100% to the observed variability. During this initial phase, no influence is observed from shocks originating in other variables such as physical capital flight (LCFP), human capital flight (LCFH), bureaucracy (LCFPB), and others.

As we progress to the subsequent periods (2-10), a discernible shift occurs in the variance decomposition. Economic growth's contribution to its own shocks diminishes from 100% to 63.35% by the tenth period, indicating a decreasing reliance on its own fluctuations to explain changes in economic growth. Simultaneously, the influence of other variables becomes more pronounced. In the second period, LCFP contributes 3.92%, LCFH contributes 11.89%, and other variables such as LCFPB, LCFHD, LCFPC, and δ (LCFPG) also start playing a role in explaining the observed variability in economic growth.

This evolving trend persists throughout subsequent periods, with the share of variability attributed to each variable's shocks adjusting over time. By the tenth period, the dynamics are

characterized by a reduced role of economic growth's own shocks (63.35%) and an increasing influence from shocks of other variables, showcasing a dynamic interplay among the studied variables.

In summary, the variance decomposition results highlight a temporal evolution in the contribution of shocks from different variables to the observed variability in economic growth, with economic growth's own shocks becoming less dominant over time, while shocks from other variables gain prominence from the first to the tenth period.

4.7 Discussion of Results

Human capital flights, where skilled individuals emigrate affect productivity and innovation in a country. Fluctuations in physical capital flight, as well as depreciation also influence the overall economic health. The correlation result of growth with human capital (0.07) implies a modest association between economic expansion and the level of skills and education in the workforce. The negative correlation of -0.04 suggests a weak and an inverse relationship between overall economic growth and the amount of capital available. The positive correlation of 0.22 with capital flight indicates that as capital leaves a country, economic growth tends to increase. This could be interpreted as capital flight occurring during this period of economic prosperity or confidence in other investment opportunities. The positive correlation of 0.246 and 0.173 with government stability and democratic accountability, respectively suggest that stronger political institutions are associated with higher economic growth. This aligns with the idea that stable governance and democratic practices can provide a conducive environment for economic development. These findings provide a nuanced perspective on the interplay between

economic growth and various factors, emphasizing the importance of human capital, government stability and democratic accountability.

A strong positive correlation of 0.78 between capital and human capital suggest a robust relationship between financial resources, and the level of skills and education in the workforce. This highlights the potential synergies between capital investment and human capital development ,indicating that well-funded initiatives may contribute to a more educated and skilled labour force. The moderate positive correlation of 0.484 between capital and democratic accountability implies that higher levels of capital are associated with increased democratic practices and political accountability. This connection suggests that economic resources might play a role in foistering democratic governance, possibly through supporting institutions that promote transparency and citizen participation.

The correlation with capital reveals interesting dynamics: the strong negative correlation of -0.596 with control of corruption suggests tha as capital increases; there is a tendency for a decrease in corruption control measures. This could indicate challenges in maintaining effective anti-corruption mechanisms when financial resources are in abundance. The negative correlation of -0.169 with law and order implies that higher capital may be associated with a slight decrease in the effectiveness of law and order. This relationship suggests that as economic resources grow; maintaining social order may face challenges, possibly due to complex economic activities or resource-driven disparities. The positive correlation of 0.484 with democratic accountability reinforces the earlier observation, indicating that higher capital is associated with increased democratic practices and political accpountability. This positive link suggests that economic prosperity may contribute to strengthening of democratic institutions. The positive correlation of

0.393 with bureaucratic regulation suggests that as capital increases, there tends to be a rise in bureaucratic regulation. This may indicate that economic growth might lead to increased regulatory complexity, possibly as a response to managing a growing and diverse economic landscape.

Also, the correlations regarding human capital provide insights into various aspects: the strong negative correlation of -0.72 with human capital indicates that as human capital increases, there is a substantial tendency for skilled individuals to migrate. This highlights the challenge of retaining highly educated and skilled workforce in the home country. The negative correlation of -0.70 with capital suggests that as financial resources increase, there is a notable association with human capital flight. Economic factors may contribute to the decision of individuals to seek opportunities abroad. The negative correlation of -0.54 with physical capital indicates a moderate association between the outflow of skilled individuals and the departure of physical capital flight. This relationship suggests that human capital flight may coincide with the relocation or reduction of tangible assets. The minimal positive correlation of 0.010 with government stability implies a weak link between human capital flight and the stability of the government. The positive correlation of 0.349 with control of corruption suggests that as control of corruption increases, there is a tendency for human capital flight to rise. This may indicate that individuals seeking better opportunities abroad might perceive corruption control measures as restrictive.

The correlation with government stability offers nuanced insights: the positive correlation of 0.246 with growth suggests that countries with more stable government tend to experience higher economic growth. This underscores the role of political stability in fostering a conducive environment for economic development. The positive correlation of 0.266 with human capital implies that government stability is associated with a higher level of human capital. This

suggests that stable governance may contribute to the development and retention of skilled and educated workforce. The positive correlation of 0.109 with physical capital flight indicates a modest association between government stability and the outflow of physical capital. This relationship suggests that to some extent, stability in governance may influence investment decisions and capital mobility.

The negative correlation of -0.536 with control of corruption highlights a strong inverse relationship between government stability and control of corruption. More stable governments are likely to have better control over corruption, reflecting the importance of governance in addressing corruption challenges. The positive correlation of 0.443 with law and order suggests that stable governments tend to have better law and order. This association emphasizes the role of political stability in maintaining social order and security. The positive correlation of 0.232 with bureaucratic regulation implies that more stable governments are associated with increased bureaucratic regulation. This connection may indicate that governments, when stable are more proactive in implementing regulatory measures.

The correlations with control of corruption reveal significant associations: control of corruption exhibits negative correlation with growth (-0.382), human capital (-0.596), capital (-0.232), physical capital flight (-0.232), physical capital flight (-0.367), law and order (0.029), democratic accountability (-0.444) and bureaucratic regulation (0.198). These correlations underscore the pervasive impact of corruption on various aspects of economic, social, and political dimensions, highlighting the importance of anti-corruption measures in fostering development and stability. Law and order has negative correlation with growth (-0.380), control of corruption (-0.029) and democratic accountability (-0.304). The negative correlations highlights the interconnectedness between law and order, economic growth,

control of corruption, and democratic accountability, emphasizing the importance of a stable and secure environments in foistering various aspects of societal well-being.

Law and order shows positive correlation with human capital (0.075), government stability (0.443) and bureaucratic regulation (0.430). These positive correlations highlight the potential positive impact of maintaining law and order on human capital development, government stability, and bureaucratic regulation, emphasizing the broader societal implications of a secure environment. For democratic accountability, positive correlation is found with human capital (0.551), capital (0.484), physical capital flight (0.594) and bureaucratic regulation (0.430). The correlation indicating positive highlights the complex relationships between democratic accountability and various economic, political, and regulatory factors emphasizing the multifaceted nature of accountable governance. Finally, in examining bureaucratic regulation, positive correlation is observed with human capital (0.357), capital (0.393), physical capital flight (0.242), government stability (0.232), law and order (0.430), and control of corruption (0.198), bureaucratic regulation decreases with growth (-0.345). The negative correlation of -0.345 with growth suggests that as bureaucratic regulation increases, there is a tendency for economic growth to decrease. This indicates that excessive regulatory burdens may hinder overall economic development. In all, these correlations highlights the the diverse and sometimes conflicting relationships between bureaucratic regulation and various economic, social and political factors, emphasizing the need for balanced regulatory frameworks to promote sustainable development.

The covariance has revealed by the analysis between growth and human capital is 0.021. This in practical terms means that changes in economic growth are accompanied by some changes in human capital, but the strength of this relationship is limited. The result also revealed

the covariance between growth and capital as 6155457051. This indicates a positive linear relationship. The large positive value suggests that as economic growth increases or decreases, capital tends to change in the same direction. The covariance between growth and physical capital stands at 2.0893. This indicates a directional relationship. The positive covariance suggests that as economic growth changes, physical capital flight tends to change in the same direction. The covariance between growth and human capital is 9238.908, equally suggests a directional relationship. So also is covariance between growth and government stability, (11.259). The covariance between growth and control of corruption is -8.263. The negative covariance implies that as economic growth changes, control of corruption tends to change in the opposite direction. This applies to the covariance between growth and law and order, (-15.340).

The covariance between growth and democratic accountability is 8.795. This indicates a directional relationship between the two variables. On the other hand, the covariance between growth and bureaucratic regulation is -11.754, indicating a negative covariance. However, the covariance between human capital and capital (2.26) suggests that the two variables tends to change in the same direction. This is the same with the covariance between human capital and physical capital (1.42). The covariance between human capital and human capital flight (3246.644) implies that as human capital changes, human capital flight tends to change in the opposite direction.

The study empirically examined the effect of capital flight on economic growth in Nigeria. The results reported that the log value of physical capital flight, control of corruption, democratic accountability, bureaucratic regulation and government stability does not have a statistically significant impact on economic growth. However, the lag value of human

capital flight, significant at the 5% level exhibits a positive and statistically significant impact on economic growth. Law and order on the other has a negative and statistically significant impact, at a 5% level of significance^{1,2}. The Error correction model therefore captures the long-term relationships and adjustments following deviations from equilibrium. Less significant variables like log value of physical capital flight, government stability, control of corruption, democratic accountability, and bureaucratic regulation may play a marginal role in the short-term dynamics.

The highly significant coefficient of -16.178 suggests that the constant term represents the long-term value of the dependent variable, when other variables are zero. However, changes in government stability, from the previous period coefficient of -0.406 are negative, indicating that deviations from the long-term equilibrium in the previous period are corrected in the current period. Understanding the short-term and the long-term dynamics of the economy is very important. This supports the argument of past studies that understanding the short-term and the long-term dynamics of the economy is sacrosanct^{1,2,3,4,5,6,7,8,9}.

In order to investigate the role of institutions in the relationship between capital flight and economic growth, the ARDL was conducted. In the model, lagged changes in the physical capital flight, lagged changes in bureaucratic regulation, lagged changes in the control of corruption, and lagged changes in democratic accountability were not significant. Lagged changes in human capital flight, with coefficient of 1.755 and t-Statistic of 2.894 are highly significant at 1% level of significance, having a strong positive impact. Lagged changes in bureaucratic regulation are not significant, implying that it has a negative but statistically weak impact. However, lagged changes in democratic accountability are insignificant and do not have a statistically significant impact. Lagged changes in government stability, significant at 5% level has a positive and statistically significant impact and lagged changes in law and order is highly significant with strong negative impact^{2,5,10,11,12}.

The Error correction model (ECM) results showed that the constant term represents the long-term equilibrium, when all other variables are zero. This implies that the lagged difference of G has a negative and statistically significant impact^{13,14}. The ECM (-1) result further showed that it is highly significant and the lagged error term indicates a strong tendency for the dependent variable to correct its previous period's deviation from equilibrium. Lagged changes in human capital flight, lagged changes in government stability and lagged changes in law and order are key drivers of short-term variations in the dependent variable. Lagged changes in human capital flight, have the most substantial impact. Lagged changes bureaucratic regulation and lagged changes in control of corruption, although statistically significant, have relatively weaker impacts^{15,16,17,18}. For human capital flight, all the institutional qualities are not significant, except lagged changes law and order in human capital flight. This is statistically significant at a 5% level of significance.

To determine the threshold level of institutional qualities that will reduce capital flight for economic growth. The result revealed that the lagged changes in physical capital flight is not significant, having a negative impact on the dependent variable. Lagged changes in human capital flight is significant at 5% level, has a positive and statistically significant impact. Lagged changes in government stability of physical capital flight, significant at 5% level has a positive and significant impact. Lagged changes in control of corruption of physical capital flight and lagged changes of government stability in physical capital flight do not have a statistically significant impact at conventional levels. However, lagged changes in law and order of physical capital flight and lagged changes in democratic accountability in physical capital flight both has a negative and statistically significant impact, though at 10% and at 5% respectively. On the other hand, the ECM results showed that the first difference of the lagged changes in physical

capital flight, deviations from long-term equilibrium are corrected in the short-term, but the results are statistically significant at the 1% level. The first differences of government stability in physical capital flight, deviations from long-term equilibrium are corrected in the short-term and the result is highly significant. This indicates a strong tendency for the dependent variable to correct its previous period's deviation from equilibrium^{19,20,21,22}. The threshold level of institutional qualities in the presence of physical capital flight both in the long-run and in the short-run were looked at. Government stability at -40.74 suggests an adverse effect of physical capital flight. This is well pronounced.

Control of corruption at -19.32% underscores the importance of addressing corruption issues. Economic growth experiences notable increase when the rule of law surpasses 19.68%. Democratic accountability is strengthened and mitigates against the consequences of physical capital flight at the threshold level of 40.48. At -40.28, effective democratic systems are essential for managing physical capital flight and sustaining economic growth in the long-run. However, in the short-run, government stability plays a critical role at 59.8%. Immediate efforts to enhance stability counteract the adverse effects of physical capital flight and stimulate short-term economic growth. The impact of rule of law (5.93) and Bureaucracy (11.9) is evident on the short term when exceeding the threshold levels^{19,20,21,22}.

From equation 4.2, the threshold level of each institutional quality was derived, when other institutional qualities were held constant. In the long-run, the identified thresholds for various institutional qualities offer valuable insights into the dynamics of economic growth in the presence of human capital flight. Government stability at the threshold of 41.1% signifies that economic growth is significantly influenced by improvement in government stability, when faced with the challenges of human capital flight. The threshold level of the control of corruption is at 3.17%. Below this level, the detrimental impact of human capital flight on economic growth is pronounced. This emphasizes the need to address corruption issues. The threshold level of the rule of law is -600%, suggesting a robust legal framework is essential to counter the adverse effects of human capital flight. Democratic accountability demonstrates a critical threshold of 495.2%, implying that democratic governance positively influences economic growth. Also, for

Bureaucracy, the threshold level is at -5.93%. This underscores the importance of an effective bureaucratic system, managing the repercussion of human capital flight and sustaining economic growth in the long-term. In the short-term, the specific threshold levels of government stability, control of corruption, rule of law, democratic accountability and bureaucracy are not provided. Their absence makes it challenging to interpret their impacts on economic growth in the context of human capital flight^{19,20,21,22}.

To examine how economic growth responds to shocks in the institutions in the presence of capital flight. At lag 1, it is significant at the 5% level, suggesting that introducing at least one lag improves the model's fit. The FPE measures the goodness of fit of the model. It decreases with increasing lag orders, suggesting that including more lags improves the model's predictive performance. The lag length selection criteria suggest that there is a temporal relationship in the data, and information from the previous period is valuable for predicting the economic variable. The result further emphasized the importance of temporal dependencies, indicating that past values of the exogenous variables have significant explanatory power¹⁵. The economy is highly sensitive in the early periods to changes in the exogenous variable. Economic policies or shocks related to growth play a crucial role in the determination of the overall variability. The system's variability becomes more diversified with multiple variables contributing as time progresses. Some variables like the lagged changes in physical capital flight, in human capital flight, in bureaucratic regulation in physical capital flight, in democratic accountability in human capital flight, in control of corruption in physical capital flight and the first difference of the lagged changes in government stability of physical capital flight gradually become more influential. This indicates the importance of specific sectors in explaining variability. Finally, the

increasing contributions of various variables over time suggest a more resilient economy, less dependence on a single factor^{23,24}.

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Chapter Five

Conclusion

This chapter presents the summary of findings, conclusion, recommendation of the study, contribution to knowledge and suggestion for further studies.

5.1 Summary of Findings

Capital is considered crucial for the production of output, which ultimately leads to improved economic growth. However, a sizeable amount of capital, required for growth in human and funds are taken out of the production system. This adds to the prevailing capital scarcity problem. This ultimately results to stunted growth in the Nigerian economy. Many authors had worked on the effect of physical capital flight, on economic growth in Nigeria, yet convincing evidence is lacking on the effect of human capital flight on economic growth in

Nigeria. There are divergent opinions on the effect of capital flight on economic growth in Nigeria. Some suggested that the effect is positive, while others opined that the effect is negative. Some concluded that the effect is context specific. The study therefore investigate the relationship among physical capital flight, human capital flight, institutional qualities, and their impact on economic growth in Nigeria. The study considered how capital flight and institutional qualities interact to shape the economic growth.

To put the study in the right perspective, pertinent research questions were asked: What effect does capital flight have on economic growth? How do institutional qualities play their roles in the relationship between capital flight and economic growth? What threshold level of institutional qualities can reduce capital flight for economic growth? To what extent does economic growth respond to shocks in the presence of capital flight? The broad objective of the

study is to analyze the relationship among capital flight, institutional qualities and economic growth in Nigeria. The specific objectives are to: analyze the effect of capital flight on economic growth, to examine the role institutional qualities play in the relationship between capital flight and economic growth., to determine the threshold level of institutional qualities that will reduce capital flight for economic growth, and to investigate the response of economic growth to shocks in the institutional qualities in the presence of capital flight.

The main objective of this research is to examine the relationship among capital flight, both physical and human, institutions and economic growth in Nigeria. The study used annual data from 1986 to 2022. In a bid to accomplish this objective; the estimation techniques used are Autoregressive Distributive Lag Model (ARDL), Error Correction Model (ECM) and Vector Autoregression (VAR). The empirical results of the four specific objectives were reported and detailed discussion of it was done in the previous chapter. However, further discussions done on the study are the Unit Root Test which revealed that some of the series are not stationary at level but became stationary after differencing it once.

For objective 1, The effect of capital flight on economic growth. The coefficient of LCFP is 0.214 and not statistically significant. This implies that there might not be meaningful relationship between the LCFP and the dependent variable in the model. This suggests that changes in the LCFP may not reliably predict or affect changes in the dependent variable in the long-run. Therefore it is not enough evidence to support a meaningful relationship between capital flight and the dependent variable. The changes in the log value of physical capital flight may not have a substantial or predictable impact in the long – run.

With the co-efficient of capital flight at -16.178 is significant at the 1% level, indicating a strong and significantly meaningful relationship between capital flight and the dependent variable

in the capital flight and the dependent variable in the model. It suggests that there is an inverse relationship between capital flight and the dependent variable. At 1% level of significance, it is highly generally considered reliable, indicating that changes in the log value of physical capital flight are likely to influence the dependent variable. A higher log value of physical capital flight might substantially and inversely affect the outcome in the short – run.

A positive co-efficient of 1.814 of LCFH indicates a positive relationship between the LCFH and the dependent variable at a 5% significance level. At a 5% significance level, the relationship is considered statistically significant but to a slightly lesser extent than if it was significant at a higher level of 1%. This implies that increases in the LCFH might moderately influence or predict increase in the dependent variable. However, the relationship might be less robust compared to a significance level of 1%.

In the second objective, the co-efficient of LCFP is 0.275 and not significant, it implies that, in the long-run, there might not be a substantial or meaningful relationship between the logarithm of physical capital flight (LCFP) and the dependent variable in the model. In fact, the absence of significance suggests that changes in the log value of physical capital flight might not have a considerable influence on the dependent variable over an extended period. Therefore, in the long-run, the LCFP might not be a strong prediction or an influential factor in determining changes in the dependent variable in the context of the analysis. However, the negative value of the ECM (-0.716) suggests that when there is deviation from the equilibrium in the previous period, about 71.6% of that deviation will be corrected in the current period. This indicates a tendency towards restoring the equilibrium between the variables in the model over time. If the co-efficient of LCFH is 1.755 at a 1% level of significance, it emphasizes a robust and highly reliable long-term relationship between LCFH and the dependent variable in the model. At 1%

significance level, the co-efficient of 1.755 indicates a strong and statistically significant impact. It therefore suggests that changes in the LCFH are highly likely to lead to a substantial and meaningful increase in the dependent variable over the long term other factor remaining constant.

The institutional qualities roles are:

1. LCFPB (Bureaucracy), LCFPC (Control of Corruption), and LCFPG (Government Stability).

When the co-efficient of LCFPB, LCFPC and LCFPG are 0.004, 0.011 and 0.000 respectively at no significance level, it implies that there might not be a substantial or reliable relationship between the institutional qualities and the dependent variable in the model. This suggests that changes in the institutional qualities may not have a meaningful impact on the dependent variable. Consequently these institutional qualities might not be a significant predictor or an influential factor determining changes in the dependent variable within the context of the analysis.

2. LCFPG – When the co-efficient of LCFPG is 0.007 at a 5% level of significance, it suggests a statistically dependent variable in the model. It indicates further that changes in the LCFPG might have a limited impact on the dependent variable. This suggests that LCFPG might have only a minor or modest influence on changes in the dependent variable. This relationship might not be considered strong or robust based on the significance level.
3. LCFPL – At a 1% level of significance, a co-efficient of – 0.010 for LCFPL suggests a statistically significant but weak relationship between LCFPL and the dependent variable in the model. The negative co-efficient of – 0.010 implies an inverse relationship

between the LCFPL and the dependent variable. However, the small magnitude of the co-efficient suggests that a one-unit change in LCFPL might lead to a very slight decrease in the dependent variable, all other variables remaining constant. While statistically significant at the 1% level, the substantive impact of LCFPL on the dependent variable might be minimal based on the small co-efficient value.

In model two, objective two, the co-efficient of LCFP is 0.131 and it is not statistically significant, it implied that in the long-run, there might not be a substantial or reliable relationship between the LCFP and the dependent variable in the model. The absence of significance suggests that changes in the LCFP may not have a meaningful impact on the dependent variable over an extended period. Therefore, in the long-run LCFP might not be a strong predictor or influential factor in determining charges in the dependent variable within the context of the analysis. Also, LCFHB, LCFHC, LCFHD and LCFHG are respectively -0.001, 0.017, -0.005, and 0.016, at no significance level. This implied that they tend to have no meaningful impact on the dependent variable.

LCFHL – when the co-efficient of LCFHL is -0.276 at a 5% level of significance it suggests a statistically significant relationship between the LCFHL and the dependent variable in the model. At 5% level of significance, the negative co-efficient of -0.276 implies an inverse relationship between LCFHL and the dependent variable. This means that an increase in LCFHL might lead to a decrease in the dependent variable, assuming other factors remain constant.

The ECM (-) at -0.545 implies that about 54.5% of the deviation from the long-term equilibrium between the variables will be corrected in the current period. This indicates a partial adjustment towards the long-term equilibrium from any short-term disequilibrium in the variables. The constant term (-12.492) signifies the baseline level of the dependent variable

when all independent variables are at zero. Therefore, in the short-run, a 54.5% correction from any deviations from the equilibrium is expected alongside the baseline level represented by the constant term.

In the third objective, the co-efficient of LCFP is -2.146 and it is not statistically significant. It implies that there might not be meaningful or reliable relationship between LCFP and the dependent variable in the model in the long-run. It suggests that changes in the LCFP may not have a substantial impact on the variable over an extended period. Therefore, in the long-run, LCFP might not be a strong predictor or influential factor in determining changes in the independent variable within the context of the analysis. However, when the co-efficient of LCFH is 1.403 at a 5% level of significance, it suggests a statistically significant relationship between the LCFH and the dependent variable in the model. It indicates that changes in the LCFH might have a substantial impact on the dependent variable over the long-run, assuming all other factors remain constant. This suggests that in the long-run, a one-unit increase in LCFH might lead to a significant increase in the dependent variable, based on the statistically significant co-efficient. Therefore, LCFH could be considered a strong predictor or influential factor in determining changes in the dependent variable within the context in the dependent variable within the context of the analysis at 5% level of significance. When the ECM co-efficient of (-1) is -0.596, it suggests that around 59.6% of any deviation from the long-term equilibrium between variables will be corrected in the current period. This indicates a partial adjustment towards the long-term equilibrium from any short-term disequilibrium variables. Therefore, in the short-term there is an adjustment of around 59.6% towards the long-term equilibrium, alongside the baseline value represented by the constant term.

In model two, objective three, the coefficient of LCFP is -0.187, LCFH is -0.624 and the coefficient are not statistically significant, it implied that there might not be a substantial or reliable relationship between LCFP and the dependent variable in the long-run. At nonsignificant level, the coefficient suggests that changes in the LCFP may not have a meaningful impact on the dependent variable over an extended period. Therefore, in the long-run, LCFP might not be a strong predictor or influential factor in determining changes in the dependent variable within the context of the analysis.

The ECM coefficient of -0.855 suggests that approximately 85.5% of any deviations from the long-term equilibrium between variables will be corrected in the current period.

The implication here is that some of these series trended with the prevailing macroeconomic reforms. The different part of the data set exhibits different trends and behaviours.

In the fourth objective, the variance decomposition results highlights a dynamic relationship where the dynamic power of economic growth shocks diminishes over time, while the contributions from external factors becomes more important in explaining the variability in economic growth in model 1. For model 2, the variance decomposition result exposes a temporal evolution in the contribution of shocks from different variables to the observed variability in economic growth. Economic growth becomes less dominant over time, while the shocks from other variables gain prominence from the first to the tenth periods.

5.2 Conclusion

The study provides an insight empirically on the relationship among capital flight, institutional qualities and economic growth in Nigeria. Its time scope is 1986-2022. Capital flight is a serious and important concern for developing country like Nigeria. This is so because it restricts the ability and the capacity of the affected economies to mobilize domestic resources,

necessary to finance economic growth. Consequently, capital flight contributes to the retardation of Nigerian economy. Economic growth, with relevant literatures reviewed is not impressive in Nigeria. This is as a result of capital, grossly inadequate for resource mobilization, a requisite for investment. However, a sizeable amount of capital, be it human or funds are been taken out of the production system in Nigeria. This contributes to a very large extent to the stunted economic growth, experienced in Nigeria.

Capital flight can be reduced to the barest minimum when there are strong institutional qualities. Strong institutions contribute to economic growth, reduce the costs of economic activity, improve the level of welfare attained by the citizens and encourage trust by providing fair policing and justice systems. These ultimately spur the growth of the economy. In Nigeria, weak institutional qualities are a major challenge to economic growth as it promotes the growth of capital flight.

The study examined four specific objectives and evaluates them based on the use of appropriate estimation techniques like Error Correction Model (ECM), Autoregressive Distributed lag Model (ARDL) and the Vector Autoregression (VAR.). Pre-estimation tests like descriptive statistics, Unit root, Cointegration and Covariance were carried out, validating the choice of the estimating techniques. CUSUM, a cumulative sum and CUSUM of Squares are equally used for monitoring and detecting shifts or changes. This was used in order to identify when the process is drifting away from the desired performance. The post estimation tests like Normality, serial correlation heteroscedasticity, omission of variables and the graphs of CUSUM and CUSUM of Squares were conducted. The results respectively showed that it is normally distributed, there is no serial correlation, no presence of heteroscedacity, no omission of variables and there is stability of CUSM and CUSUM of squares.

5.3 Recommendations

Recommendations arising from the empirical results of the study are that addressing human capital flight requires a multifaceted approach that combines improving domestic opportunities, enhancing institutional qualities, incentivizing return migration and leveraging international cooperation. With these, Nigeria can mitigate the negative impacts of human capital flight and promote sustainable economic growth. Also, addressing physical capital flight requires an approach that promotes political stability, ensure macroeconomic stability, and enhance institutional qualities. These help retain capital in Nigeria and support sustainable economic growth.

5.4 Contribution to Knowledge

The study contributes to the existing body of literatures by closing the empirical gaps in literature by investigating the relationship among capital flight, institutional qualities and economic growth:

(1.) The study found that institutional qualities has the ability to reduce to the minimum level possible in the Nigerian polity, in the long run, the damaging effects of capital flight. Graphical illustrations, simplifying the conceptual relationships of the variables in an explicit form were developed. These give a clear cut presentation of the various concepts. Moreover, it is adaptable to policy implementation in reality. The appropriate estimation techniques of Error Correction Model, ECM, Vector Autoregression, VAR and Autoregressive Distribution Lag Model, ARDL were employed to estimate the short run and the long run estimates of the parameters of the variables. These have ultimately and explicitly established the relationship among capital flight, institutional qualities and economic growth, evidence from Nigeria.

(2.) The impact of capital flight on economic growth in Nigeria provides insights into the country's economic policy framework. It helps policy makers understand how capital flight can help policy makers understand how capital flight affects domestic investment, capital accumulation and economic growth.

(3.) Exploring the impact of capital on economic growth sheds light on the investment climate in Nigeria. Understanding how capital flight affects investors' confidence, domestic and foreign investment and the overall business environment can offer valuable insights for policy makers and investors.

Research on capital flight and economic growth in Nigeria and the role institutional qualities play contributes to a deeper understanding of the country's economic landscape. It facilitates informed policy decisions and helps formulate strategies to enhance economic growth and stability.

5.5 Suggested Area for Further Studies

The years covered for the study should be extended further. Also, data of higher frequency could be used for future studies. Since the coefficient of capital flight varies among different models and significance levels, further investigation could explore the reasons for its inconsistency. Additionally, examining the economic implications of human capital flight, given its significant coefficient, could provide valuable insights into policy recommendations or further research directions. Furthermore, analyzing the error correction term (ECM) could shed light on the short term dynamics of the model and potential adjustment processes. Further studies could delve into understanding the nuanced effects of institutional qualities on economic growth, given the mixed significance levels of coefficient related to them. Exploring potential interactions among the variables could provide deeper understanding of their impact.

Additionally, qualitative research or case studies could help contextualize the findings and uncover underlying mechanisms, driving the observed relationships. Exploring the nature and mechanisms of the external factors, such as global economic trends, policy spillovers, or geopolitical events could provide deeper insights. Finally, investigating the reasons behind the diminishing impact of economic growth shocks overtime, such as structural changes in the economy would contribute to understanding the longterm dynamics of economic growth.

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Appendix

Descriptive Analysis

	G	HC	K	CFP	CFH	GS	CC	LO	DA	BR
Mean	4.162427	0.438991	5.25 Tril	2.74E+10	8203.090	57.51614	26.27628	34.53453	47.97447	45.32883
Median	4.195924	0.462000	3.68E+10	2.06E+10	16528.00	58.00000	25.00000	33.33333	54.00000	50.00000
Maximum	15.32916	0.538000	1.58E+11	7.78E+10	107212.0	87.50000	33.33333	50.00000	63.19444	59.00000
Minimum	2.035119	0.289333	1.23E+10	-2.17E+09	-145917.0	31.25000	16.66667	16.66667	8.333333	23.00000
Std. Dev.	3.854065	0.078463	3.78E+10	2.49E+10	58734.12	12.20134	5.767359	10.76407	13.54742	9.093181
Skewness	0.515553	-0.433246	1.194893	0.507565	-0.588871	0.289171	-0.177764	0.054912	-1.559404	-1.176551
Kurtosis	3.459191	1.869958	3.821512	1.915218	2.789695	3.402033	2.096479	2.247269	4.522649	3.367318
Jarque-Bera	1.964139	3.126196	9.845017	3.402827	2.206592	0.764837	1.453405	0.892109	18.57003	8.744345
Probability	0.374535	0.209486	0.007281	0.182425	0.331776	0.682209	0.483501	0.640149	0.000093	0.012624
Sum	154.0098	16.24267	1.94E+12	1.01E+12	303514.3	2128.097	972.2222	1277.778	1775.056	1677.167
Sum Sq. Dev.	534.7374	0.221633	5.14E+22	2.24E+22	1.24E+11	5359.414	1197.447	4171.150	6607.178	2976.694
Observations	37	37	37	37	37	37	37	37	37	37

GS 0.246069871650 0.2660068783022909 - 0.108908 0.0095894 1 - 0.443209 - 0.23171

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BR 3862869 36531133 9196.945 9.25301 126 649 1 18759 346 064039

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Objective One

ARDL Long Run Form and Bounds Test

Dependent Variable: D(G)

Selected Model: ARDL(2, 2, 2, 0, 1, 1, 0, 2)

Case 3: Unrestricted Constant and No Trend

Date: 10/24/23 Time: 14:28

Sample: 1986 2022

Included observations: 35

Conditional Error		Correction Regression		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.17848	10.10994	-1.600255	0.1280
G(-1)*	-0.684558	0.180969	-3.782729	0.0015
LCFP(-1)	0.146379	0.319145	0.458661	0.6523
LCFH(-1)	1.241962	0.357932	3.469824	0.0029
GS**	0.117747	0.077639	1.516593	0.1477
CC(-1)	0.155603	0.135310	1.149976	0.2661
LO(-1)	-0.184886	0.097955	-1.887460	0.0763
DA**	-0.009769	0.045718	-0.213676	0.8333
BR(-1)	-0.043136	0.086668	-0.497721	0.6251
D(G(-1))	-0.405515	0.150721	-2.690505	0.0155
D(LCFP)	-0.165494	0.159655	-1.036575	0.3145
D(LCFP(-1))	-0.200508	0.135968	-1.474670	0.1586
D(LCFH)	0.293699	0.189426	1.550464	0.1394
D(LCFH(-1))	-0.339262	0.202199	-1.677864	0.1117
D(CC)	0.608421	0.227963	2.668946	0.0162
D(LO)	-0.531383	0.137967	-3.851517	0.0013
D(BR)	-0.166948	0.068476	-2.438056	0.0260

D(BR(-1)) -0.107609 0.082825 -1.299229 0.2112

* p-value incompatible with t -Bounds distribution.

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

Levels Equation

Case 3: Unrestricted Co nstant and N o Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCFP	0.213830	0.486246	0.439758	0.6657
LCFH	1.814253	0.681321	2.662846	0.0164
GS	0.172004	0.103766	1.657619	0.1157
CC	0.227304	0.218905	1.038367	0.3136
LO	-0.270081	0.122786	-2.199616	0.0420
DA	-0.014270	0.067466	-0.211519	0.8350
BR	-0.063014	0.127992	-0.492325	0.6288

$$EC = G - (0.2138 *LCFP + 1.8143*LCFH + 0.1720*GS + 0.2273*CC - 0.2701$$

F-Bounds Test relationship Null Hypothesis: No levels

Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	4.357561	10%	2.03	3.13
K	7	5%	2.32	3.5
		2.5%	2.6	3.84
		1% ²¹²	2.96	4.26

$$*LO -0.0143*DA - 0.0630*BR)$$

Actual Sample Size	35	Finite Sample: n=35		
		10%	2.3	3.606
	5%	2.753	4.209	
	1%	3.841	5.686	

Null Hypothesis: No levels

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-		-2.57	
3.782729		10%	-4.23	
		5%	-2.86	-4.57
		2.5%	-3.13	-4.85
		1%	-3.43	-5.19

ARDL Error Correction Regression

Dependent Variable: D(G)

Selected Model: ARDL(2, 2, 2, 0, 1, 1, 0, 2)

Case 3: Unrestricted Constant and No Trend

Date: 10/24/23 Time: 14:29

Sample: 1986 2022

Included observations: 35

ECM Regression

Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	Prob.
C	-16.17848	2.380102	0.0000
D(G(-1))	-0.405515	0.087079	0.0002

t-	D(LCFP)	-0.165494	0.084074	-1.968429	0.0655	Bounds Test	relationship	D(BR)
	D(LCFP(-1))	-0.200508	0.068323	-2.934720	0.0093		-0.166948	0.046290
							-3.606538	0.0022
D(BR(-1))	D(LCFH)	0.293699	0.127090	2.310953	0.0336			
	-D(LCFH(-1))	-0.339262	0.153172	-2.214913	0.0407			
0.107609	D(CC)	0.608421	0.148626	4.093646	0.0008			
	D(LO)	-0.531383	0.067268	-7.899439	0.0000			
			0.054568	-1.971995	0.0651			

R-squared	0.887659	Mean dependent	0.001473
	var		
Adjusted R-squared	0.840850	S.D. dependent var	4.369445
S.E. of regression	1.743127	Akaike info criterion	4.200515
Sum squared resid	72.92377	Schwarz criterion	4.689339
Log likelihood	-62.50901	Hannan-Quinn criter.	4.369257
F-statistic	18.96356	Durbin-Watson stat	2.278333
Prob(F-statistic)	0.000000		
	CoIntEq(-1)*	-0.684558	0.097580 -7.015327 0.0000

* p-value incompatible with t -Bounds distribution.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.355036	Prob. F(2,15)	0.2878
Obs*R-squared	5.355852	Prob. Chi-Square(2)	0.0687

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.030893	Prob. F(17,17)	0.4754
Obs*R-squared	17.76620	Prob. Chi-Square(17)	0.4037
Scaled explained SS	4.230915	Prob. Chi-Square(17)	0.9992

Ramsey RESET Test

Equation: UNTITLED

Specification: G G(-1) G(-2) LCFP LCFP(-1) LCFP(-2) LCFH

LCFH(-1)

LCFH(-2) GS CC CC(-1) LO LO(-1) DA BR BR(-1) BR(-2)

C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.366997	16	0.7184
F-statistic	0.134687	(1, 16)	0.7184

F-test summary:

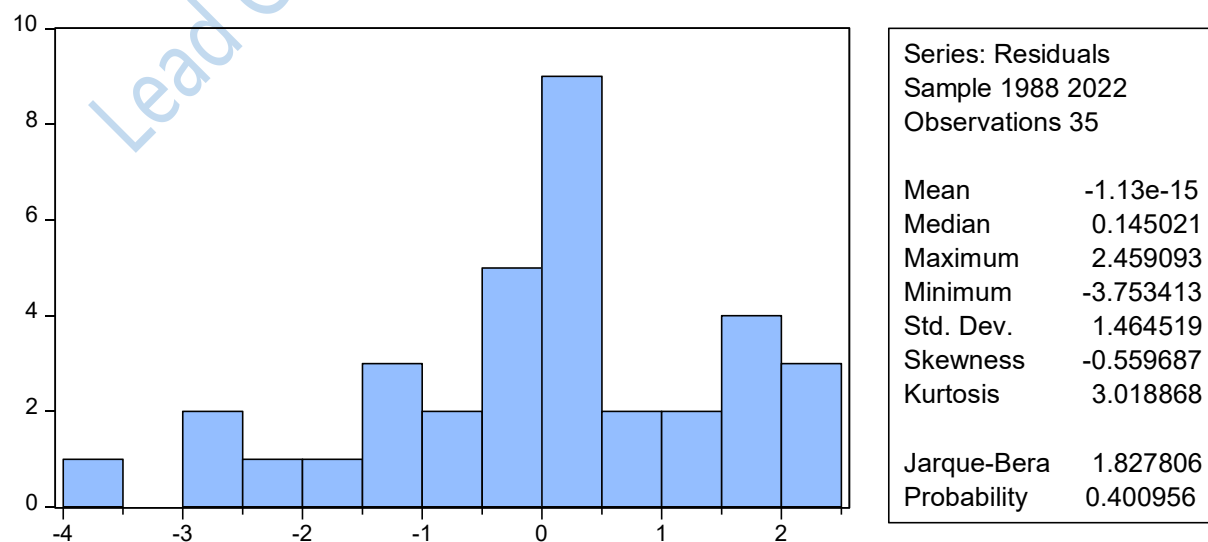
	Sum of	Mean	
	Sq.	df	Squares
Test SSR	0.608742	1	0.608742
Restricted SSR	72.92377	17	4.289633

Unrestricted SSR 72.31503 16
4.519689

Variable	Coefficient	std error	t-statistic	
C	-16.178	10.110	-1.600	*
G(-1)	-0.685	0.181	-3.783	***
LCFP (-1)	0.146	0.319	0.459	*

LCFH (-1)	1.242	0.358	0.3470	***
GS**	0.118	0.078	1.517	*
CC(-1)	0.156	0.135	1.150	*
LO(-1)	-0.185	0.098	-1.887	*
DA**	-0.010	0.046	-0.214	*
BR(-1)	-0.043	0.087	-0.498	*
D(G(-1)	-0.406	0.151	-2.691	***
D(LCFP)	-0.165	0.160	-1.037	*
D(LCFP(-1)	-0.201	0.136	-1.475	*
D(LCFH)	0.294	0.189	1.550	*
D(LCFH(-1)	-0.339	0.202	-1.678	*
D(CC)	0.608	0.228	2.669	**
D(LO)	-0.531	0.138	-3.852	***
D(BR)	-0.167	0.068	-2.438	**
D(BR(-1)	-0.108	0.083	-1.299	*

Fig 4.3: Serial Correlation



Source: Author's computation, 2023 Objective Two

ARDL Long Run Form and Bounds Test

Dependent Variable: D(G)

Selected Model: ARDL(2, 0, 2, 2, 1, 0, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 07:20

Sample: 1986 2022

Included observations: 35

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.08748	6.793199	-2.515380	0.0210
G(-1)*	-0.715615	0.165605	-4.321209	0.0004
LCFP**	0.196781	0.344235	0.571649	0.5743
LCFH(-1)	1.255624	0.326528	3.845380	0.0011
LCFPB(-1)	-0.003161	0.002699	-1.171121	0.2560
LCFPC(-1)	0.007554	0.005409	1.396730	0.1786
LCFPD**	-9.03E-05	0.001676	-0.053850	0.9576
LCFPG**	0.004903	0.002571	1.906925	0.0718
LCFPL(-1)	-0.007494	0.002611	-2.870162	0.0098
D(G(-1))	-0.367972	0.140659	-2.616060	0.0170
D(LCFH)	0.284500	0.177468	1.603107	0.1254
D(LCFH(-1))	-0.358698	0.185713	-1.931462	0.0685
D(LCFPB)	-0.007863	0.002701	-2.911071	0.0090
D(LCFPB(-1))	-0.004286	0.001764	-2.429771	0.0252
D(LCFPC)	0.025607	0.007858	3.258810	0.0041

D(LCFPL) -0.021637 0.003769 -5.740246 0.0000

* p-value incompatible with t -Bounds
distribution. ** Variable interpreted as $Z = Z(-1) +$
D(Z).

Levels Equation
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCFP	0.274982	0.491348	0.559649	0.5823
LCFH	1.754609	0.606319	2.893869	0.0093
LCFPB	-0.004417	0.003857	-1.145105	0.2664
LCFPC	0.010556	0.008439	1.250930	0.2261
LCFPD	-0.000126	0.002348	-0.053717	0.9577
LCFPG	0.006852	0.003287	2.084743	0.0508
LCFPL	-0.010472	0.002733	-3.832091	0.0011

$$EC = G - (0.2750*LCFP + 1.7546*LCFH - 0.0044*LCFPB + 0.0106*LCFPC - 0.0001*LCFPD + 0.0069*LCFPG - 0.0105*LCFPL)$$

Null Hypothesis: No levels

F-Bounds Test relationship

Test Statistic	Value	Signif	.	I(0)	I(1)
----------------	-------	--------	---	------	------

Asymptotic:
n=1000

F-statistic	6.086253	10%	2.03	3.13
K	7	5%	2.32	3.5
		2.5%	2.6	3.84
		1%	2.96	4.26

Actual Sample Size	35	Finite		
		Sample:		
		n=35		
		10%	2.3	3.606
		5%	2.753	4.209
		1%	3.841	5.686

Null Hypothesis: No levels

t-Bounds Test	relationship			
Test Statistic	Value	Signif.	I(0)	I(1)
4.321209	t-statistic	-	-2.57	- 4.23
			10%	- 4.23
			5%	-4.57
			2.5%	-4.85
			1%	-5.19

ARDL Error Correction Regression

Dependent Variable: D(G)

Selected Model: ARDL(2, 0, 2, 2, 1, 0, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 07:20

Sample: 1986 2022

Included observations: 35

ECM Regression

Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.08748	2.170018	-7.874347	0.0000
D(G(-1))	-0.367972	0.080163	-4.590297	0.0002
D(LCFH)	0.284500	0.119867	2.373458	0.0283
D(LCFH(-1))	-0.358698	0.142363	-2.519609	0.0209
D(LCFPB)	-0.007863	0.001864	-4.218996	0.0005
D(LCFPB(-1))	-0.004286	0.001127	-3.804817	0.0012
D(LCFPC)	0.025607	0.003575	7.161733	0.0000
D(LCFPL)	-0.021637	0.002483	-8.715844	0.0000
CointEq(-1)*	-0.715615	0.087670	-8.162625	0.0000

R-squared	0.888318	Mean dependent var	0.001473
Adjusted R-squared	0.853954	S.D. dependent var	4.369445
S.E. of regression	1.669823	Akaike info criterion	4.080347
Sum squared resid	72.49604	Schwarz criterion	4.480293
Log likelihood	-62.40607	Hannan-Quinn criter.	4.218408
F-statistic	25.85051	Durbin-Watson stat	2.356136
Prob(F-statistic)	0.000000		

* p-value incompatible with t Bounds distribution. -

Null Hypothesis: No levels

F-Bounds Test				relationship
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	6.086253	10%	2.03	3.13

K	7	5%	2.32	3.5
		2.5%	2.6	3.84
		1%	2.96	4.26

Null Hypothesis: No levels				
t-Bounds Test		relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-8.162625	10%	-2.57	-4.23
		5%	-2.86	-4.57
		2.5%	-3.13	-4.85
		1%	-3.43	-5.19

Variable	Coefficient	std error	t-statistic	
C	-17.087	6.793	-2.515	**
G(-1)*	-0.716	0.166	-4.321	***
LCF**	0.197	0.344	0.572	*
LCFH (-1)	1.256	0.327	3.845	***
LCFPC(-1)	-0.003	0.003	-1.171	*
LCFPC(-1)	0.008	0.005	1.397	*
LCFPD**	-9.030	0.002	-0.054	*
LCFPG**	-0.005	0.003	1.907	*
LCFPL(-1)	-0.07	0.003	-2.870	***
D(G(-1))	-0.368	0.141	-2.616	**
D(LCFH)	0.285	0.177	1.603	*
D(LCFH(-1))	-0.359	0.186	-1.931	*

D(LCFPS)	-0.008	0.003	-2.911	***
D(LCFPB(-1))	-0.004	0.002	-2.430	**
D(LCFPC)	0.026	0.008	3.259	***
D(LCFPL)	0.022	0.004	-5.740	***

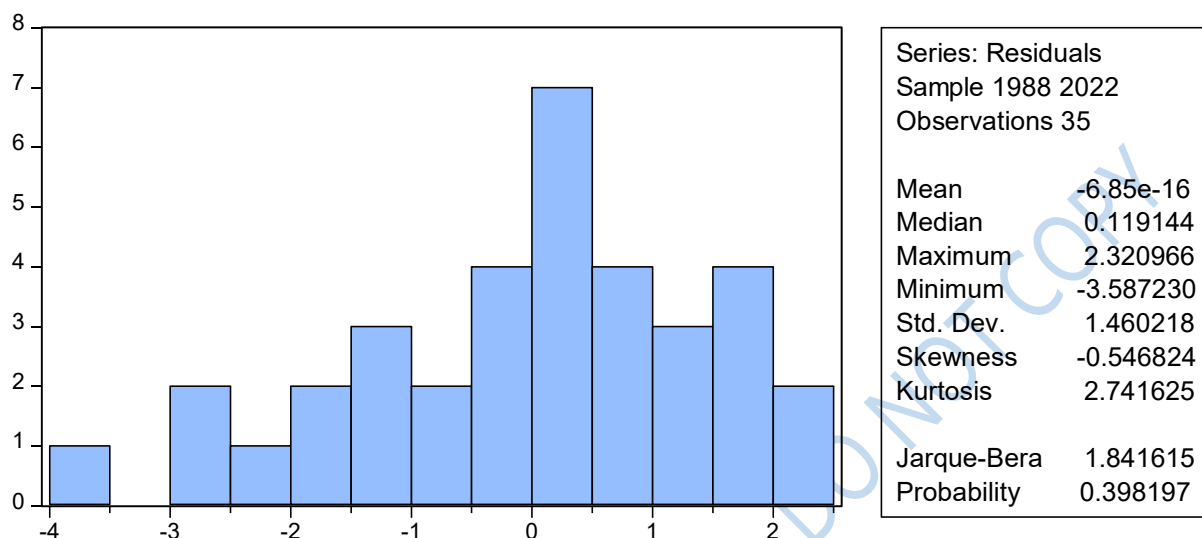


Fig 4.4.1 Serial Correlation

Source: Author's computation, 2023

ARDL Error Correction Regression

Dependent Variable: D(G)

Selected Model: ARDL(2, 0, 2, 2, 1, 0, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 07:20

Sample: 1986 2022

Included observations: 35

ECM Regression

Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.08748	2.170018	-7.874347	0.0000

D(G(-1))	-0.367972	0.080163	-4.590297	0.0002
D(LCFH)	0.284500	0.119867	2.373458	0.0283
D(LCFH(-1))	-0.358698	0.142363	-2.519609	0.0209
D(LCFPB)	-0.007863	0.001864	-4.218996	0.0005
D(LCFPB(-1))	-0.004286	0.001127	-3.804817	0.0012
D(LCFPC)	0.025607	0.003575	7.161733	0.0000
D(LCFPL)	-0.021637	0.002483	-8.715844	0.0000
CointEq(-1)*	-0.715615	0.087670	-8.162625	0.0000

R-squared	0.888318	Mean dependent var	0.001473
Adjusted R-squared	0.853954	S.D. dependent var	4.369445
S.E. of regression	1.669823	Akaike info criterion	4.080347
Sum squared resid	72.49604	Schwarz criterion	4.480293
Log likelihood	-62.40607	Hannan-Quinn criter.	4.218408
F-statistic	25.85051	Durbin-Watson stat	2.356136
Prob(F-statistic)	0.000000		

* p-value incompatible with t -Bounds d istribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	6.086253	10%	2.03	3.13
K	7	5%	2.32	3.5
		2.5%	2.6	3.84

1% 2.96 4.26

Null Hypothesis: No levels

t-Bounds Test relationship

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-8.162625	10%	-2.57	-
		5%	-2.86	-4.57
		2.5%	-3.13	-4.85
		1%	-3.43	-5.19

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.546603	Prob. F(2,17)	0.2415
Obs*R-squared	5.388000	Prob. Chi-Square(2)	0.0676

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.814668	Prob. F(15,19)	0.6525
Obs*R-squared	13.69957	Prob. Chi-Square(15)	0.5484
Scaled explained SS	3.515625	Prob. Chi-Square(15)	0.9989

Ramsey RESET Test

Equation: UNTITLED

Specification: G G(-1) G(-2) LCFP LCFH LCFH(-1) LCFH(-2)

LCFPB

LCFPB(-1) LCFPB(-2) LCFPC LCFPC(-1) LCFPD LCFPG

LCFPL

LCFPL(-1) C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.427290	18	0.6742
F-statistic	0.182577	(1, 18)	0.6742

F-test summary:

	Sq.	df	Sum of Squares	Mean
Test SSR	0.727956	1	0.727956	0.727956
Restricted SSR	72.49604	19	3.815581	3.815581
Unrestricted SSR	71.76809	18	3.987116	3.987116

g lcfp lcfh gs cc lo da br g lcfp lcfh gs cc lo da br
gssq ccsq losq dasq brsq

g lcfp lcfh gs cc lo da br lcfpg lcfpc lcfpl lcfpd lcfpb g
lcfp lcfh gs cc lo da br lcfhg lcfhc lcfhl lcfhd lcfhb

g lcfp lcfh gs cc lo da br lcfpg lcfpc lcfpl lcfpd lcfpb lcfpgsq lcfpcsq lcfplsq lcfpdsq lcfpbsq g
lcfp lcfh gs cc lo da br lcfhg lcfhc lcfhl lcfhd lcfhb lcfhgsq lcfhcsq lcfhlsq lcfhdsq lcfhbsq

g lcfp lcfh gs cc lo da br

ARDL Long Run Form and Bounds Test

Dependent Variable: D(G)

Selected Model: ARDL(3, 2, 0, 2, 1, 0, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 07:34

Sample: 1986 2022

Included observations: 34

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.49129	8.652395	-1.443680	0.1670
G(-1)*	-0.545298	0.198310	-2.749732	0.0137
LCFP(-1)	0.071372	0.296271	0.240902	0.8125
LCFH**	1.110962	0.679455	1.635079	0.1204
LCFHB(-1)	-0.000422	0.009221	-0.045799	0.9640
LCFHC(-1)	0.009503	0.015531	0.611859	0.5487
LCFHD**	-0.002645	0.005206	-0.508144	0.6179
LCFHG**	0.008606	0.007086	1.214530	0.2411
LCFHL(-1)	-0.015028	0.008147	-1.844563	0.0826
D(G(-1))	-0.476923	0.168437	-2.831461	0.0115
D(G(-2))	-0.153496	0.147525	-1.040477	0.3127
D(LCFP)	-0.279917	0.147096	-1.902948	0.0741
D(LCFP(-1))	-0.161920	0.132989	-1.217546	0.2400
D(LCFHB)	-0.013376	0.007834	-1.707498	0.1059
D(LCFHB(-1))	-0.006868	0.003845	-1.786155	0.0919
D(LCFHC)	0.043476	0.015829	2.746566	0.0138
D(LCFHL)	-0.049576	0.009456	-5.242620	0.0001

* p-value incompatible with t -Bounds
distribution. ** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation				
Case 3: Unrestricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCFP	0.130887	0.566455	0.231063	0.8200

LCFH	2.037347	1.625856	1.253092	0.2271
LCFHB	-0.000774	0.016829	-0.046022	0.9638
LCFHC	0.017426	0.027126	0.642423	0.5292
LCFHD	-0.004851	0.010651	-0.455454	0.6545
LCFHG	0.015782	0.010628	1.484933	0.1559
LCFHL	-0.027559	0.010715	-2.571908	0.0198

$$EC = G - (0.1309 *LCFP + 2.0373*LCFH - 0.0008*LCFHB + 0.0174*LCFHC - 0.0049*LCFHD + 0.0158*LCFHG - 0.0276*LCFHL)$$

Null Hypothesis: No levels

F-Bounds Test relationship

Test Statistic	Value	Signif.	I(0)	I(1)
----------------	-------	---------	------	------

Asymptotic:
n=1000

F-statistic	5.266815	10%	2.03	3.13
K	7	5%	2.32	3.5
		2.5%	2.6	3.84
		1%	2.96	4.26

Finite

Sample:
n=35

Actual Sample Size	34			
		10%	2.3	3.606
		5%	2.753	4.209

1% 3.841 5.686

Finite
Sample:
n=30

10% 2.384 3.728

5% 2.875 4.445

1% 4.104 6.151

t-Bounds Test Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-2.749732	10%	-2.57	-4.23
		5%	-2.86	-4.57
		2.5%	-3.13	-4.85
		1%	-3.43	-5.19

ARDL Error Correction Regression

Dependent Variable: D(G)

Selected Model: ARDL(3, 2, 0, 2, 1, 0, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 07:36

Sample: 1986 2022

Included observations: 34

ECM Regression

Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.49129	1.678163	-7.443429	0.0000
D(G(-1))	-0.476923	0.089741	-5.314469	0.0001
D(G(-2))	-0.153496	0.097246	-1.578426	0.1329
D(LCFP)	-0.279917	0.079973	-3.500152	0.0027
D(LCFP(-1))	-0.161920	0.065460	-2.473591	0.0242
D(LCFHB)	-0.013376	0.003704	-3.611170	0.0022
D(LCFHB(-1))	-0.006868	0.002593	-2.648403	0.0169
D(LCFHC)	0.043476	0.007760	5.602565	0.0000
D(LCFHL)	-0.049576	0.005399	-9.182641	0.0000
CointEq(-1)*	-0.545298	0.070702	-7.712589	0.0000

R-squared 0.892830 Mean dependent var -0.120069 Adjusted R-squared 0.852641 S.D. dependent var 4.374688

S.E. of regression 1.679328 Akaike info criterion 4.114593

Sum squared resid 67.68339 Schwarz criterion 4.563522

Log likelihood -59.94808 Hannan-Quinn criter. 4.267690 F-statistic 22.21587 Durbin-Watson stat 2.300395

Prob(F-statistic) 0.000000

* p-value incompatible with t Bounds distribution. -

Null Hypothesis: No levels

F-Bounds Test relatio nship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.266815	10%	2.03	3.13

K	7	5%	2.32	3.5
		2.5%	2.6	3.84
		1%	2.96	4.26

Null Hypothesis: No levels relationship				
t-Bounds Test				
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-7.712589	10%	-2.57	-4.23
		5%	-2.86	-4.57
		2.5%	-3.13	-4.85
		1%	-3.43	-5.19

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.550083	Prob. F(2,15)	0.2444
Obs*R-squared	5.823464	Prob. Chi-Square(2)	0.0544

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.157399	Prob. F(16,17)	0.3831	Obs*R-squared	17.72674
		Prob. Chi-Square(16)	0.3401		
Scaled explained SS	5.102212	Prob. Chi-Square(16)	0.9952		

Ramsey RESET Test

Equation: UNTITLED

Specification: G G(-1) G(-2) G(-3) LCFP LCFP(-1) LCFP(-2)

LCFH LCFHB

LCFHB(-1) LCFHB(-2) LCFHC LCFHC(-1) LCFHD

LCFHG LCFHL

LCFHL(-1) C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.067768	16	0.9468
F-statistic	0.004593	(1, 16)	0.9468

F-test summary:

	Sq.	df	Sum of Squares	Mean	Unrestricted SSR	df
Test SSR	0.019422	1	0.019422		67.66397	16
Restricted SSR	67.68339	17	3.981376		4.228998	

Variable	Coefficient	std error	t-statistic	
C	-12.491	8.652	-1.444	*
G(-1)*	-0.545	0.198	-2.750	**
LCFP(1)	0.071	0.296	0.241	*
LCFH**	1.111	0.679	1.635	*
LCFHB(-1)	-0.000	0.009	-0.048	*
LCFHC(-1)	0.010	0.016	0.612	*
LCFHD**	-0.003	0.005	-0.508	*
LCFHG**	0.009	0.007	1.215	*
LCFHL(-1)	-0.015	0.008	-1.845	*
D(G(-1))	-0.477	0.168	-2.831	**
D(G(-2))	0.153	0.148	-1.040	*
D(LCFP)	-0.280	0.147	-1.903	*
D(LCFP(-1))	-0.162	0.133	-1.218	*
D(LCFHB)	-0.013	0.008	-1.707	*
D(LCFHB(-1))	0.001	0.004	2.747	**

D(LCFPL) -0.050 0.009 -5.243 ***

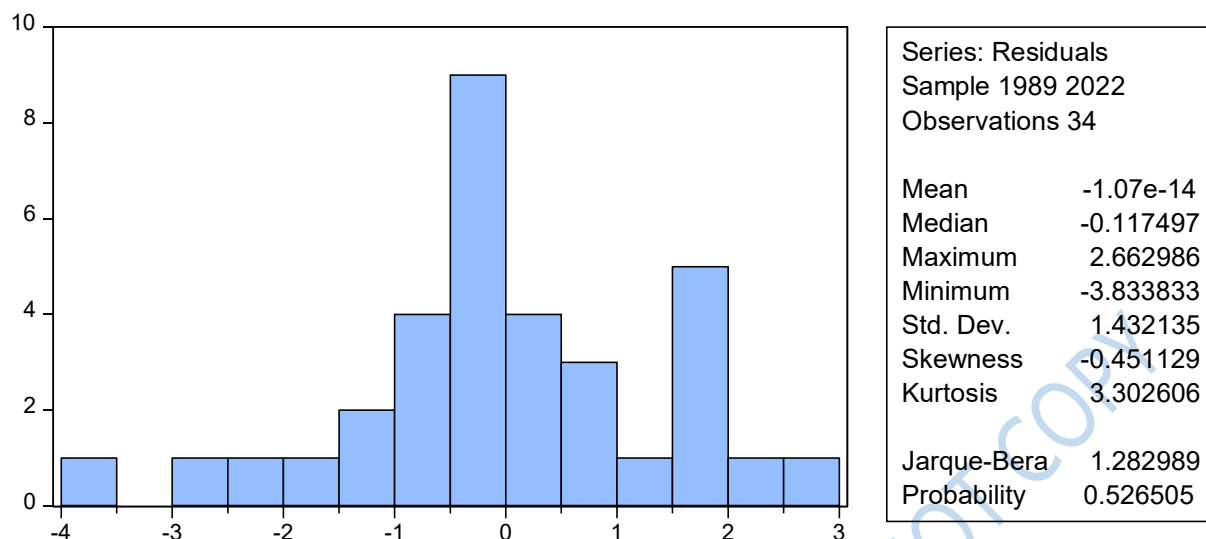


Fig 4.4.4 Serial Correlation

Source: Author's computation, 2023

Objective Three

ARDL Long Run Form and Bounds Test

Dependent Variable: D(G)

Selected Model: ARDL(1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 13:42

Sample: 1986 2022

Included observations: 36

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.325302	5.296576	0.439020	0.6665
G(-1)*	-0.596047	0.162912	-3.658702	0.0021

LCFP(-1)	-1.278849	0.905917	-1.411662	0.1772
LCFH(-1)	0.836187	0.260781	3.206473	0.0055
LCFPG(-1)	0.042653	0.017567	2.427977	0.0274
LCFPC**	0.030200	0.050403	0.599170	0.5574
LCFPL**	-0.056897	0.017124	-3.322652	0.0043
LCFPD**	-0.022921	0.008665	-2.645360	0.0176
LCFPB(-1)	0.030973	0.019168	1.615848	0.1257
LCFPGSQ**	-1.59E-05	6.01E-06	-2.643741	0.0177
LCFPCSQ**	-3.32E-05	4.56E-05	-0.728360	0.4769
LCFPLSQ(-1)	3.28E-05	1.16E-05	2.839917	0.0118
LCFPDSQ**	1.59E-05	4.64E-06	3.431515	0.0034
LCFPBSQ(-1)	-1.60E-05	9.42E-06	-1.702735	0.1080
D(LCFP)	0.298669	0.808751	0.369297	0.7167
D(LCFH)	0.229304	0.175859	1.303910	0.2107
D(LCFPG)	0.049776	0.016660	2.987802	0.0087
D(LCFPB)	-0.031497	0.016617	-1.895481	0.0762
D(LCFPLSQ)	2.52E-05	1.18E-05	2.139197	0.0482
D(LCFPBSQ)	1.27E-05	7.76E-06	1.637948	0.1209

* p-value incompatible with t
 -Bounds distribution. ** Variable
 interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation

Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCFP	-2.145551	1.501261	-1.429166	0.1722
LCFH	1.402889	0.602672	2.327783	0.0334

LCFPG	0.071560	0.027090	2.641611	0.0178
LCFPC	0.050668	0.087234	0.580823	0.5695
LCFPL	-0.095457	0.046271	-2.062995	0.0557
LCFPD	-0.038455	0.014890	-2.582540	0.0200
LCFPB	0.051964	0.036416	1.426950	0.1728
LCFPGSQ	-2.67E-05	1.01E-05	-2.652001	0.0174
LCFPCSQ	-5.58E-05	8.01E-05	-0.696191	0.4963
LCFPLSQ	5.50E-05	2.94E-05	1.874283	0.0793
LCFPDSQ	2.67E-05	8.88E-06	3.009725	0.0083
LCFPBSQ	-2.69E-05	1.76E-05	-1.531684	0.1451

$$EC = G - (-2.1456 *LCFP + 1.4029*LCFH + 0.0716*LCFPG + 0.0507*LCFPC - 0.0955*LCFPL - 0.0385*LCFPD + 0.0520*LCFPB - 0.0000*LCFPGSQ - 0.0001*LCFPCSQ + 0.0001*LCFPLSQ + 0.0000*LCFPDSQ - 0.0000 *LCFPBSQ)$$

F-Bounds Test Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
----------------	-------	---------	------	------

Asymptotic:				
n=1000				
F-statistic	7.321577	10%	1.83	2.94
K	12	5%	2.06	3.24
		2.5%	2.28	3.5

1% 2.54 3.86

		Finite Sample: n=40		
Actual Sample Size	36	10%	-1	-1
		5%	-1	-1
		1%	-1	-1

		Finite Sample: n=35		
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1

Null Hypothesis: No levels

t-Bounds Test	relationship			
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-3.658702	10%	-2.57	-
				4.69
		5%	-2.86	-5.03
		2.5%	-3.13	-5.34
		1%	-3.43	-5.68

ARDL Error Correction Regression

Dependent Variable: D(G) Selected Model: ARDL(1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1)

Case 3: Unrestricted Constant and No Trend

Date: 10/25/23 Time: 13:42

Sample: 1986 2022

Included observations: 36

ECM Regression
Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.325302	0.268556	8.658540	0.0000
D(LCFP)	0.298669	0.182686	1.634876	0.1216
D(LCFH)	0.229304	0.083167	2.757154	0.0140
D(LCFPG)	0.049776	0.003762	13.23175	0.0000
D(LCFPB)	-0.031497	0.007764	-4.056937	0.0009
D(LCFPLSQ)	2.52E-05	2.80E-06	8.993405	0.0000
D(LCFPBSQ)	1.27E-05	3.76E-06	3.378482	0.0038
CointEq(-1)*	-0.596047	0.046184	-12.90604	0.0000
R-squared	0.929978	Mean dependent var	0.088632	
Adjusted R-squared	0.912472	S.D. dependent var	4.338207	
S.E. of regression	1.283463	Akaike info criterion	3.530131	
Sum squared resid	46.12377	Schwarz criterion	3.882024	
Log likelihood	-55.54236	Hannan-Quinn criter.	3.652951	

F-statistic 53.12469 Durbin-Watson stat 2.346387

Prob(F-statistic) 0.000000

* p-value incompatible with t-Bounds distribution.

Null Hypothesis: No levels relationship

F-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	7.321577	10%	1.83	2.94
K	12	5%	2.06	3.24
		2.5%	2.28	3.5
		1%	2.54	3.86

Null Hypothesis: No levels relationship

t-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-12.90604	10%	-2.57	-
				4.69
		5%	-2.86	-5.03
		2.5%	-3.13	-5.34
		1%	-3.43	-5.68

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.089377	Prob. F(2,14)	0.3633
Obs*R-squared	4.848034	Prob. Chi-Square(2)	0.0886

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.239306	Prob. F(19,16)	0.3353
Obs*R-squared	21.43498	Prob. Chi-Square(19)	0.3133
Scaled explained SS	4.362771	Prob. Chi-Square(19)	0.9998

Ramsey RESET Test

Equation: UNTITLED

Specification: G G(-1) LCFP LCFP(-1) LCFH LCFH(-1) LCFPG LCFPG(-1)

LCFPC LCFPL LCFPD LCFPB LCFPB(-1) LCFPGSQ

LCFPCSQ

LCFPLSQ LCFPLSQ(-1) LCFPDSQ LCFPBSQ LCFPBSQ(-

1) C

Instrument specification: LCFP(-1) LCFH(-1) LCFPB(-1)

LCFPC(-1)

LCFPD(-1) LCFPG(-1) LCFPL(-1) LCFHB(-1) LCFHC(-1)

LCFHD(-1)

LCFHG(-1)

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.475895	15	0.6410
F-statistic	0.226476	(1, 15)	0.6410

F-test summary:

	Sq.	df	Sum of Squares	Mean	
Test SSR	0.686037	1	0.686037		
Restricted SSR	46.12377	16	2.882735		
					Unrestricted SSR 45.43773 15
					3.029182
Variable	Coefficient	std error	t-	statistic	
C	-2.325	5.297	0.439	*	
G(-1)*	-0.596	0.163	-3.659	***	
LCFP(-1)	-1.279	0.906	-1.412	*	
LCFH(-1)	0.836	0.261	3.206	***	
LCFPG(-1)	0.043	0.018	2.428	*	
LCFPC**	0.030	0.009	0.599	*	
LCFPL**	-0.057	0.019	-3.323	***	
LCFPD**	-0.023	6.010	-2.645	**	
LCFPS(-1)	-0.0310	4.650	1.616	*	
LCFPGSQ**	-1.590	1.160	-2.644	**	
LCFPCSQ**	-3.320	4.640	-0.728	*	
LCFPLS(-1)	3.280	1.162	2.834	**	
LCFPDSQ**	1.590	4.640	-0.728	*	
LCFPDSQ(-1)	-1.600	9.420	-1.703	*	
D(LCFP)	0.299	0.809	0.369	*	
D(LCFH)	0.330	0.178	1.304	*	
D(LCFPG)	0.050	0.017	2.988	***	
D(LCFPS)	-0.032	0.017	-1.895	*	
D(LCFPLSQ)	2.520	1.180	2.140	**	
D(LCFPSSQ)	1.270	7.760	1.638	*	

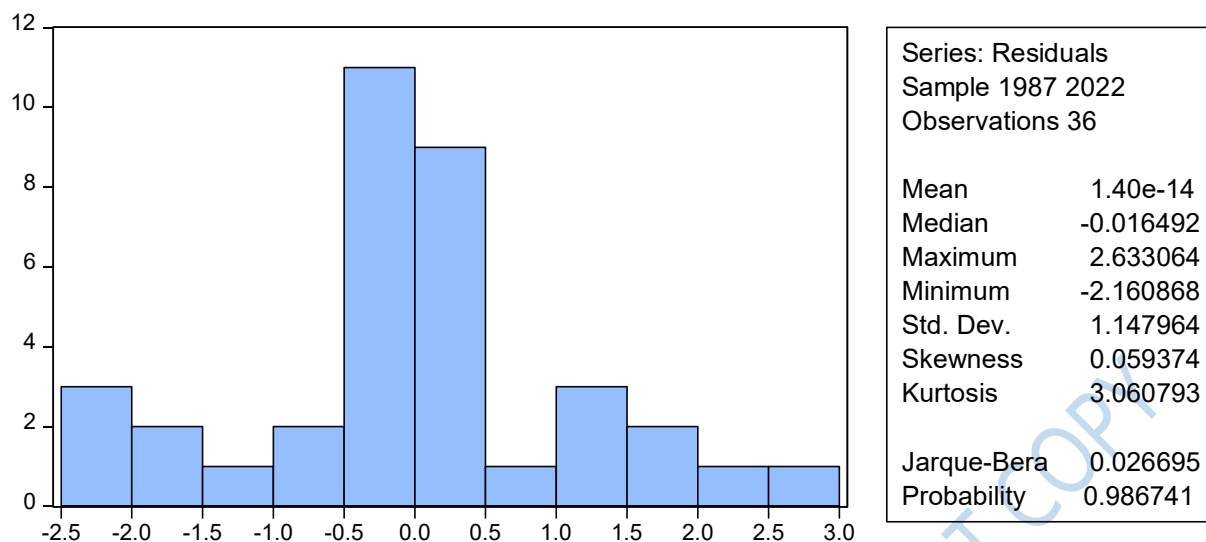


Fig 4.5.1 Serial Correlation

Author's Computation, 2023 ARDL Long Run Form and Bounds Test

Dependent Variable: D(G)

Selected Model: ARDL(1, 0, 0, 0, 1, 1, 1, 0, 0, 0, 1, 1, 0)

Case 1: No Constant and No Trend

Date: 10/25/23 Time: 14:24

Sample: 1986 2022

Included observations: 36

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
G(- 1)*	-0.853553	0.124306	-6.866531	0.0000
LCFP**	-0.159618	0.103079	-1.548499	0.1389
LCFH**	-0.532295	0.956670	-0.556405	0.5848
LCFHG**	0.129716	0.036540	3.549969	0.0023
LCFHC(-1)	0.046117	0.091946	0.501572	0.6220
LCFHL(-1)	-0.088910	0.054035	-1.645414	0.1172

LCFHD(-1)	-0.107229	0.028007	-3.828621	0.0012
LCFHB**	0.035075	0.057165	0.613583	0.5472
LCFHGSQ**	-8.82E-05	2.55E-05	-3.457895	0.0028
LCFHCSQ**	-8.43E-05	0.000152	-0.553628	0.5866
LCFHLSQ(-1)	9.98E-05	6.66E-05	1.499570	0.1511
LCFHDSQ(-1)	0.000105	2.70E-05	3.893313	0.0011
LCFHBSQ**	-4.51E-05	5.63E-05	-0.800394	0.4339
D(LCFHC)	0.092750	0.087282	1.062647	0.3020
D(LCFHL)	-0.199539	0.054539	-3.658657	0.0018
D(LCFHD)	-0.063187	0.018549	-3.406490	0.0031
D(LCFHLSQ)	0.000183	6.29E-05	2.904954	0.0094
D(LCFHDSQ)	6.43E-05	2.00E-05	3.205982	0.0049

* p-value incompatible with t -Bounds
distribution. ** Variable interpreted as $Z = Z(-1) +$
D(Z).

Levels Equation

Case 1: No Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCFP	-0.187005	0.129559	-1.443393	0.1661
LCFH	-0.623623	1.157486	-0.538774	0.5966
LCFHG	0.151972	0.050708	2.997012	0.0077
LCFHC	0.054030	0.112065	0.482129	0.6355
LCFHL	-0.104164	0.071406	-1.458766	0.1619
LCFHD	-0.125626	0.035632	-3.525652	0.0024
LCFHB	0.041093	0.067270	0.610868	0.5489

LCFHGSQ	-0.000103	3.55E-05	-2.906596	0.0094
LCFHCSQ	-9.87E-05	0.000186	-0.530057	0.6026
LCFHLSQ	0.000117	8.71E-05	1.342381	0.1962
LCFHDSQ	0.000123	3.37E-05	3.651225	0.0018
LCFHBSQ	-5.28E-05	6.66E-05	-0.793826	0.4376

$$\begin{aligned}
 EC = G - & (-0.1870 \quad *LCFP -0.6236 \quad *LCFH + 0.1520*LCFHG + \\
 & 0.0540*LCFHC \\
 & -0.1042*LCFHL -0.1256*LCFHD + 0.0411*LCFHB - \\
 & 0.0001*LCFHGSQ \\
 & -0.0001*LCFHCSQ + 0.0001*LCFHLSQ + 0.0001*LCFHDSQ - \\
 & 0.0001 \\
 & *LCFHBSQ)
 \end{aligned}$$

F-Bounds Test	Null Hypothesis: No levels relationship	2.5%	2.02	3.27
		1%	2.26	3.6

Test Statistic	Value	Signif.	I(0)	I(1)	Finite Sample:	Actual Sample Size	36		
F-statistic	10.88744	10%	1.6	2.72	Asymptotic: n=1000	n=40	10%	-1	-1
K	12	5%	1.82	2.99			5%	-1	-1
	1%	-1	-1						

	Finite Sample:	n=35
10%	-1	-1
5%	-1	-1

1% -1 -1

Null Hypothesis: No levels

t-Bounds Test relationship

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-6.866531	10%	-1.62	-
				4.42
		5%	-1.95	-4.76
		2.5%	-2.24	-5.06
		1%	-2.58	-5.44

ARDL Error Correction Regression

Dependent Variable: D(G)

Selected Model: ARDL(1, 0, 0, 0, 1, 1, 1, 0, 0, 0, 1, 1, 0)

Case 1: No Constant and No Trend

Date: 10/25/23 Time: 14:24

Sample: 1986 2022 Included observations: 36

ECM Regression
Case 1: No Constant and No Trend

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
D(LCFHC)	0.092750	0.008226	11.27531	0.0000
D(LCFHL)	-0.199539	0.014822	-13.46201	0.0000
D(LCFHD)	-0.063187	0.007528	-8.393394	0.0000
D(LCFHLSQ)	0.000183	1.65E-05	11.03806	0.0000
D(LCFHDSQ)	6.43E-05	8.81E-06	7.294521	0.0000
CointEq(-1)*	-0.853553	0.055574	-15.35886	0.0000
R-squared	0.905665	Mean depe ndent var	0.088632	
Adjusted R-squared	0.889942	S.D. dependent var	4.338207	
S.E. of regression	1.439198	Akaike info criterion	3.717061	
Sum squared resid	62.13871	Schwarz criterion	3.980980	
Log likelihood	-60.90709	Hannan-Quinn criter.	3.809176	
Durbin-Watson stat	2.115408			

distribution.

* p-value incompatible with t
Bounds

Null Hypoth esis: No levels
F-Bounds Test relatio nship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.88744	10%	1.6	2.72

k	12	5%	1.82	2.99
		2.5%	2.02	3.27
		1%	2.26	3.6

Null Hypothesis: No levels

t-Bounds Test	relationship			
Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-15.35886	10%	-1.62	-
		5%	-1.95	4.42
		2.5%	-2.24	4.76
		1%	-2.58	5.06
				5.44

Ramsey RESET Test

Equation: UNTITLED

Specification: G G(-1) LCFP LCFH LCFHG LCFHC LCFHC(-1)

LCFHL

LCFHL(-1) LCFHD LCFHD(-1) LCFHB LCFHGSQ

LCFHCSQ

LCFHLSQ LCFHLSQ(-1) LCFHDSQ LCFHDSQ(-1)

LCFHBSQ

Instrument specification: LCFP(-1) LCFH(-1) LCFPB(-1)

LCFPC(-1)

LCFPD(-1) LCFPG(-1) LCFPL(-1) LCFHB(-1) LCFHC(-1)

LCFHD(-1)

LCFHG(-1)

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.193029	17	0.8492
F-statistic	0.037260	(1, 17)	0.8492

F-test summary:

	Sq.	df	Sum of Squares	Mean	
Test SSR			0.135896	1	0.135896
Restricted SSR			62.13871	18	3.452150
Unrestricted SSR			62.00281	17	3.647224

F-statistic	0.769126	Prob. F(2,16)	0.4798
Obs*R-squared	3.157504	Prob. Chi-Square(2)	0.2062

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.804260	Prob. F(18,17)	0.6749
Obs*R-squared	16.55704	Prob. Chi-Square(18)	0.5537
Scaled explained SS	3.292665	Prob. Chi-Square(18)	0.9999

Variable	Coefficient	std error	t-statistic	
G(-1)*	-0.853	0.124	-6.867	***
LCFP**	-0.160	0.103	-1.548	*
LCFH**	-0.532	0.957	-0.556	*
LCFHG**	0.130	0.037	3.550	***
LCFHC(-1)	0.046	0.092	0.502	*
LCFHL(-1)	-0.089	0.054	-1.645	**
LCFHD(-1)	-0.107	0.028	-3.829	***
LCFHB**	0.035	0.057	0.614	*
LCFHGSQ**	-8.820	2.550	-3.458	***

LCFHCSQ**	-8.430	0.000	-0.554	*	Breusch-Godfrey Serial Correlation LM Test:
LCFHLSQ(-1)	9.980	6.660	1.500	**	
LCFHDSQ(-1)	0.000	2.700	3.893	***	
LCFHBSQ**	-4.510	5.630	-0.800	*	
D(LCFHC)	0.093	0.087	1.063	*	
D(LCFHL)	-0.200	0.054	-3.659	***	
D(LCFHD)	-0.063	0.019	-3.406	***	
D(LCFHLSQ)	0.000	6.290	2.905	***	

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D(LCFHDSQ) 6.430 2.000 3.206 ***

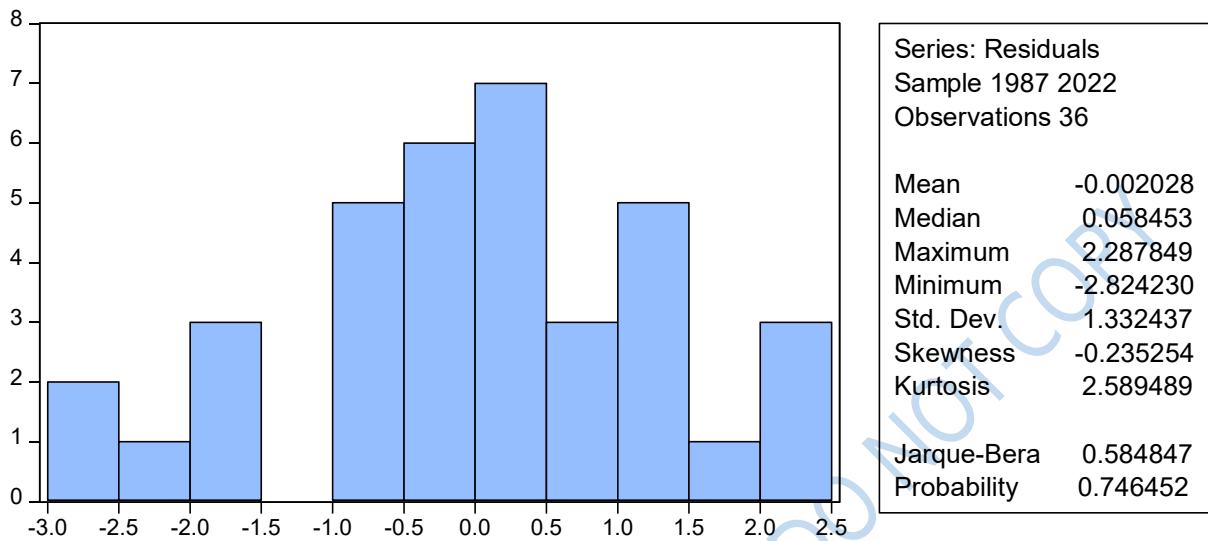


Fig 4.5.4 Serial Correlation

Source: Author's computation, 2023

Vector Autoregression Estimates

Date: 11/10/23 Time: 14:04

Sample (adjusted): 1989 2022

Included observations: 34 after adjustments

Standard errors in () & t-statistics in []

							19.462
G(-1)	-0.243951	0.374225	0.073634	24.26853	5.583746	14.06094	61
	(0.22380)	(0.15563)	(0.17629)	(10.2097)	(12.2596)	(4.29689)	(15.828
							3)
							[
	[-1.09006]	[2.40464]	[0.41769]	[2.37702]	[0.45546]	[3.27236]	1.22961
]
							-
G(-2)	0.290770	-0.450718	-0.060506	-23.05114	3.153332	-17.04004	33.4363
	(0.18255)	(0.12694)	(0.14380)	(8.32782)	(9.99994)	(3.50489)	8
							(12.910
							8)
							[-
	[1.59286]	[-3.55061]	[-0.42077]	[-2.76797]	[0.31534]	[-4.86180]	2.58979
]

LCFP(-1)	0.462151	-0.120117	-0.110519	-26.53573	20.39884	-44.97582	64.41965
	(0.48037)	(0.33405)	(0.37840)	(21.9148)	(26.3150)	(9.22317)	(33.9751)
	[0.96207]	[-0.06037]	[-0.29471]	[-1.21086]	[0.77497]	[-4.87618]	[1.89697]
LCFP(-2)	0.671254	-0.776868	-0.092621	-73.03075	-22.48498	-12.84669	27.24590
	(0.60682)	(0.42198)	(0.47801)	(27.6833)	(33.2418)	(11.6509)	(42.9182)
	[1.10619]	[-1.84102]	[-0.19376]	[-2.63808]	[-0.67641]	[-1.10263]	[0.63483]
LCFH(-1)	1.019312	-0.459863	0.017001	-31.14698	-30.63119	-22.73578	3.92426
	(0.43919)	(0.30541)	(0.34597)	(20.0363)	(24.0593)	(8.43256)	(31.0628)
	[2.32087]	[-1.50571]	[0.04914]	[-1.55453]	[-1.27315]	[-2.69619]	[0.12633]
LCFH(-2)	0.265567	-1.249304	-0.095454	-89.49712	-5.537387	-37.91666	88.40400
	(0.45632)	(0.31732)	(0.35946)	(20.8176)	(24.9975)	(8.76140)	(32.2741)
	[0.58197]	[-3.93701]	[-0.26555]	[-4.29910]	[-0.22152]	[-4.32769]	[2.73916]
LCFPB(-1)	-0.003472	0.010471	0.002622	0.888703	0.265598	0.369930	0.533908

	(0.00475)	(0.00331)	(0.00375)	(0.21690)	(0.26045)	(0.09129)	(0.33627)
	[-0.73033]	[3.16711]	[0.70013]	[4.09730]	[1.01976]	[4.05245]	[1.58776]
LCFPB(-2)	-0.002856	-0.002770	-0.002622	-0.054007	-0.008674	-0.146965	0.381954
	(0.00408)	(0.00283)	(0.00321)	(0.18596)	(0.22330)	(0.07826)	(0.28830)
	[-0.70072]	[-0.97704]	[-0.81650]	[-0.29042]	[-0.03885]	[-1.87781]	[-1.32485]
LCFHD(-1)	-0.004856	0.009566	-0.001045	0.647820	0.402372	0.449983	0.166195
	(0.00618)	(0.00430)	(0.00487)	(0.28200)	(0.33862)	(0.11868)	(0.43718)
	[-0.78552]	[2.22541]	[-0.21461]	[2.29727]	[1.18828]	[3.79151]	[0.38015]
LCFHD(-2)	0.003623	0.020561	-7.44E-05	1.569569	-0.106275	0.619129	1.542972
	(0.00730)	(0.00508)	(0.00575)	(0.33313)	(0.40001)	(0.14020)	(0.51645)
	[0.49622]	[4.04924]	[-0.01294]	[4.71164]	[-0.26568]	[4.41602]	[2.98763]
LCFPC(-1)	5.70E-05	-0.050981	-0.001747	-2.809914	-0.695822	-0.307099	2.160150
	(0.01489)	(0.01035)	(0.01173)	(0.67919)	(0.81556)	(0.28585)	(1.05296)
	[0.00383]	[-4.92437]	[-0.14900]	[-4.13717]	[-0.85318]	[-1.07435]	[-2.05149]
LCFPC(-2)	-0.004863	0.029763	-0.001806	2.198800	0.004003	0.544647	1.441488
	(0.01465)	(0.01019)	(0.01154)	(0.66842)	(0.80263)	(0.28131)	(1.03627)
	[-0.33192]	[2.92118]	[-0.15645]	[3.28956]	[0.00499]	[1.93609]	[1.39104]
D(LCFPG(-1))	-0.002912	0.013742	-0.000215	0.871252	-0.216582	0.409692	0.775667
	(0.00480)	(0.00334)	(0.00378)	(0.21915)	(0.26316)	(0.09223)	(0.33976)
	[-0.60623]	[4.11365]	[-0.05689]	[3.97556]	[-0.82302]	[4.44190]	[2.28300]
D(LCFPG(-2))	-0.003522	0.003118	0.003024	0.396970	0.171041	0.121641	0.219485
	(0.00354)	(0.00246)	(0.00279)	(0.16132)	(0.19371)	(0.06789)	(0.25010)

							[0.87758]
		[-0.99587]	[1.26805]	[1.08567]	[2.46073]	[0.88296]	[1.79160]
C	-26.57574	48.87282	19.67704	2991.097	941.7551	1654.239	2547.866 (744.420)
	(10.5253)	(7.31923)	(8.29110)	(480.169)	(576.581)	(202.086)	[3.42262]
		[-2.52494]	[6.67732]	[2.37327]	[6.22925]	[1.63334]	[8.18580]
R-squared	0.627499	0.839780	0.179127	0.826253	0.503260	0.909812	0.715347
Adj. R-squared	0.353025	0.721724	-0.425726	0.698228	0.137242	0.843358	0.505603
Sum sq. resids	188.7926	91.29486	117.1493	392920.7	566548.6	69596.96	944390.8
S.E. equation	3.152214	2.192029	2.483094	143.8056	172.6799	60.52270	222.9457
F-statistic	2.286188	7.113370	0.296150	6.453875	1.374959	13.69086	3.410573
Log likelihood	-77.38681	-65.03539	-69.27442	-207.2790	-213.5002	-177.8539	222.1868
Akaike AIC	5.434518	4.707964	4.957319	13.07523	13.44119	11.34435	13.95216
Schwarz SC	6.107913	5.381358	5.630713	13.74863	14.11458	12.01774	14.62556
Mean dependent	4.218080	23.07477	11.53156	1082.501	542.6498	584.0954	12.70924
S.D. dependent	3.918970	4.155356	2.079577	261.7800	185.9076	152.9202	317.0745
Determinant resid covariance (dof adj.)		9.08E+17					
Determinant resid covariance		1.55E+16					
Log likelihood		-971.4102					
Akaike information criterion		63.31825					
Schwarz criterion		68.03201					
Number of coefficients		105					

VAR Lag Order Selection Criteria

Endogenous variables: G LCFP LCFH LCFPB LCFHD LCFPC D(LCFPG)

Exogenous variables: C

Date: 11/10/23 Time: 14:05

Sample: 1986 2022

Included observations: 34

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1122.258 66.53412	NA	1.67e+20		66.42695	66.74120
1	-1024.771	149.0980*	1.02e+19*	63.57476	66.08877*	64.43211*
2	-971.4102	59.63850	1.17e+19	63.31825*	68.03201	64.92577

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Vector Autoregression Estimates

Date: 11/10/23 Time: 14:05

Sample (adjusted): 1989 2022

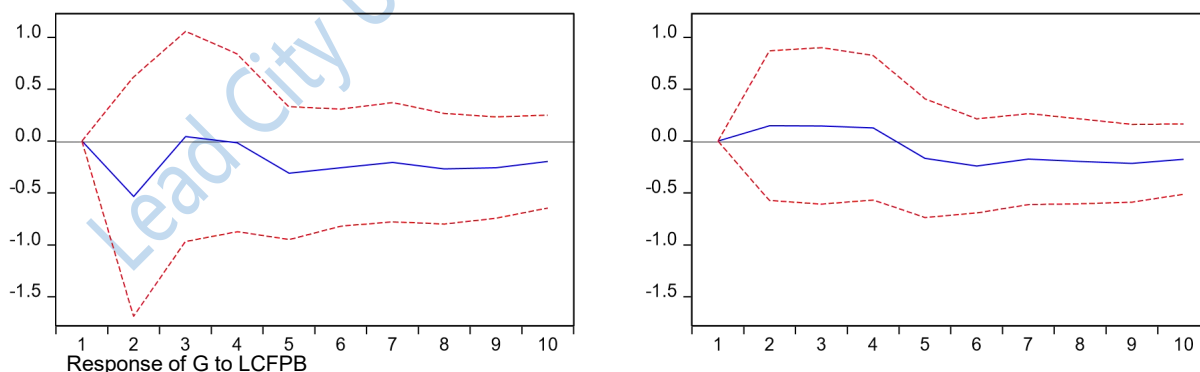
Included observations: 34 after adjustments

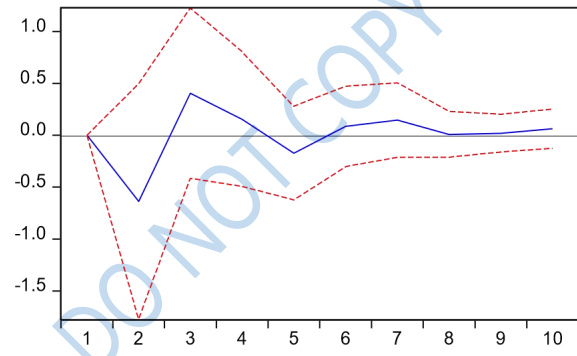
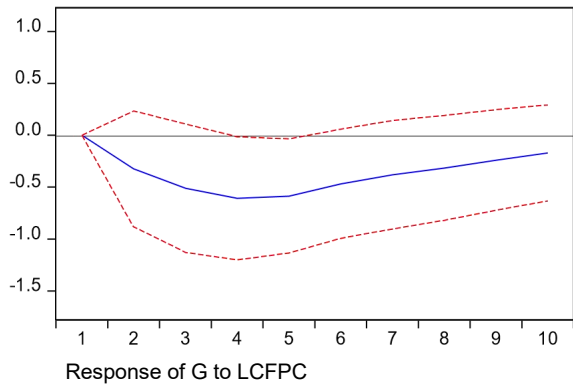
Standard errors in () & t-statistics in []

	G	LCFP	LCFH	LCFPB	LCFHD	LCFPC	D(LCFPG)
G(- 1)	0.131894 (0.18260) [0.72230]	0.283353 (0.19082) [1.48490]	-0.024010 (0.12295) [-0.19529]	19.44284 (12.4791) [1.55803]	-3.107180 (8.61648) [-0.36061]	10.80077 (5.82668) [1.85368]	17.41135 (15.4580) [1.12637]
LCFP(-1)	0.796883 (0.32769) [2.43181]	-0.571638 (0.34244) [-1.66931]	-0.120573 (0.22063) [-0.54649]	-70.04251 (22.3942) [-3.12770]	13.86568 (15.4626) [0.89672]	-53.45226 (10.4562) [-5.11201]	-84.22095 (27.7399) [-3.03609]
LCFH(-1)	0.661304 (0.38019) [1.73939]	-0.977465 (0.39730) [-2.46024]	0.048868 (0.25598) [0.19091]	-66.39008 (25.9821) [-2.55522]	-20.23165 (17.9400) [-1.12774]	-41.31570 (12.1315) [-3.40566]	-52.42716 (32.1843) [-1.62897]
LCFPB(-1)	-0.003022 (0.00418) [-0.72289]	0.006973 (0.00437) [1.59630]	1.30E-05 (0.00281) [0.00463]	0.703411 (0.28565) [2.46247]	0.175192 (0.19724) [0.88823]	0.215199 (0.13338) [1.61348]	0.178327 (0.35384) [0.50398]
LCFHD(-1)	-0.001554 (0.00528) [-0.29420]	0.018062 (0.00552) [3.27240]	-0.000244 (0.00356) [-0.06851]	1.212075 (0.36096) [3.35791]	0.314269 (0.24923) [1.26094]	0.781894 (0.16854) [4.63927]	0.975280 (0.44713) [2.18122]
LCFPC(-1)	-0.003903 (0.00690) [-0.56569]	-0.014782 (0.00721) [-2.05030]	-0.002639 (0.00465) [-0.56818]	-0.118437 (0.47148) [-0.25120]	-0.720779 (0.32555) [-2.21406]	0.524638 (0.22014) [2.38317]	-0.073395 (0.58403) [-0.12567]
D(LCFPG(-1))	-0.004882 (0.00430) [-1.13503]	0.010762 (0.00449) [2.39431]	0.002488 (0.00290) [0.85923]	0.668560 (0.29395) [2.27442]	-0.040684 (0.20296) [-0.20045]	0.367840 (0.13725) [2.68010]	0.633512 (0.36412) [1.73986]
C	-15.86781	37.49483	15.45075	2022.211	537.1531	1273.123	1788.131

	(7.60297)	(7.94518)	(5.11899)	(519.583)	(358.759)	(242.602)	(643.613)
	[-2.08705]	[4.71919]	[3.01832]	[3.89199]	[1.49725]	[5.24779]	[2.77827]
D(LCFPG(-2))	-0.001640	0.003017	0.001486	0.286851	0.019355	0.098186	0.194271
	(0.00254)	(0.00266)	(0.00171)	(0.17369)	(0.11993)	(0.08110)	(0.21516)
	[-0.64524]	[1.13573]	[0.86858]	[1.65147]	[0.16139]	[1.21066]	[0.90293]
	0.435559	0.451740	0.091313	0.409210	0.441522	0.622555	
R-squared							0.382094
Adj. R-squared	0.254938	0.276297	-0.199467	0.220157	0.262809	0.501773	0.184364
Sum sq. resids	286.0725	312.4043	129.6816	1336042.	636963.4	291270.7	2050025.
S.E. equation	3.382736	3.534993	2.277556	231.1746	159.6200	107.9390	286.3582
F-statistic	2.411455	2.574851	0.314029	2.164527	2.470565	5.154357	1.932402
Log likelihood	-84.45195	-85.94885	-71.00218	-228.0846	-215.4917	-202.1899	-235.3629
Akaike AIC	5.497174	5.585226	4.706010	13.94615	13.20540	12.42294	14.37429
Schwarz SC	5.901210	5.989263	5.110047	14.35019	13.60943	12.82697	14.77833
Mean dependent	4.218080	23.07477	11.53156	1082.501	542.6498	584.0954	12.70924
S.D. dependent	3.918970	4.155356	2.079577	261.7800	185.9076	152.9202	317.0745
Determinant resid covariance (dof adj.)		2.54E+18					
Determinant resid covariance		2.96E+17					
Log likelihood		-1021.578					
Akaike information criterion		63.79871					
Schwarz criterion		66.62697					
Number of coefficients		63					

Response to Cholesky One S.D. (d.f. adjusted) Innovations \pm 2 S.E.





Response of G to LCFHD

Response of G to D(LCFPG)

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Period	S.E.	G	LCFP	LCFH	LCFPB	LCFHD	LCFPC	D(LCFPG)
1	3.382736	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	3.917316	78.84668	3.916033	11.88495	1.864416	0.143910	0.686487	2.657521
3	4.058581	73.45851	7.589827	11.24372	1.748561	0.263923	2.226379	3.469077
4	4.109163	71.66582	7.414188	10.96918	1.707472	0.352980	4.365961	3.524394
5	4.183187	69.15240	7.819720	10.58596	2.197292	0.496999	6.177404	3.570226
6	4.266580	66.48889	9.407990	10.21720	2.473011	0.794745	7.146149	3.472019
7	4.305137	65.38783	9.630855	10.05651	2.654961	0.944536	7.800297	3.525013
8	4.334935	64.56470	9.675237	9.922513	2.998243	1.136682	8.225562	3.477059
9	4.363238	63.78318	9.894148	9.801408	3.302843	1.364453	8.419921	3.434051
10	4.380058	63.35277	9.984195	9.733734	3.480427	1.513168	8.507366	3.428335

Cholesky Ordering: G LCFP LCFH LCFPB LCFHD LCFPC D(LCFPG)

Vector Autoregression Estimates

Date: 11/10/23 Time: 14:08

Sample (adjusted): 1989 2022

Included observations: 34 after adjustments

Standard errors in () & t-statistics in []

G(-1)	-0.400891 (0.26447) [-1.51583]	0.226353 (0.14523) [1.55856]	0.064817 (0.20951) [0.30937]	9.520048 (12.0517) [0.78993]	3.988271 (5.80821) [0.68666]	-0.807167 (12.5967) [-0.06408]	15.17 15.224 847 91 (13.4 (8.212 596) 38) [1.127 1.8539 71] 0]
G(-2)	0.543637 (0.29833) [1.82228]	-0.643335 (0.16382) [-3.92697]	-0.309271 (0.23633) [-1.30862]	-20.81433 (13.5946) [-1.53107]	-8.382068 (6.55179) [-1.27936]	-15.91591 (14.2094) [-1.12010]	- 21.24 8.2653 497 22 (15.1 (9.263 827) 75) [- 1.399 0.8922 29] 2]
LCFP(-1)	-0.054181 (0.23061)	-0.509818 (0.12664)	-0.035359 (0.18269)	3.737427 (10.5086)	2.334814 (5.06453)	1.000293 (10.9838)	5.904 10.384 854 99 (11.7 (7.160 362) 87)

	[-0.26495]	[-4.02584]	[-0.09355]	[0.05565]	[0.48190]	[0.09407]	[0.59113]	[0.45024]
47]							-	-
6] LCFP(-2)	0.465440 (0.25844)	-0.548625 (0.14192)	-0.230655 (0.20474)	-13.70127 (11.7770)	-5.175905 (5.67583)	-9.965274 (12.3096)	14.63204 (13.1528)	7.231988 (8.02520)
	[1.80095]	[-3.86569]	[-1.12660]	[-1.16339]	[-0.91192]	[-0.80955]	[-1.112]	[-0.9011]
LCFH(-1)	1.390255 (1.12979)	-1.765530 (0.62042)	-0.833757 (0.89501)	-55.03062 (51.4839)	-55.21693 (24.8122)	-75.67676 (53.8121)	68.40435 (57.4981)	70.11121 (35.0826)
	[1.23054]	[-2.84571]	[-0.93156]	[-1.06889]	[-2.22540]	[-1.40631]	[-1.18968]	[-1.99846]
LCFH(-2)	-0.065750 (1.10904)	-1.593192 (0.60902)	0.455184 (0.87858)	29.68913 (50.5384)	28.94059 (24.3565)	35.70589 (52.8239)	44.13217 (56.4422)	40.40156 (34.483)
	[-0.05929]	[-2.61597]	[0.51809]	[0.58746]	[1.18821]	[0.67594]	[0.78190]	[1.17316]
LCFHB(-1)	-0.007442 (0.01017)	0.019339 (0.00558)	0.006938 (0.00805)	0.625397 (0.46332)	0.165534 (0.22329)	0.464421 (0.48428)	0.563958 (0.51745)	0.436645 (0.31572)
	[-0.73193]	[3.46367]	[0.86140]	[1.34981]	[0.74133]	[0.95900]	[1.08988]	[1.38301]
LCFHB(-2)	-0.003249 (0.00874)	-0.011757 (0.00480)	-0.009843 (0.00692)	-0.497804 (0.39819)	-0.310576 (0.19191)	-0.598858 (0.41620)	0.474399 (0.44471)	0.300584 (0.27134)
	[-0.37185]	[-2.45008]	[-1.42186]	[-1.25015]	[-1.61838]	[-1.43886]	[-1.06676]	[-1.10777]
D(LCFHC(-1))	0.021070 (0.03016)	-0.040955 (0.01656)	0.008960 (0.02390)	-0.566604 (1.37457)	0.486893 (0.66246)	1.071212 (1.43673)	0.640143 (1.53515)	0.354970 (0.93667)
	[0.69850]	[-2.47243]	[0.37495]	[-0.41220]	[0.73498]	[0.74559]	[-0.41699]	[0.37897]
D(LCFHC(-2))	-0.020436	0.020817	0.017045	0.601220	0.276406	0.894413	2.283716	0.716507

	(0.02343)	(0.01287)	(0.01856)	(1.06781)	(0.51462)	(1.11610)	(1.19 0.727 255) 63)
	[-0.87213]	[1.61776]	[0.91823]	[0.56304]	[0.53711]	[0.80138]	[1.914 0.9847 99] 1]
LCFHG(-1)	0.002199	0.027780	6.58E-05	0.076964	-0.110647	0.917510	- 0.627 0.3273 162 73
	(0.01024)	(0.00562)	(0.00811)	(0.46643)	(0.22479)	(0.48753)	(0.52 (0.317 092) 84)
	[0.21485]	[4.94227]	[0.00811]	[0.16501]	[-0.49222]	[1.88197]	[- 1.203 1.0299 95] 9]
LCFHG(-2)	0.002942	-0.007803	0.008085	0.095715	0.221005	0.212487	1.430 0.2703 303 54
	(0.01029)	(0.00565)	(0.00815)	(0.46905)	(0.22605)	(0.49026)	(0.52 (0.319 384) 62)
	[0.28580]	[-1.38057]	[0.99158]	[0.20406]	[0.97767]	[0.43342]	[2.730 0.8458 43] 6]
LCFHD(-1)	-0.002352	0.013622	-0.001666	-0.136598	0.051715	-0.332221	- 0.504 0.1487 310 06
	(0.00588)	(0.00323)	(0.00466)	(0.26816)	(0.12924)	(0.28029)	(0.29 (0.182 949) 73)
	[-0.39971]	[4.21525]	[-0.35730]	[-0.50939]	[0.40016]	[-1.18529]	[1.683 0.8137 92] 9]
LCFHD(-2)	0.007167	0.020372	6.90E-05	0.253931	-0.091894	0.064537	- 0.094 0.3241 010 75
	(0.00793)	(0.00436)	(0.00629)	(0.36158)	(0.17426)	(0.37793)	(0.40 (0.246 382) 39)
	[0.90318]	[4.67532]	[0.01097]	[0.70228]	[-0.52733]	[0.17076]	[- 0.232 1.3156 80] 9]
D(LCFHL(-1))	-0.023574	-0.011139	0.008092	1.230713	0.315221	-0.151945	1.346 0.7970 154 08
	(0.01807)	(0.00992)	(0.01432)	(0.82351)	(0.39688)	(0.86075)	(0.91 (0.561 971) 16)
	[-1.30451]	[-1.12240]	[0.56523]	[1.49448]	[0.79425]	[-0.17653]	[1.463 1.4202 68] 9]
D(LCFHL(-2))	0.012129	-0.019110	-0.014394	-0.550954	-0.273061	-0.785315	- 1.483 0.4900 511 47
	(0.01831)	(0.01005)	(0.01450)	(0.83430)	(0.40208)	(0.87203)	(0.93 (0.568 176) 51)
	[0.66249]	[-1.90075]	[-0.99241]	[-0.66038]	[-0.67912]	[-0.90056]	[- 1.592 0.8619 16] 8]

C	-21.50617	51.72857	19.99710	854.4690	408.5300	879.6559	1258.47006	875	03
	(10.1793)	(5.58990)	(8.06397)	(463.864)	(223.555)	(484.841)	(518.051)	(316.090)	
	[-2.11274]	[9.25394]	[2.47981]	[1.84207]	[1.82743]	[1.81432]	[2.43002]	[1.48711]	
R-squared	0.659794	0.908748	0.241771	0.348492	0.567060	0.644294	0.608	0.6206	
Adj. R-squared	0.339600	0.822863	-0.471857	-0.264692	0.159587	0.309512	435	81	
Sum sq. resids	172.4249	51.99653	108.2093	358053.2	83163.81	391169.6	0.239	0.2636	
S.E. equation	3.184752	1.748891	2.522945	145.1274	69.94275	151.6904	903	75	
F-statistic	2.060606	10.58104	0.338791	0.568332	1.391651	1.924519	4465	16626	
Log likelihood	-75.84513	-55.46579	-67.92493	-205.6992	-180.8814	-207.2030	93.7	0.1	
Akaike AIC	5.461478	4.262694	4.995584	13.09995	11.64008	13.18841	162.0	98.893	
Schwarz SC	6.224659	5.025874	5.758764	13.86313	12.40326	13.95159	809	92	
Mean dependent	4.218080	23.07477	11.53156	542.1100	-3.504483	686.7376	1.650	1.7385	
S.D. dependent	3.918970	4.155356	2.079577	129.0497	76.29505	182.5493	968	72	
							209.4	192.65	
							557	80	
							13.32	12.332	
							092	83	
							14.08	13.096	
							410	01	
							542.6	5.3706	
							498	89	
							185.9	115.24	
							076	83	

Determinant resid covariance (dof adj.) 7.60E+18
 Determinant resid covariance 2.97E+16
 Log likelihood -1030.745
 Akaike information criterion 68.63207
 Schwarz criterion 74.73751
 Number of coefficients 136

VAR Lag Order Selection Criteria

Endogenous variables: G LCFP LCFH LCFHB D(LCFHC) LCFHG LCFHD
 D(LCFHL)
 Exogenous variables: C
 Date: 11/10/23 Time: 14:08
 Sample: 1986 2022
 Included observations: 34

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1248.867 74.05583	NA	1.77e+22		73.93335	74.29249
1	-1118.575	191.6056	3.98e+20	70.03383	73.26612*	71.13613
2	-1030.745	87.82999*	1.95e+20*	68.63207*	74.73751	70.71420*

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Vector Autoregression Estimates
 Date: 11/10/23 Time: 14:09
 Sample (adjusted): 1989 2022
 Included observations: 34 after adjustments
 Standard errors in () & t-statistics in []

	G	LCFP	LCFH	LCFHB	D(LCFHC)	LCFHG	LCFHD	D(LCFH)
G(-1)	0.030089 (0.21592) [0.13935]	-0.089216 (0.21007) [-0.42469]	-0.101161 (0.14671) [-0.68951]	1.858351 (8.52853) [0.21790]	-0.370839 (4.18019) [-0.08871]	7.91150 7 (10.6153) [-0.04193]	-0.445153 (8.6916) [1.3745]	8.16845 (5.9426) [0.91024]
LCFP(-1)	0.069036 (0.20852) [0.33107]	-0.347268 (0.20287) [-1.71177]	-0.106182 (0.14168) [-0.74943]	0.987060 (8.23614) [0.11984]	-1.452001 (4.03687) [-0.35968]	3.27291 7 (8.3937) [-0.38993]	4.665714 (5.7389) [0.45513]	4.29738 () [0.7488]
LCFH(-1)	0.434957 (0.69346) [0.62723]	-1.826366 (0.67467) [-2.70706]	-0.072594 (0.47118) [-0.15407]	-8.182470 (27.3902) [-0.29874]	-24.89579 (13.4251) [-1.85443]	31.3569 8 (27.914) [1.12334]	-69.76710 (19.085) [-2.04643]	27.8927 () [1.46147]
LCFHB(-1)	-0.003855 (0.00825)	0.012874 (0.00802)	-0.000746 (0.00560)	0.389512 (0.32567)	-0.055713 (0.15962)	0.10893 8 (0.3319)	-0.171212 (0.2269) (0.40536)	0.13009 ()

Adj. R-squared	0.215165	0.339242	-0.286797	-0.129156	0.223900	0.41390	0.157071
Sum sq. resids	277.2362	262.4138	127.9936	432509.6	103905.4	449216.	670059.8
S.E. equation	3.471851	3.377765	2.359012	137.1305	67.21330	139.753	170.6840
F-statistic	1.904708	2.694265	0.264506	0.622536	1.952029	3.33049	1.614919
Log likelihood	-83.91857	-82.98447	-70.77944	-208.9109	-184.6668	209.555	-216.3529
Akaike AIC	5.583445	5.528498	4.810555	12.93594	11.50981	12.9738	13.37370
Schwarz SC	6.077268	6.022321	5.304378	13.42976	12.00363	13.4676	13.86752
Mean dependent	4.218080	23.07477	11.53156	542.1100	-3.504483	686.737	542.6498
S.D. dependent	3.918970	4.155356	2.079577	129.0497	76.29505	182.549	185.9076

Determinant resid covariance (dof adj.) 7.98E+19

Determinant resid covariance 3.50E+18

Log likelihood -1111.844

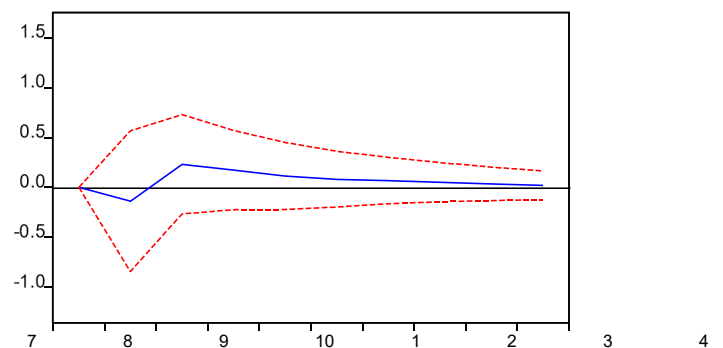
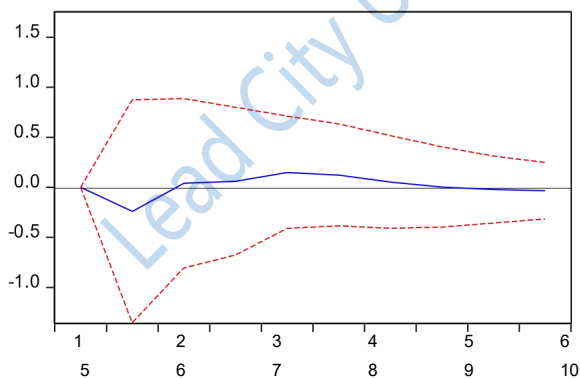
Akaike information criterion 70.57905

Schwarz criterion 74.52963

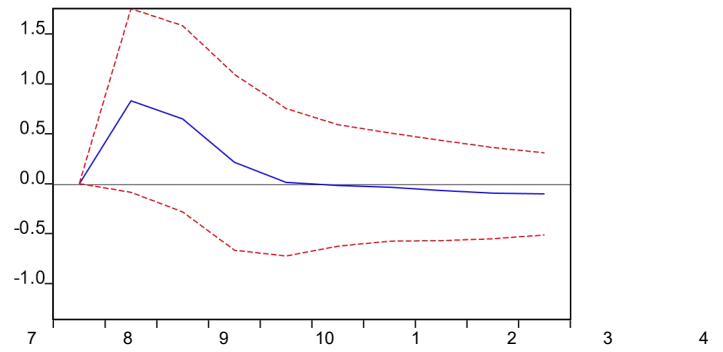
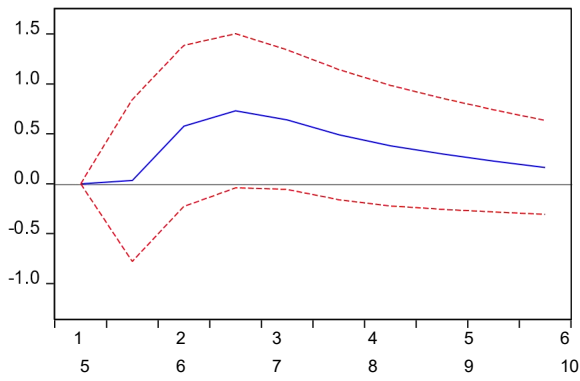
Number of coefficients 88

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.

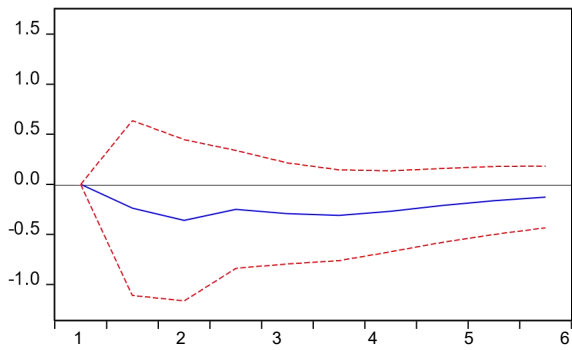
Response of G to LCFHB Response of G to D(LCFHC)



Response of G to LCFHG Response of G to LCFHD



Response of G to D(LCFHL)



Period	S.E.	G	LCFP	LCFH	LCFHB	D(LCFHC)	LCFHG	LCFHD	D(LCFHL)
1	3.471851	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	2 3.805779 84.24268
2	0.199729	9.851699	0.397574	0.133232	0.007457	4.777110	0.390518		
3	3.984495	76.86016	0.263260	11.74957	0.372821	0.456348	2.107252	7.010756	1.179831
4	4.089673	73.25718	0.399079	11.74074	0.375892	0.610187	5.190166	6.929660	1.497096
5	4.174503	70.35729	0.723444	11.85792	0.489273	0.658205	7.334486	6.652012	1.927368
6	4.221787	68.80503	0.856032	11.64668	0.563444	0.679743	8.520891	6.505618	2.422572
7	4.249466	67.93313	0.870007	11.49659	0.571936	0.695806	9.209327	6.427788	2.795415
8	4.266809	67.40419	0.865634	11.41158	0.567318	0.704585	9.625796	6.401936	3.018958
9	4.277850	67.06857	0.861295	11.36937	0.567092	0.707092	9.857696	6.418898	3.149996
10	4.284535	66.86402	0.859032	11.34363	0.571614	0.706926	9.969796	6.456181	3.228801

Cholesky Ordering: G LCFP LCFH LCFHB D(LCFHC) LCFHG LCFHD D(LCFHL)

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Bio-data

A. Personal Data

Full Name: John Adejare ALABI
Address: Alabi Close, Olopoto Area, New Eruwa, Oyo State.
Date and Place of Birth: 15th August, 1978, Eruwa, Oyo State
Nationality: Nigerian
Name and Address of Next of Kin: Alabi, Adesola K. (Mrs), Adeseun Ogundoyin Polytechnic, Eruwa.

B. Educational Background

Educational Institutions Attended with Dates and Qualifications

Lead City University, Ibadan, Oyo State (PhD. Economics)	In view
Adekunle Ajasin University, Akungba, Ondo State (Msc Economics)	2015- 2018
Obafemi Awolowo University, Ile-Ife, Osun State (MBA)	2008-2009
Ogun State University, Ago-Iwoye, Ogun State (Bsc Economics)	2000-2003
Osun State Polytechnic, Iree, Osun State (ND Statistics)	1998-1999
Obaseeku High School, Eruwa (SSCE)	1991-1996
Islamic Primary School, Eruwa (Primary School Leaving Certificate)	1985-1990

C. Working Experiences with Dates

(a) Teaching Experience:

i. **Employer:** Adeseun Ogundoyin Polytechnic, Eruwa,
General Studies Department

Designation: Senior Lecturer

Subject(s) Taught: (a) Principles of Economics 1 & 2, (MKT 114 & MKT

- 124) (b).Research Methodology, (MKT 217)
 (c).Principles of Economics 1 & 2, (BAM 114 & BAM 124)
 (d).Managerial Economics 1 & 2. (BAM 412 & 422),
 (e.) Introduction to Entrepreneurship (EED 126)
 (f.)Entrepreneurship Development I (EED 326),
 (g).Entrepreneurship Development II (EED 426),
 (h) Principles of Economics, (GNS 115)
- Date:** 2023 – till date

- ii. **Employer:** Adeseun Ogundoyin Polytechnic, Eruwa,
 General Studies Department
- Designation:** Lecturer I
- Subject(s) Taught:** (a)Principles of Economics 1 & 2, (MKT 114 & MKT 124)
 (b).Research Methodology, (MKT 217)
 (c).Principles of Economics 1 & 2, (BAM 114 & BAM 124)
 (d).Managerial Economics 1 & 2. (BAM 412 & 422),
 (e.) Introduction to Entrepreneurship (EED 126)
 (f.)Entrepreneurship Development I (EED 326),
 (g).Entrepreneurship Development II (EED 426),
 (h)Principles of Economics, (GNS 115)
- Date:** 2020 – 2023
- iii. **Employer:** Adeseun Ogundoyin Polytechnic, Eruwa,
 Marketing Department
- Designation:** Lecturer II

Subject(s) Taught: (a.)Principles of Economics 1 & 2, (MKT 114 & MKT 124)

(b)Research Methodology,MKT 217)

(c)Managerial Economics 1 & 2 (BAM 412 & 422),

(d) Intro. to Entrepreneurship (EED 126)

(e) Entrepreneurship Development I (EED 326),

(f) Entrepreneurship Development II (EED 426)

Date: 2018 -2020

iv. Employer: The Ibarapa Polytechnic, Eruwa,
Marketing Department

Designation: Lecturer III

Subject(s) Taught: (a)Principles of Economics 1 & 2, (MKT 114 & MKT 124),

(b)Research Methodology, (MKT 217),

(c)Managerial Economics 1&2(BAM 412 & 422),

(d) E-Commerce, (BAM 317),

(e) Introduction to Entrepreneurship (EED 126),

(f) Entrepreneurship Development I (EED 326),

(g)Entrepreneurship Development II (EED 426)

Date: 2013 – 2018

v. Employer: The Polytechnic, Ibadan, Adeseun Ogundoyin Campus,
Eruwa, Marketing Department

Designation: Assistant Lecturer

Subject(s) Taught: (a)Principles of Economics 1&2, (MKT 114 & 124)

(b)Research Methodology, (MKT 217 & 417)

(c)Principles of Management 1 & 2, (BAM 217 & BAM

221)

(d)Introduction to Entrepreneurship (EED 126)

Date: 2010 – 2013 vi. **Employer:** The Polytechnic,
Ibadan, Adeseun Ogundoyin

Campus, Eruwa.

General Studies Department

Designation: Part-Time Lecturer

Subject(s) Taught: (a)Principles of Economics 1 & 2 (MKT 114 & 124)

Date: 2006-2010

vii. **Employer:** Bilroe High School, Jos, Plateau State

Designation: NYSC (Teacher)

Subject(s) Taught: Economics, Commerce, Government, Social Studies

Date: 2004-2005.

D. Award and Fellowships: NIL

E. Membership of Academic Professional Bodies:

i. Member, Research and Development Network,

International Research and Development Institute. (Member) 25,2015

N0 15-05-33-01.

ii. Associate Member: Institute of Economists of Nigeria (INEN),Membership

No ANIE 00259.

iii. Professional Member, Institute of Business and Office Administrators of Nigeria.

Membership No 03.0.

F. Publication (if any):

- i. Aladejana, S.A., **Alabi J.A.** and Oke J.A. The effect of infrastructural deficiency and industrial output in Nigeria. In *Journal of Economics and Development Studies* 2 (1),67-78,2022.
- ii. Aladejana, S.A., Idowu Adeniyi, Okeowo, Oluwalana, F.A., and **Alabi, J.A.** Debt burden and infrastructural development in Nigeria. In *International Journal of Academic Research in Business and Social Sciences*, 11(1)419-432.2021.
- iii. Falade, A.O.O., Aladejana, S.A. and **Alabi, J.A.** Accessibility of financial inclusion among women in Akoko Areas of Ondo State, Nigeria. In *SAU Journal of Management and Social Sciences ISSN: 2550-7302, vol. 5, Number 2,70-82, December, 2020.*
- iv. Carim, A.A.; Oke, J.A.; **Alabi, J.A.** Odeyemi, T.J. and Abdulkareem, R.K. Exploring the contribution of green advertising to enhancing environmental sustainability in Nigeria. In *International Journal of Academic Research and Development. ISSN 2455-4197; Volume, 5; Issue, 5, 29-33,2020.*
- v. **Alabi, J.A.;** Oke, J.A.; Carim, A.A.; Odeyemi, T.J. and Abdulkareem, R.K. The effects of budget deficits syndrome on consumer welfare in Nigeria. In *Cerebral Pages Journal of General Education, volume 1, No 9, 1-15,2020.*
- vi. **Alabi, J.A.;** Oke, J.A.; Carim, A.A.; Odeyemi, T.J. and Abdulkareem, R.K. Proffering solution to financial problems encountered by small and medium size enterprises in Nigeria. In *Cerebral Pages Journal of Education, volume 1, No 9,61-70, 2020.*
- vii. Oke, J.A.; **Alabi, J.A.;** Carim, A.A.; Odeyemi, T.J. and Abdulkareem, R.K. Resilient distribution networks for disaster relief to internally displaced peoples camps in North Eastern part of Nigeria. In *International Journal of Innovative Research & Development ISSN 2278-0211,1-17,2020.*
- viii. Aladejana, S.A.; Oluwalana, F.A.; **Alabi, J.A.** and Bolaji, S.A. An econometric analysis of External Remittances on Poverty Reduction in Nigeria. In *International Journal of Management Studies and Social Science Research. IJMSSSR 2020,Volume 2, Issue, 3 May – June. ISSN: 2582 – 0265,230-237,2020*
- ix. Aladejana, S.A.; **Alabi, J.A.** and Bolaji, S.A. Economic growth, inequalities and poverty in Nigeria. In *IIARD International Journal of Economics and Business Management. E-ISSN 2489-0065 P-ISSN 2695-1878, Volume 5, No. 3,53-64, 2019.*
- x. Adedoja, M.A., Awe, S.K. &**Alabi, J.A.** “The Metaphysical foundation of Yoruba political organization: A Philosopher’s perspectives.” In *Lanlate Journal of Educational Research (LanJER), School of Education, College of Education, Lanlate. Vol. 4 No. 1,1-13 2019*

- xi. Adedoja, M.A., **Alabi, J.A.**& Adediran, I.A. “A critical exposition of cosmopolitanism.” *In Lanlate Journal of Educational Research (LanJER), School of Education, College of Education, Lanlate. Vol. 4 No. 1,1-16, 2019.*
- xii. Lawal, T. A, **Alabi, J. A**, Yusuf, R. K, and Akintola, M. K Agitations by the Niger-Delta Avengers: Effects on Nigeria’s oil and gas value chain and possible solutions. *In Ede Journal of Business, (EJOB), vol. 5, No 1,165-178, 2018.*
- xiii. Lawal, T. A, **Alabi, J.A**, and Aderonmu, O. A Socio-economic impacts of the renewed hostilities of the Niger-Delta Militants on sustainable nation building process in Nigeria. *In Journal of Academic Staff Union of Polytechnics, vol. 2, No 1, 114-119,2017.*
- xiv. **Alabi J.A.**The effect of brain drain on economic growth of Nigeria. *In Kogi Journal of General Studies, Vol 5, No 1,121-132, Nov 2015.* Oladeji, A. O, Jimoh, A. A. and **Alabi, J. A.** Political instability and economic growth: Evidence from Nigeria, *In Journal of Social Policy and society, Vol 10, No 1, 1-9,2015.*
http://www.irdionline.com/Duncan_articles.html
- xv. **Alabi, J.A.** Globalization and social science: The Nigerian experience. *In Journal of Humanities and Management, Vol 1, No 1,1-20, 2013.*

G. Books/Monographs

- i. **Alabi, J.A** (2015). *Introduction to Microeconomics*. Eruwa Golden Touch Publication. ISBN: 978-978-52784-8-4
- ii. Babarinde, S.N, **Alabi, J.A** (2013). *Introduction to Macroeconomics*, Ibadan, Godspower AJ Ventures. ISBN: 978-978-51170-8-0

H. Major Conferences Attended with Dates:

- (i) **Name of Conference:** 13th Annual National Conference,2022. School of General Studies, Kogi State Polytechnic, Lokoja
- Date:** 12th-14th April, 2022
- Paper Presented:** Effect of Product Labeling on Buyers Choice of Selected Food

Items in Ibadan Metropolis

Presenters: Carim, A.A, Yusuf, R.K and **Alabi, J. A**

Venue: Kogi State Polytechnic

Organizer: School of General Studies.

(ii) **Name of Conference:** Faculty of Business and Communication Studies, The Polytechnic, Ibadan.

Date: 1st – 4th June, 2021

Paper presented: Practice of Marketing and Business Opportunities in Covid 19 Era.

Presenters: Rasheed, D. **Alabi, J.A** and Abdulkareem, R.K.

Venue: The Polytechnic, Ibadan

Organizer: Faculty of Business and Communication Studies, The Polytechnic, Ibadan.

(iii) **Name of Conference:** School of Business Studies, The Federal Polytechnic, Ede, Osun State, Nigeria

Date: 2nd – 4th September, 2020

Paper presented: A Critical Evaluation of Covid 19 Pandemic and the Problem of National Security in Nigeria

Presenters: Adedoja, M.A.; Awe, S.K and **Alabi, J.A.**

Venue: The Federal Polytechnic, Ede, Osun State

Organizer: School of Business Studies, The Federal Polytechnic, Ede, Osun State, Nigeria.

(iv) **Name of Conference:** School of Business Studies, The Federal Polytechnic,
Ede, Osun
State, Nigeria
Date: 2nd – 4th September, 2020
Paper presented: The Effect of Corruption on Nigeria Economy
Presenters: **Alabi, J.A**, Adedoj, M.A, and Awe, S.K.
Venue: The Federal Polytechnic, Ede, Osun State
Organizer: School of Business Studies, The Federal Polytechnic,
Ede, Osun State, Nigeria.

(v) **Name of Conference:** Faculty of Science, The Polytechnic, Ibadan
Date: 2nd – 4th September, 2020
Paper presented: Modified Variational Iteration Method for the Solution
of Linear and Non-linear PDEs
Presenters: Araromi, A.A, Olaniyan, A.S, **Alabi, J.A**, Adeleke, B.S.
and Adeboje, T.B.
Venue: The Polytechnic, Ibadan
Organizer: Faculty of Science, The Polytechnic, Ibadan.

(vi) **Name of Conference:** Faculty of Science, The Polytechnic, Ibadan
Date: 2nd – 4th September, 2020
Paper presented: On the Solution of Linear Klein Gordon Equations Using Reduced
Differential Transform Method
Presenters: Araromi, A.A, Olaniyan, A.S, **Alabi, J.A**, Adeleke,
B.S. and Aremu, A.A.

Venue: The Polytechnic, Ibadan

Organizer: Faculty of Science, The Polytechnic, Ibadan.

(vii) **Name of Conference:** 1st Annual National Conference of the Faculty of Engineering of The Ibarapa Polytechnic, Eruwa.

Date: 3rd-5th JULY, 2018

Paper presented: Supplier Collusion as a threat to Entrepreneurship: The Case of Market Behavior of Cement Industry in Brazil.

Presenters: Lawal, T.A, Carim, A.A, **Alabi, J.A**, Jimoh, A.A

Venue: The Ibarapa Polytechnic, Eruwa.

Organizer: Faculty of Engineering of The Ibarapa Polytechnic, Eruwa.

(viii) **Name of Conference:** 1st Annual National Conference of the Faculty of Engineering of The Ibarapa Polytechnic, Eruwa.

Date: 3rd-5th July, 2018

Paper presented: Entrepreneurship: A Panacea to Unemployment and Poverty in Nigeria.

Presenters: **Alabi, J.A**, Jesulowo, A.S, and Lawal, T.A,

Venue: The Ibarapa Polytechnic, Eruwa.

Organizer: Faculty of Engineering of The Ibarapa Polytechnic, Eruwa.

(ix) **Name of Conference:** The Ibarapa Polytechnic 1st National Conference

On Redeeming Nigerian Economy in the face of
Economic Recession.

Date: 17th-19th July, 2017

Paper presented: Diversification of the Nigerian Economy: An
Enduring Escape Route from Economic Recession

Presenters: Lawal, T.A, Oke, J.A, **Alabi, J.A**

Venue: The Ibarapa Polytechnic, Eruwa.

Organizer: The Ibarapa Polytechnic, Eruwa.

(x) Name of Conference: The Ibarapa Polytechnic 1st National Conference
On Redeeming Nigerian Economy in the face of
Economic Recession.

Date: 17th-19th July, 2017

Paper presented: The Effects of Globalization on Absolute Poverty in
Nigeria

Presenters: **Alabi, J.A**, Lawal, T.A, Oke, J. A

Venue: The Ibarapa Polytechnic, Eruwa

Organizer: The Ibarapa Polytechnic, Eruwa.

(xi) Name of Conference: Academic Staff Union of Polytechnics, ASUP
ZONE C, National Conference, Ibadan, Oyo State

Date: 2016

Paper presented: Social –Economic Impacts of the Renewed
Hostilities of the Niger-Delta Militants on
Sustainable Nation Building

Presenters: Lawal, T.A, **Alabi, J.A**, Aderonmu, O.A.
Venue: The Polytechnic Ibadan, Ibadan.
Organizer: Academic Staff Union of Polytechnics, ASUP
ZONE C.

(xii) **Name of Conference:** Academic Staff Union of Polytechnics, ASUP
ZONE C, National Conference, Ilaro, Ogun State.

Date: 2015

Paper presented: Planning for Sustainable Development in Nigeria:
The place of Statistics.

Presenters: Oladeji, A.O, Rafiu, A.A, and **Alabi, J. A.**

Venue: Federal Polytechnic, Ilaro.

Organizer: Academic Staff Union of Polytechnics, ASUP ZONE C.

(xiii) **Name of Conference:** Academic Staff Union of Polytechnics, ASUP
ZONE C, National Conference, Ilaro, Ogun State

Date: 2015

Paper presented: The correlation between Electricity Consumption
and Industrial Development in Nigeria.

Presenters: Oladeji, A.O, Rafiu, A. A, **Alabi, J. A**
Venue: Federal Polytechnic, Ilaro.

Organizer: Academic Staff Union of Polytechnics, ASUP
ZONE C.

(xiv) **Name of Conference:** Conference on Culture, International Science and Sustainable Research & Development, Development Institute, Uyo, Akwa-Ibom State.

Date: 2015

Paper presented: Curbing Gender Discrimination through Women Empowerment: The Nigerian case.

Presenters: Jimoh, A. A, Oladeji, A. O, **Alabi, J. A**

Venue: Uyo, Akwa-Ibom State.

Organizer: Culture, International Science and Sustainable Research & Development, Development Institute.

(xv) **Name of Conference:** Conference on Culture, International Science and Sustainable Research & Development, Development Institute, Uyo, Akwa-Ibom State.

Date: 2015

Paper presented: Political Instability and Economic Growth, Evidence from Nigeria.

Presenters: Oladeji, A. O, Jimoh, A. A, **Alabi, J. A.**

Venue: Uyo, Akwa-Ibom State.

Organizer: Culture, International Science and Sustainable Research & Development, Development Institute.

(xvi) **Name of Conference:** Conference on Culture, International Science and Sustainable Research & Development, Development Institute, Uyo, Akwa-Ibom State

Date: 2015

Paper presented: Problems of Personal Income Tax Generation

Presenters: **Alabi, J. A.**, Oladeji, A. O, Jimoh, A. A.

Venue: Uyo, Akwa-Ibom State.

Organizer: Culture, International Science and Sustainable Research & Development, Development Institute

B. Workshop with Date

- i. Cooperative industry; A Veritable Tool for Economic Cooperative Development through Poverty Eradication. Department of Ministry of Trade, Investment and Cooperatives Services, Ibadan. 2012. **(In Attendance)**.

References:

1. Dr. A. O. Adegbenjo

**Mechanical Engineering Department,
Adeseun Ogundoyin Polytechnic, Eruwa. Oyo State.
08101085512**

2. Dr. S. A Atunwa

**General Studies Department,
Adeseun Ogundoyin Polytechnic, Eruwa, Oyo State.
08075271758**

Signature

Date

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The University Compliance Certification

This is to certify that this Thesis written by John Adejare ALABI with Matric No: LCU/PG/001589 in the Department of Economics, Faculty of Management and Social Sciences, Lead City University, Ibadan is in full compliance with the approved University format and style.

Signature

Date

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