Institutional Quality, Globalization, and Income Inequality in Nigeria

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Certification

This is to certify that Tolani Akintunde FAKUNLE with matriculation number LCU/PG/001879 carried out this research work titled Institution, globalization, and Income Inequality 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 Master of Science Degree (M.Sc.) under my supervision and that this has not been previously submitted.

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Dedication

This research work is dedicated to God Almighty, the wisdom of men and all-knowing God, my strong pillar and my source of inspiration who has given me the strength to get it done.

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Abstract

Globalization can exacerbate income inequality, as those who can harness global opportunities benefit more than others. The unequal distribution of benefits from globalization can widen the gap between the rich and poor in Nigeria. Also, weak and ineffective institutions in Nigeria pose a significant challenge to addressing income inequality. Therefore, this research examines the interrelationship among globalization, institutions, and income inequality in Nigeria over the period 1985-2020. It investigates the role of institutions on globalization; the effect of globalization on income inequality; the extent to which institutions influence income inequality; and the moderating role of institutions in globalization-income inequality relations in Nigeria. Using the autoregressive distributed lag (ARDL) estimator, the findings showed that institutions do not have significant impact on globalization both in the short- and long-run. The result further indicates that institutions positively impacted income inequality both in the short and long run. Likewise, it showed that globalization have a direct effect on income inequality both in the short and long run. It implies that globalization and weak institutional quality exacerbate income inequality in Nigeria by concentrating economic benefits among a privileged few. In the short run, the study discovered that globalization and institutions have a positive marginal effect on income inequality in Nigeria. Intuitively, inadequate governance, corruption, and lack of regulatory mechanisms allow a disproportionate share of the gains from globalization to accrue to powerful interests, widening the income gap and hindering inclusive economic development. On the policy front, government should prioritize institution-building initiatives, focusing on strengthening governance, reducing corruption, and enhancing regulatory frameworks to ensure that the benefits of globalization are equitably shared across society.

Keywords: Redistribution, KOF globalization index, governance, Gini index, Nigeria.
Word Count: 260

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Chapter One

Introduction

1.1 Background to the Study

Globalization's impact on income inequality in Nigeria is undeniable, but it is not solely responsible for the country's income disparities. The quality of institutions and governance play a crucial role in shaping the distribution of the gains from globalization[1]. Strong institutions are essential for ensuring that the benefits of globalization are distributed equitably and that the negative consequences, such as corruption and rent-seeking, are minimized. Corruption has been a persistent problem in Nigeria, hindering economic development and exacerbating income inequality. Weak governance and ineffective institutions have allowed corruption to thrive, diverting resources away from public goods and services that could benefit the broader population. The impact of corruption on income inequality is profound, as it often favors the wealthy and well-connected at the expense of the poor. The escalating disparities in income and wealth are widely acknowledged as significant economic concerns globally. Nigeria, recognized as the most populous black nation and the largest and fastest-growing economy in Africa, shares the worldwide challenge of confronting income inequality on an alarming scale, a factor that has been observed to perpetuate poverty [2,3]. The reality of income inequality manifests in various forms, encompassing disparities in living standards, variations in income distribution among the populace, to how the other opulent half live. Income inequality is primarily attributed to institutional and operational frameworks and is intertwined with various economic processes, making it a matter of paramount concern[4].

Economic inequality, comprising both income and wealth disparities, serves as a catalyst for social tensions within Nigerian communities and worldwide. This discontent among citizens

finds expression in elevated levels of crime and various forms of aggression, including social, domestic, political, religious, and inter-tribal conflicts. Additionally, inequality fosters corruption, as it is commonly perceived that engaging with politicians is the primary means to amass wealth. Nigeria's rapid expansion of economic disparities presents a significant challenge to the nation's unity and stability. This income inequality closely correlates with the proliferation of poverty, effectively demarcating the line between the privileged and the disadvantaged. The repercussions of each social class significantly influence their exposure to and participation in the broader global arena.

Income inequality serves as a decisive determinant of an individual's or certain groups' access to luxuries. For example, a wealthy individual can opt for and afford the convenience of air travel, while a less fortunate fellow can only manage the more affordable option of road travel. Consequently, the former individual can accomplish more within a shorter time frame and allocate the remaining time to more productive pursuits, while the latter person endures a lengthier journey. This scenario extends to various facets of life, underscoring that the privileged individuals have access to and enjoy superior means of advanced technology, transportation, and communication.

Enhanced transportation and communication technologies stand as the cornerstones of the pervasive phenomenon known as globalization. This global transformation has steadily evolved over the years and, more recently, has experienced an accelerated surge, effectively compressing the world into a more interconnected entity. Fueled by concerted efforts from nations worldwide, as well as support from various organizations and associations, globalization has grown into a prominent concept of universal significance. It has become a vital aspect of the agenda for countries across the globe, particularly in the context of international trade—both export and

import. Technological advancements have streamlined and facilitated these global exchanges, rendering the world a more accessible and secure place.

The pursuit of international trade has naturally led to increased interactions among nations. This inter connectivity has undergone significant refinements over the years, making the world more compact and fostering safety in global interactions. The imperative to maintain harmonious international relations and promote peaceful coexistence has been a driving force behind the emergence and academic exploration of globalization. This concept gained widespread recognition in the late 1980s, gaining even greater prominence following the fall of the Berlin Wall in 1989 and the subsequent partial collapse of communism[5].

Globalization has sparked extensive debates, particularly regarding its impact on global inequality, with a particular focus on global income inequality. Scholars and academics have engaged in heated discussions on this matter, which has become a prominent topic in global discourse. Notably, the glaring disparity between the average incomes in the world's wealthiest economies and those in the world's poorest countries has been a consistent trend observed in data spanning several years[6]. The underlying reasons for this trend have sparked considerable contention and diverse arguments.

Some perspectives contend that inequality should not be the primary concern but rather poverty, as eliminating poverty would render measures to reduce inequality unnecessary. Conversely, others regard income and wealth inequality as significant social issues that warrant attention. A separate school of thought suggests that income and wealth inequality are inherent features of the capitalist system[7]. Additionally, some argue that contemporary global inequality stems from the historical ascendancy of the Western world and the subsequent lagging behind of Asia and

Africa. These multifaceted perspectives contribute to the ongoing discourse surrounding global inequality.

Institutions worldwide have played a pivotal role in fostering the advancement of globalization. This phenomenon has, however, attracted the attention of academic scholars and researchers due to its perceived role in exacerbating global inequalities among nations. These institutions are scattered across the globe and encompass a diverse array, including well-known entities such as The World Bank Group, the International Monetary Fund (IMF), the Economic Community of West African States (ECOWAS), the International Finance Corporation (IFC), the Asian Development Bank (ADB), the Bank of International Settlements (BIS), the International Migration Institute (IMI), the Organization for Economic Cooperation and Development (OECD), the United Nations (UN), the World Economic Forum, and the World Health Organization (WHO), among numerous others. While some are international in scope (e.g., IMF), others operate regionally (such as ECOWAS), and some represent associations of a select few countries (e.g., G7 and G10 assemblies). Despite their diversity, these institutions share a common thread—they are constituted through the collaboration of different states, each possessing varying capabilities, economic resources, and state power. This variation in power and resources translates into varying degrees of influence over the affairs of these organizations.

Certain international institutions, notably the multilateral development banks formed by groups of countries with many members, provide financial support in the form of long-term loans and grants (e.g., the World Bank). Critics of globalization and these institutions have perpetuated myths suggesting that they are instruments of larger economies and transnational corporations aimed at subjugating smaller countries. However, research indicates that globalization has, in fact, reduced global wealth inequality between nations while simultaneously increasing wealth

inequality within nations. This trend is particularly pronounced in developing countries, including many in Africa, where income inequality is deeply entrenched in economic structures. Here, a small number of powerful sectors exert significant economic control, while the majority of lower-income earners remain trapped in low-paying sectors. This disparity is exacerbated by inefficient and inadequate educational systems, which fail to adequately prepare the majority for higher-paying skilled jobs, coupled with the pervasive issue of oppressive and corrupt governance.

Globalization is a multifaceted phenomenon driven by various factors, including trade liberalization, financial openness, capital movements, Information and Communication Technologies (ICT), and international migration. This international interconnection has fostered global interdependence by integrating different facets of economies. Given the vast opportunities it offers through foreign markets, economic growth, and international exchanges, globalization cannot be ignored by countries and businesses. However, the spread of globalization has prompted a growing discourse among economists, researchers, and academia regarding its impact on inequality and wealth distribution, both within and between countries. A substantial body of research suggests that globalization has led to increased inequality in most developed and developing nations.

Nigeria, as a developing nation, has experienced technology and trade transfers from the developed world and has enjoyed the benefits of globalization. Yet, despite its immense potential for growth, the country faces stagnation and significant income inequality, both within its borders and in comparison to developed nations worldwide. This paper seeks to delve into the causation, direction, and effects of globalization on income inequality in Nigeria.

One plausible explanation for the persistent challenges faced by developing nations like Nigeria may be attributed to their inadequate institutional frameworks. In contrast to their less-developed counterparts, developed nations have benefited from robust institutional structures that not only shape their economies but also allow them to harness the benefits of globalization in areas such as trade, finance, governance, and technology. Sound institutions and effective governance are recognized as the linchpins of sustainable growth, sound macroeconomic policies, and overall economic development. This underscores the vital link between globalization, institutional quality, and income inequality. It is imperative to investigate these connections, as developed countries with robust institutional frameworks grapple with globalization challenges, while developing nations plagued by dysfunctional institutions face equally formidable globalization-related hurdles. Therefore, the primary goal of any responsible government is to facilitate favorable engagement with global trade and globalization, a goal that may remain elusive if institutions fail to fulfill their statutory and oversight roles effectively.

1.2 Statement of the Problem

Income inequality has been a longstanding economic concern, and research and debates have pointed to globalization as a factor that has exacerbated inequality in both developed and developing countries, including Nigeria. Nigeria, classified as a developing economy, has forged relationships with numerous international organizations aimed at fostering economic growth. However, the nation faces a complex array of economic challenges, with income inequality standing out prominently among them. This raises a significant question: has Nigeria's engagement with international trade-promoting institutions contributed to the growth of income inequality within the country?

Inequalities in international trade relations have stifled the growth of domestic industrial and entrepreneurial capabilities in developing countries, ultimately leading to the decline of domestic enterprises and the inundation of markets with goods from advanced nations[8]. In a liberalized environment, domestic enterprises struggle to compete effectively with established and technologically advanced foreign firms.

Globalization has exerted a profound impact on economies and societies worldwide, Nigeria included. While globalization has ushered in several advantages, such as increased trade, technological progress, and cultural exchange, it has also presented numerous challenges, particularly in terms of institutions and inequality within Nigeria[9]. The rapid flow of capital, goods, and services across borders has posed challenges related to market regulation, ensuring fair competition, and enforcing labor and environmental standards. Weaker domestic institutions find it challenging to grapple with the complexities of globalization, potentially leading to resource exploitation, corruption, and inadequate protection of citizens' rights.

Globalization has yielded both positive and negative consequences for Nigeria's economy[10]. While it has opened doors for economic growth, foreign investments, and job creation, it has also contributed to economic inequality. The benefits of globalization have not been equitably distributed, resulting in an uneven allocation of wealth and resources. This growing gap between the affluent and the less privileged has led to increased poverty levels, social unrest, and restricted access to essential services such as healthcare and education.

Furthermore, globalization has left its mark on cultural norms, values, and social structures in Nigeria. The influence of Westernization and global media has brought about changes in societal expectations and aspirations. However, these transformations have also heightened social disparities. Specific groups, including women, marginalized ethnic communities, and rural

populations, face heightened challenges in accessing opportunities and resources[11]. Globalization has also played a role in eroding traditional practices and cultural values, further deepening social divisions and marginalization.

Globalization has facilitated the movement of skilled individuals across borders, presenting opportunities for Nigerians to seek better prospects abroad. However, this has also led to a phenomenon known as the brain drain. Highly skilled professionals, including doctors, engineers, and academics, leave Nigeria in pursuit of improved employment and educational opportunities[12]. This brain drain hampers the development of domestic institutions and exacerbates inequality by depriving the country of its human capital.

Despite their membership in international institutions, developing nations that have been pressured to adopt policy prescriptions and programs have made limited progress toward development, often sinking further into poverty and underdevelopment. Rather than bridging the gap, global inequality has grown in poorer nations. While developed nations have steadily improved their balance of payments surpluses, developing countries have experienced widening deficits, rising unemployment, deteriorating industrial and technical capabilities, and declining standards of living. For example, in the 2019 Poverty and Inequality in Nigeria report by the National Bureau of Statistics (NBS), it was reported that approximately 40 percent of the country's total population lived below Nigeria's poverty line, set at US$381.75 per year[13]. In stark contrast, in the United States, the poverty threshold in 2020 for a single person under 65 was an annual income of US$12,760, equivalent to about $35 per day[14]. This stark disparity underscores the significant differences in poverty standards: Nigeria considers those living below $1 per day as poor, while in the United States, the threshold is considerably higher at $35 per day.

1.3 Research Questions

This research will seek to answer the following research questions:

a) What is the effect of institutional quality on globalization in Nigeria?

b) What is the impact of institutional quality on income inequality gap in Nigeria?

c) Does globalization widen or reduce income inequality gap in Nigeria?

d) What role do institutions play in the relationship between globalization and income inequality in Nigeria?

1.4 Objectives of the Study

The main objective of this study is to investigate the relationship among globalization, institutional quality and income inequality in Nigeria. The specific objectives are:

a) Examine the effect of institutional quality on globalization in Nigeria.

b) Examine the effect of institutional quality on income inequality in Nigeria.

c) Assess globalization's impact in reducing or widening income inequality gap in Nigeria; and

d) Investigate the role of institutional quality in globalization-income inequality nexus in Nigeria.

1.5 Research Hypotheses

For the purpose of this study, the following hypotheses are constructed:

H_{01}: There is no significant relationship between institutional quality and globalization in Nigeria.

H_{02}: There is no significant relationship between institutional quality and income inequality in Nigeria.

H_{03}: There is no significant relationship between globalization and income inequality in Nigeria.

H_{04}: Institutional quality does not have a significant impact between globalization and income inequality in Nigeria.

1.6 Scope of the Study

This research endeavors to contribute to the existing body of scholarly work by conducting a comprehensive analysis of the interplay between institutional quality, globalization, and income inequality in Nigeria spanning the period from 1985 to 2020. Within the scope of this study, globalization will primarily be examined through the lens of international trade, with a specific focus on the influence of international institutions dedicated to facilitating cross-border trade.

The chosen time span, which runs from 1985 to 2020, encompasses an important turning point in Nigeria's political and economic history. Nigeria changed its economic policy and started undertaking structural adjustment programmes in 1985. Increased integration into the global economy also occurred during this time, propelled by developments in technology and trade liberalisation. By extending the study to 2020, we capture anticipated changes in the 21st-century economic landscape and enable an analysis of long-term patterns, covering a significant period

of time following the return to democratic governance in 1999. The selected time frame offers a thorough framework for examining the complex connections among institutional quality, globalization, and income inequality in Nigeria.

The research will entail a thorough review of Nigeria's historical engagements with these international institutions, encompassing an assessment of previous financial arrangements and financing structures, as well as an exploration of trade agreements that Nigeria has entered into over time. This examination will extend to evaluating the state of income inequality within the country both before and after the implementation of these agreements. Through a rigorous analysis, this study aims to quantify the extent to which these liberal agreements and policy measures have shaped the distribution of income in Nigeria.

1.7 Significance of the Study

This study seeks to make a unique contribution to the existing body of knowledge by conducting a nuanced analysis of how Nigeria's interactions and affiliations with international institutions that promote globalization, notably the World Bank and the IMF, have influenced the country's income inequality dynamics. This research is deemed essential due to its potential to shed light on the specific pathways through which income inequality in Nigeria has been shaped by the forces of globalization driven by institutional dominance.

The significance of this study lies in its capacity to enhance our comprehension of the intricate relationship between income inequality in Nigeria and the rise of globalization facilitated by institutional actors. By delving into the consequences of globalization as championed by these multilateral organizations, this research seeks to uncover critical facets of how income inequality has evolved in Nigeria.

This research distinguishes itself from prior studies by adopting a holistic approach that goes beyond examining the effects of globalization in isolation. Instead, it systematically explores the interconnectedness among globalization, institutional quality, and income inequality, with Nigeria as its focal point.

In essence, this study makes a threefold contribution to the existing literature. First, it bridges a noticeable gap by addressing the intricate interplay among globalization, institutions, and income inequality - a dimension that has been underrepresented in previous research. Second, it offers an in-depth examination of this tripartite relationship within the context of Nigeria, a key player in the global landscape. Lastly, it provides valuable insights into the challenges posed by globalization, institutional influences, and inequality, offering recommendations for policy measures and interventions that can foster a more equitable and resilient society.

Addressing the multifaceted challenges posed by the confluence of globalization, institutions, and inequality in Nigeria demands a comprehensive approach. Strengthening institutions, promoting inclusive economic policies, investing in education and healthcare, and implementing sustainable environmental practices are critical steps toward mitigating the adverse effects of globalization and reducing inequality. Additionally, supporting local entrepreneurship, empowering marginalized groups, and celebrating cultural diversity can contribute to a more equitable society. Policymakers, civil society organizations, and international stakeholders must collaborate and devise strategies that harness the benefits of globalization while effectively addressing its negative consequences. In doing so, Nigeria can work towards achieving sustainable development, fostering social cohesion, and reducing inequality in an increasingly interconnected world.

1.8 Operational Definition of Terms

Globalization: Refers to the growing interconnectedness and interdependence of economies, cultures, and populations worldwide. This phenomenon arises from the cross-border exchange of goods and services, technological advancements, investment flows, migration, and the free flow of information. It encompasses the intricate dynamics of how various countries' economies operate, emphasizing the expansion of international trade, the establishment of global supply chains, and the collaborative utilization of natural resources and labor markets.

KOF Index of globalization: Measures the economic, social and political dimensions of globalisation.

Institutional quality: Refers to the overall effectiveness, reliability, and performance of a country's institutions, including its government, legal system, regulatory bodies, and other organizations that play a role in shaping and governing its economic, social, and political systems.

Measurement of Institutional quality:

- **Government Effectiveness:** This captures the perceptions of the quality of public service, quality of the civil service, and the degree of it's independence from political pressures, the quality of policy formulation and implementation, and it's credibility and commitment to such policies.
- **Regulatory Quality**: This captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
- **Corruption Control:** This captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the states by elites and private interests.

Income Inequality: The disproportionate distribution of income across units (e.g., gender, households, nations, regions, etc).

Endnotes

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Chapter Two

Literature Review

2.0 Preamble

This section presents the review of related concepts, theories, and empirical studies on institutional quality, globalization, and income inequality in Nigeria. Specifically, this section conceptualizes institutional quality, globalization, and income inequality. Also, theories and empirical studies related to the topic of the study were discussed. Lastly, the gaps in literature were identified.

2.1 Conceptual Review

2.1.1 Globalization

Numerous attempts have been made by countless researchers to define globalization comprehensively, recognizing its multifaceted nature. While acknowledging the extensive body of definitions, this study aims to analyze a diverse range of these definitions to distill the core essence of globalization and formulate a working definition tailored to the scope of this research.

Globalization encompasses a wide array of interconnected issues, spanning global governance, the concept of global citizenship, human rights, migration patterns leading to the formation of diasporas, and various forms of transnational connections. This complexity makes it challenging to encapsulate globalization within a single definition. Existing literature on globalization often posits that it comprises three primary dimensions: economic, political, and cultural, with cultural aspects gaining prominence, partly in response to concerns related to economic globalization[1]. The social facet of globalization places particular emphasis on the communicative aspects of our

increasingly interconnected world. However, none of these dimensions can be exclusively prioritized over the others.

Wallerstein's perspective underscores the historical development of the current world-system, alternatively referred to as world society, the global ecumene, or global society[2]. This system has, over the course of the past five to six centuries, primarily evolved through the diffusion of capitalism. Wallerstein also highlights that this ongoing expansion faces resistance from what he terms anti-systemic movements.

In the endeavor to delineate the concept of globalization, it is often depicted as being characterized by two predominant trends: the intensification of global interconnectedness and the emergence of global consciousness. Here, the notion of consciousness does not imply unanimous consensus but rather denotes a shared recognition of the world as an intricately interlinked entity.

Globalization assumes a distinct form, one that has been substantially shaped by the establishment of various specialized international organizations.

Globalization encompasses four fundamental dimensions of human existence: cultural, social, political, and economic. These dimensions are inherently intertwined, with certain aspects taking precedence in specific contexts or periods[1]. Globalization is a multifaceted concept that transcends neat categorization within any specific academic discipline, whether sociological or economic[2]. It defies confinement and sprawls across diverse domains, involving extensive global linkages, and thus, it resists precise or uniform definition.

Over the years, globalization has assumed various interpretations and labels, reflecting its dynamic nature and the myriad perspectives it engenders. It has been likened to colonization, the shrinking of the world, interdependence, multiculturalism, neoliberalism, universalization, world

integration, modernization, internalization, and a transformative process, among other descriptors—all striving to capture its essence and aid in comprehending this multifarious concept.

At its core, globalization signifies the process through which individuals, businesses, and governments establish connections and merge on a global scale[3]. This phenomenon has led to a notable surge in international trade and the free flow of ideas, values, and cultural elements. Globalization manifests primarily as an economic nexus that has profound social and cultural implications. It profoundly impacts the economy by facilitating the exchange of goods, services, data, technology, and vital economic assets like capital[4]. The proliferation of globalization prompts market expansion, fostering the liberalization of economic activities such as the seamless exchange of goods, services, financial resources, and more. Moreover, it entails the dismantling of cross-border trade barriers, thus enabling the establishment of global markets. Advancements in transportation and telecommunication infrastructure, including technologies like the telegraph, Internet, and mobile phones, have played pivotal roles in accelerating globalization and enhancing the interdependence of economic and cultural endeavors worldwide[5].

According to the World Health Organization, globalization constitutes the heightened interconnectedness and mutual reliance among peoples and nations. This intricate concept encompasses two interwoven facets: the opening of international borders to expedited flows of goods, services, finances, people, and ideas, coupled with adjustments in national and international institutions and policies that facilitate or encourage these multifaceted exchanges[6].

According to the Committee for Development Policy, globalization can be defined as the heightening interdependence of world economies resulting from the expanding scale of cross-border trade in goods and services, the flow of international capital, and the rapid and extensive

dissemination of technologies[7]. This definition underscores the ongoing enlargement and mutual integration of global markets, as well as the growing significance of information in various productive endeavors. Marketization and economic globalization emerge as the primary driving forces.

Fernandez offers a comprehensive perspective on globalization, characterizing it as a multifaceted phenomenon encompassing social, cultural, political, and legal dimensions. He posits that globalization facilitates the dissemination of products, technology, information, and employment opportunities across national borders and cultural boundaries[8]. In economic terms, it signifies the interconnectedness of nations fostered through free trade. Fernandez delves into the manifold aspects of globalization: it encourages increased social interaction among diverse populations, fosters cultural exchange by facilitating the sharing of ideas, values, and artistic expressions across cultures, and promotes the development of a unified global culture. Politically, globalization accentuates the role of intergovernmental organizations like the United Nations and the World Trade Organization. Legally, it has transformed the processes of international law creation and enforcement.

Karl Marx, in his scholarly works, recognized the growing degree of national interdependence catalyzed by capitalism. He succinctly described globalization as the universal interdependence of nations[9,10]. Anthony Giddens characterizes globalization as the intensification of worldwide social relations that connect distant localities in a manner where local events are influenced by occurrences happening thousands of miles away and vice versa[11]. The term globalization was coined by Robertson to signify the compression of the world and the heightened awareness of the world as a unified entity[12]. Held, a scholar, and his associates in their words state that:

> *Although in its simplistic sense globalization refers to the widening, deepening and speeding up of global interconnection, such a definition begs further elaboration. ... Globalization can be on a continuum with the local, national and regional. At one end of the continuum lie social and economic relations and networks which are organized on a local and/or national basis; at the other end lie social and economic relations and networks which crystallize on the wider scale of regional and global interactions. Globalization can refer to those spatial-temporal processes of change which underpin a transformation in the organization of human affairs by linking together and expanding human activity across regions and continents. Without reference to such expansive spatial connections, there can be no clear or coherent formulation of this term. ... A satisfactory definition of globalization must capture each of these elements: extensity (stretching), intensity, velocity and impact.*[13]

Globalization has been defined by the phenomenon of the world shrinking, where distances contract, and entities become more closely interconnected. It specifically pertains to the growing ease with which individuals on one side of the globe can engage with those on the opposite side, resulting in mutual benefits for both parties[14].

Another insightful view of globalization comes from the concept of extending social relations across global space[15]. This perspective emphasizes the historically contingent ways in which globalization has been practiced and understood over time, thereby highlighting the importance of its historical context. Globalization is the process through which more individuals across vast distances become interconnected in increasingly diverse manners[16,17]. Globalization as an ongoing process encompassing the causes, trajectory, and consequences of transnational and trans-cultural integration across human and non-human activities[18]. Moreover, globalization defies precise definition and universal application, as it represents a multifaceted global process, concept, revolution, and the establishment of a global market free from socio-political controls. Now, according to Ghai, globalization is defined as:

> *simply the process of intensification of economic, social, cultural, political and environmental relations across international boundaries. It is the process of increasing relationships among states and stands out as one of the defining force of contemporary International Society. It is the process by which the people of the world are incorporated into a single world society or global society. It is the intensification of worldwide social relations that link distant locations in such a way that local happenings are shaped by events occurring many miles away and vice versa*[19].

Transnational corporations have played a significant role in the process of globalization. They have expanded their businesses internationally, facilitated the transfer of technology and managerial expertise, made substantial investments in other countries, engaged in marketing efforts, hired talent from around the world, and actively promoted global trade and advertising, among other strategies.

The pace of globalization has been greatly accelerated by the rapid advancements in technology, particularly in the realms of transportation, communications, and information processing. Additionally, the adoption of market-friendly policies, significant investments in infrastructure, the cultivation of technical skills and entrepreneurial capabilities, and various other factors have contributed to the swift progression of globalization. This has led to robust economic growth, the broadening of trade and economic connections worldwide, and an increase in the number of countries actively participating in global competition. Simultaneously, the rapid expansion of media encompassing the press, radio, television, and digital content has played a pivotal role in facilitating communication. The travel and tourism industry has also been instrumental in advancing globalization across various dimensions[20].

Globalization is observable not only in the economic sphere but also in the political, social, and cultural domains. The substantial expansion of communication networks, travel infrastructure,

and tourism has been instrumental in promoting globalization across a wide spectrum of human activities. This multifaceted phenomenon has been described and analyzed through various lenses, including integration, interdependence, liberalization, convergence, global awareness, and persuasion. It encompasses a complex interplay of factors, including integration and disintegration, the push and pull of liberalization and mercantilist competition among nations, both convergence and accentuation of disparities, the dynamics of interdependence and dependencies, and the presence of inequities. It blurs the lines between internal and external distinctions in the economic context while simultaneously maintaining their distinctiveness in the political realm. Globalization is a process that fosters global consciousness and awareness while also leaving room for pockets of ignorance and misunderstanding[21,22].

History of Globalization

Globalization is a multifaceted concept that has generated a plethora of definitions and interpretations. Historians, scholars, academics, and sociologists have all grappled with defining globalization, often perceiving it as an intrinsic outcome of human nature. Some historians contend that globalization's roots can be traced back approximately 60,000 years, aligning with the dawn of human history. Throughout various epochs, diverse civilizations have established commercial trade routes and engaged in cultural exchanges. Furthermore, the phenomenon of widespread migration has historically driven interactions among populations. This propensity has grown notably in contemporary times, thanks to the increased accessibility, comfort, and affordability of travel, resulting in a heightened exchange of goods and services across human societies[4].

Antecedents of globalization extend back to significant trade and imperial movements that traversed Southeast Asia and the Indian Ocean from the 15th century onward[9]. Traders embarked

on extensive journeys in ancient times to procure commodities that were scarce and costly in their homelands, subsequently selling them in their places of origin. Alternatively, another school of thought suggests that globalization took a substantial leap during the 19th century[20], coinciding with the Industrial Revolution's innovations in transportation and communication, which facilitated cross-border trade.

Throughout history, global interactions persisted through various means, including military conquests and expeditions. However, the tempo of globalization did not truly accelerate until transportation and communication technologies underwent significant advancements. In particular, the latter half of the 20th century witnessed a dramatic expansion in global trade's scope and pace, eventually solidifying the widespread acceptance of the term globalization[7].

Scholars have delineated distinct eras in the progression of globalization, often categorizing it into periods such as archaic, early modern, and modern globalization[23]. Friedman's classification, as quoted by Grinin and Korotayev, designates three globalization phases: Globalization 1 (1492–1800), involving the globalization of countries; Globalization 2 (1800–2000), centered on the globalization of companies; and Globalization 3 (2000 – present), focusing on the globalization of individuals. Various scholars have proposed alternative periodizations based on different criteria, each offering its unique time frame and rationale. For instance, Grinin and Korotayev examined Chumakov's periodization, which is based on the scale of global connections: Period of Fragmentary Events (until 5000 BP), Period of Regional Events (until the 15th century CE), Period of Global Events (until the mid-20th century), and the Period of Cosmic Expansion starting in 1957[2]. Several historians have articulated distinct eras of globalization, as summarized in the table below:

Table 2.1: Spatial and Periods of Globalization Types

Type of Spatial Links (Globalization Level)	**Periods**
Local links	1) Till the 7th – 6th millennium BCE
Regional links	2) From the 7th – 6th millennium till the second half of the 4th millennium BCE
Regional-continental links	3) From the second half of the 4th millennium BCE to the first half of the 1st millennium BCE
Transcontinental links	4) From the second half of the 1st millennium CE to the late 15th century CE
Oceanic (intercontinental) links	5) From the late 15th century to the early 19th century
Global links	6) From the early 19th century to the 1960s and 1970s
Planetary links	7) From the last third of the 20th century to the mid-21st century

Source: Grinin and Koroyatev (2013): Globalistics and Globalization Studies[23]

Types of Globalization

Globalization has permeated societies and significantly reshaped the lives and behaviors of individuals in various ways. While some aspects of globalization have led to progress, others have resulted in a loss of originality and a sense of independence for entire societies. In this

study, we will explore the three main types of globalization, with reference to specific research and indicators:

Economic Globalization

Economic globalization is the most prominent form of globalization, with its impact extending across all other dimensions. It is primarily associated with economic activities and is intertwined with various other forms of globalization. Scholars have attempted to analyze economic globalization through different dimensions, driven by widespread trade agreements (often involving the removal of trade tariffs), the influence of capitalism, and globally applicable fiscal policies[8]. This form of globalization has led to significant advancements in economic systems worldwide, resulting in increased economic growth, development, and financial opportunities for many nations.

Economic globalization is mainly driven by Multinational Companies (MNCs) or Transnational Corporations (TNCs) and International Institutions. These profit-driven entities allocate resources and organize production to maximize their gains, contributing to global industrial restructuring, readjustment, and technological advancements, along with an increase in global income levels. In the field of economics, globalization is evident in the growing acceptance of free markets and private enterprise as primary tools for promoting economic activity and development. Key indicators of economic globalization include international trade in goods and services, private capital flows in various forms, foreign direct investment, technology transfers, operations of transnational enterprises, business travel, communications, migration, and remittances[19].

Scholars over the years define economic globalization as the increasing interdependence of world economies due to the growing scale of cross-border trade in commodities and services, the flow of international capital, and the rapid spread of technologies[10]. It reflects the continuous expansion and mutual integration of market frontiers, marking an irreversible trend for global economic development in the new millennium.

Conley, in an effort to provide insight into economic globalization, refers to it as the increase in the global political economic growth effects on countries and the policymaking process. It also represents a construction that has increasingly dominated discussions, reinforcing rhetoric about the constraints of politics and the inexorable and permanent economic liberal policy implications in recent decades.

Notable features and elements of economic globalization include trade liberalization (free trade across borders), privatization, international collaboration, economic reforms, access to world markets, international financing, and global product standardization, among others[24].

Cultural Globalization

Cultural globalization refers to the worldwide convergence of cultures. It encompasses various fundamental aspects, including values, religion, and personal identity[21]. Additionally, it encompasses recreational pursuits like television, videos, popular music, dancing, nightclubs, sports, and international travel[19]. This phenomenon is sometimes perceived as a form of cultural imperialism, characterized by the pervasive influence of Western, especially American, culture across the globe, potentially posing a threat to the preservation of distinct non-Western cultural traditions[21]. Cultural globalization involves the dissemination of ideas, meanings, and values on a global scale, thereby extending and intensifying social connections[22]. It is exemplified by the

widespread consumption of cultures diffused through the Internet, popular media, and international travel, among other channels.

Cultural globalization necessitates the establishment of shared norms and knowledge to facilitate the integration of individual and collective cultural identities, fostering a sense of interconnectedness among diverse communities and civilizations[25]. While it promotes the dissemination of religion, ideas, languages, styles, fashion, and music, it can also erode the uniqueness of certain societies and cultures.

Political globalization

Political globalization, one of the three key facets of globalization, is defined as the expansion of a global political system and its institutions, managing inter-regional transactions, including but not limited to trade[26]. Some scholars interpret political globalization as the emergence of a transnational elite and a reduction in the prominence of the nation-state[21]. Indicators of political globalization include pluralist political systems, multi-party democracies, open elections, independent judiciaries, and human rights[26]. Some researchers argue that political globalization involves intricate interactions among global geopolitics, global normative culture, and polycentric networks. They assert that the worldwide spread of parliamentary democracy is the clearest manifestation of political globalization[27]. Furthermore, political globalization has triggered various dimensions of social transformation, including changes in the structure of the nation-state, nationality, and citizenship, as well as transformations in the public sphere, political communication, civil society, spaces, and borders[27].

Effects of Globalization

Globalization is frequently perceived as an irreversible force imposed on the globe by governments and organizations like the IMF and the World Bank. The IMF contends that globalization is a political decision in favour of international economic integration, which has often accompanied democratic consolidation. A decision, it may be contested and even overturned, but at enormous cost to mankind. The IMF thinks globalization has considerable potential to contribute to the growth required to reduce global poverty[28].

In the widespread unification of the whole world into a single global space, positive and negative fall outs must abound in different contexts and capacities. For instance, some antagonists who are focused on social sustainability of long term continuous economic expansion, and the structural inequalities caused by this process have viewed globalization as detrimental to social well-being on a local and global scale. Proponents of economic growth, expansion and development have, on the other hand, viewed it as beneficial to the well-being of individuals and societies[29].

Positive Effects:

- Globalization proponents argue that it allows developing countries to catch up to developed ones in terms of manufacturing, diversification, economic growth, and living standards[17].
- Companies outsource labour and technology to underdeveloped countries, helping them boost their economies. Supply-side and trade-related limitations are removed via trade efforts[21].

- Globalization has also increased social justice globally, bringing attention to issues such as human rights that might otherwise go unnoticed[15].

- Globalization gives firms a competitive advantage by allowing them to source cheap raw materials[17,26].

- Globalization also allows firms to benefit from cheaper labour costs in underdeveloped countries while using more developed economies' technical competence and experience[23].

- Globalization allows different pieces of a product to be created in different places. In the automobile business, for example, distinct elements of a car may be made in different nations[26].

- Globalization is an important factor in raising living standards[35]. This is as a direct result of it helping to create more jobs in areas where labour is cheaper, and also decreasing manufacturing costs, leading to a lower pricing for goods and services[30].

Negative Effects

- One evident consequence of globalization is that a country's economic decline can have negative consequences on its global trading partners[27].

- Globalization critics claim that it has resulted in the concentration of wealth and power in the hands of a few corporate elite capable of absorbing smaller global competitors[25,29].

- Globalization has resulted in the relocation of entire industries, leading to a decline in economic output of the old location[26,27].

- Critics of globalization claim that increased employment opportunities for children in developing nations will increase child labour and divert the youth from education, further plunging them into crisis[29,30].

- It has been argued that globalization encourages an environment that abuses employees in countries with inadequate labour protection standards[30].

- Researchers argue that globalization increases the wealth and income inequality gap within a country, and that due to the increasing pressure on wages, unskilled employees may suffer[30].

2.1.2 Institutional quality

Institutions can be defined as multifaceted and enduring social structures composed of symbolic elements, social practices, and material resources. They represent the humanly devised rules within a society that govern and shape human interactions—essentially, they are the rules of the game[31]. Across various definitions, a common thread is the notion of persistence and continuity. Institutions encompass a wide spectrum, ranging from formal to informal.

Formal institutions encompass written laws, regulations, legal agreements, contracts, and constitutions, which are upheld and enforced by third-party authorities. In contrast, informal institutions are often unwritten norms, procedures, conventions, and traditions deeply embedded in a culture. Informal institutions can either complement, compete with, or overlap with formal ones. Their implicit nature becomes apparent when examining the incentives and norms guiding individuals' behavior. The strength, inclusiveness, or discriminatory nature of institutions depends on the specific context in which they operate[32].

The recognition of institutions' pivotal role in economic prosperity can be traced back to the writings of Adam Smith and has been substantiated by numerous scholars and researchers in recent times. Institutions serve as the fundamental rules of the game in any society, comprising both formal and informal constraints on human interactions. Favorable institutions are those that establish incentive structures reducing uncertainty and fostering efficiency, thereby contributing to enhanced economic performance[33].

Narrowing down the concept of institutions, we find organizational entities, procedural mechanisms, and regulatory frameworks. These institutions predominantly influence performance by promoting sound policy choices[34]. Examples include commitment mechanisms like central bank independence and balanced budget amendments, the design and existence of international trade agreements, and regulations governing labor, product, and financial markets.

To achieve a fully market-based economy, institutions must fulfill several crucial roles, such as:

- Protecting Property Rights: Ensuring the security of property rights, upholding the rule of law, and curbing corruption.
- Regulating Markets: Providing appropriate regulations for product, factor, and financial markets to counteract market failures.
- Stabilizing Macro-economy: Supporting macroeconomic stability, including safeguarding the value of currency and maintaining a sustainable fiscal stance.
- Fostering Social Cohesion: Promoting social cohesion and stability by addressing extreme poverty, reducing civil conflicts, and mitigating adverse consequences of economic disruptions and transformations.

Good institutions serve as catalysts for business development and facilitate social interactions, enabling advantages in the division of labor and the specialization of knowledge, which are key sources of prosperity[35].

Criteria for Institutional Quality

Any analysis of institutions is rooted in fundamental properties that underpin their quality and effectiveness. The first criterion for evaluating institutional quality is universality, which signifies the presence of general, open, and abstract social rules applicable to an unknown and diverse range of situations[36]. A classic example of a universal rule is the principle that no one is above the law. Unfortunately, numerous instances exist where this principle is violated, such as the preferential granting of benefits and subsidies to specific sectors or industries, the hasty enactment of emergency laws, and frequent changes in taxation. Rules designed for specific purposes often lead to economic and social tensions while failing to fulfill their intended regulatory and coordination functions[37].

The second criterion emerges from a critical role of institutions: the reduction of transaction costs and uncertainty in human interactions. Institutions should exhibit characteristics such as credibility, stability, transparency, and ease of comprehension to provide a high degree of security and stability in economic and social relationships.

Another criterion for assessing institutional quality is adaptability, denoting an institution's ability to anticipate changes and offer socio-economic incentives to facilitate adaptation to evolving socio-economic conditions.

Over the past two decades, numerous studies have explored the pivotal role of institutions in development. To support these investigations, a plethora of institutional quality indicators have been developed by multilateral organizations, risk-rating agencies, academic institutions, and non-governmental organizations. However, the characteristics and quality levels of these indicators vary widely, and many lack a theoretical framework linking them to established criteria for institutional quality. Consequently, effective institutions are those that incentivize agents to engage in socially beneficial activities with a high collective return. Conversely, ineffective institutions encourage socially wasteful or unproductive behaviors. To evaluate institutions, it is crucial to analyze not only the rules they establish but also the motivations that drive individuals to comply with these rules[4].

Therefore, understanding both the incentive structure within which agents operate and the reasons behind their behavior is vital. The legitimacy of institutions is a fundamental factor influencing their efficiency[32]. Institutions are designed to address challenges arising from social interactions in an uncertain world. They serve as mechanisms to reduce discretionary actions and limit opportunism, while also shaping social behaviors, promoting social interaction, and reducing coordination costs. However, it is erroneous to assume that all necessary institutions exist within a society or that existing ones are necessarily optimal.

Determinants of institutional quality

The assessment of institutional quality faces several significant challenges, as existing institutional quality indicators exhibit notable limitations. These limitations can be categorized into five main areas:

- Subjectivity and Representativeness: Many indicators rely on subjective opinions from individuals such as firm managers, international bureaucrats, or scholars, and the sample used may not always be representative.

- Implicit Value Judgments: Indicators often incorporate implicit value judgments. For example, they may link institutional quality to market flexibility while overlooking potential social values such as risk aversion.

- Institution-Policy Confusion: There is often a lack of distinction between institutions and policies within these indicators.

- Aggregation Methods: In cases of composite indicators, the aggregation methods used are not always well-justified or conducted effectively.

- Heterogeneous Data: The quality of the data used to construct these indicators varies among countries, making cross-country comparisons challenging.

Due to these shortcomings, available indicators provide only an imperfect representation of true institutional quality. Therefore, caution is warranted when interpreting results from empirical research in this context.

One indicator that stands out as a potentially reliable proxy for institutional quality is the World Bank Governance Indicators average (GIs). It offers greater accuracy and broader geographical coverage compared to other indicators[1]. Researchers can explore the effectiveness of this composite index as a dependent variable and compare it to the use of the six components of the GIs and alternative indicators.

Regarding explanatory variables, the selection is based on their relevance to previously defined criteria for institutional quality:

- Development Level: This is a clear explanatory variable that operates on institutional quality through both supply and demand. It determines the availability of resources for building sound institutions and generates a greater demand for quality institutions. This variable is related to the static efficiency of institutions and has been supported by previous research.
- Income Distribution: Income inequality affects institutional predictability and legitimacy. It leads to divergent interests among social groups, potentially resulting in conflicts, socio-political instability, and insecurity. Inequality can also perpetuate institutional capture by powerful groups, hindering institutions from serving the common good. Previous studies have highlighted the relationship between income inequality and institutional quality, with some variations based on regional factors[38].
- International Openness: This factor can encourage institutional quality by promoting a dynamic and competitive environment. It fosters a larger demand for sound institutions, hinders rent-seeking activities, corruption, and nepotism, and facilitates learning from other countries' experiences. Research has pointed to the positive impact of international openness on institutional quality, although results may vary depending on other factors such as development level and democracy.
- Education: Education is related to the dynamic efficiency of institutions. A well-educated population demands transparent and dynamic institutions and contributes to their construction. While seldom considered in empirical research, education has shown a positive impact on institutional quality in studies where it has been examined.

- Taxes: Effective tax administration provides the necessary foundations for strong and reliable institutions and fosters a social contract that encourages a demanding relationship between government and citizens. This, in turn, leads to higher levels of openness and improved institutional quality.

- Ethno-Linguistic Fragmentation: Greater heterogeneity within a country can negatively influence institutional quality by fueling tensions and conflicts, reducing social cooperation, and creating a mismatch between formal and informal institutions.

- Legal System Origin: The origin of a country's legal system can also impact institutional quality. Systems with a British, German, or Scandinavian origin tend to recognize economic freedom and limit state intervention in the economy, potentially leading to higher institutional quality. In contrast, French or Soviet legal systems prioritize state control, potentially resulting in weaker property rights and individual freedoms.

In summary, these variables, aligned with specific criteria for institutional quality, provide a comprehensive framework for assessing and understanding the dynamics of institutions and their impact on socio-economic development.

2.1.3 Income Inequality

Inequality is a multifaceted concept, often associated with disparities in various dimensions within societies. In academic discourse, several aspects of inequality are examined, including economic inequality (commonly referred to as income inequality), monetary inequality (related to wealth distribution), and inequalities in living standards[39].

Economic inequality specifically pertains to the distribution of economic resources among individuals, groups within a population, or even among different nations. Development theory has traditionally focused on inequalities in standards of living, encompassing disparities in income, wealth, education, health, and nutrition39. It assesses where individuals or groups stand relative to others in society, often quantifying the extent of the gap between the highest and lowest positions[40].

The Gini coefficient is the most frequently employed measure of inequality. It ranges from zero, representing perfect equality where everyone possesses the same income or wealth, to one, signifying perfect inequality where one individual has everything while others have nothing[40, 41,42]. For instance, in developed nations, Gini coefficients for disposable income, after taxes and transfers, vary from 0.26 (Norway) to 0.41 (Switzerland and the United States), and as high as 0.64 (South Africa)[40,41]. Additional measures of income inequality include the decile ratio, the proportion of income earned by the poorest segments of households (e.g., 50%, 60%, and 70%), the Robin Hood index, the Atkinson index, and Theil's entropy measure[42].

Inequality can be approached from various angles, including inequality of outcomes (related to wealth and income) and inequality of opportunities (such as access to healthcare, education, and financial services). It is essential to note that wealth concentration globally rests with approximately one percent of the world's population and is on the rise, surpassing the intensity of income inequality[38]. Additionally, there is a less-known form of inequality termed existential inequality[40].

Concerning inequality of opportunities, it is observed that inequality in healthcare access and usage is more pervasive in developing countries, while inequality in education is diminishing in

more developed nations. Disparities in access to financial services are also substantial between developing and more developed countries[38]. Research has explored various factors contributing to income inequality, including:

- Technological Change: The rapid advancement of technology has increased the demand for skilled labor while potentially eliminating jobs through automation, leading to income inequality[38, 40, 43].
- Trade Globalization: High levels of trade and financial flows between countries have been identified as drivers of income inequality[38, 39, 40].
- Financial Globalization: Increased foreign direct investment (FDI) and portfolio flows have been linked to rising income inequality in both developed and emerging economies, driven by the concentration of foreign assets in skill and technology-intensive sectors[44, 45].
- Financial Inclusion and Access: The development of financial markets and access to finance can increase income inequality, as those with higher incomes and assets tend to have a disproportionately larger share of access to finance[38, 40, 43, 44].
- Changes in Labor Market Institutions: Labor market flexibility, reallocation of resources, and restructuring of firms can exacerbate income inequality, especially affecting low-skilled workers. Weak employment protection regulations and income protection systems in emerging economies contribute to this disparity[40, 43, 44].
- Social Changes: Socioeconomic assortative mating, where individuals tend to marry partners with similar income levels, has led to a concentration of high incomes in some households while others rely on the earnings of lower-wage workers[40, 46].

- Redistributive Policies: Inefficient tax and transfer systems, regressive tax regimes, and inadequate progressive taxation can all contribute to increased income inequality in advanced economies40.

- Education: Education plays a crucial role in reducing income inequality by influencing occupational choices, employment opportunities, salaries, and individuals' competence and productivity in the workforce[38].

In conclusion, inequality encompasses a complex web of factors and dimensions, and understanding its various facets is crucial for addressing social and economic disparities within societies.

2.2 Theoretical Review

2.2.1 The Neo-colonial Dependency Model

The neo-colonial dependency model, an outgrowth of Marxist ideology, posits a strong connection between the persistence of underdevelopment and the historical evolution of an inherently unequal global capitalist system, characterized by stark disparities in the relationships between affluent and impoverished nations.

Efforts by less affluent nations to attain self-sufficiency and independence are hindered within an international framework dominated by imbalanced power dynamics, where the developed countries, known as the center, wield substantial influence over the developing countries, or periphery. This occurs, whether intentionally or unintentionally, through the neglectful actions of

affluent nations. Within these developing nations, a small elite ruling class emerges, comprising individuals who enjoy privileged access to high incomes, social status, and political authority. These elites, whether consciously or subconsciously, are primarily invested in perpetuating the international capitalist system marked by inequality and conformity, from which they reap benefits.

This elite ruling class encompasses various segments of society, including landlords, entrepreneurs, military leaders, merchants, salaried public officials, and trade union leaders. Their actions and perspectives often serve as obstacles to genuine reform initiatives that could enhance the well-being of the broader population. In some instances, their actions may even lead to deteriorating living standards and the perpetuation of underdevelopment.

In essence, the neo-Marxist, neo-colonial perspective on underdevelopment attributes a significant portion of the ongoing poverty in the developing world to the existence and policies of industrialized capitalist nations in the northern hemisphere and their proxies in the developing world[36]. This viewpoint regards underdevelopment as an externally imposed problem, in contrast to the focus on internal constraints emphasized by linear-stages and structural-change theories, such as financial and investment deficiencies, as well as shortcomings in education and skills[37].

As a consequence, the liberation of dependent developing nations from the direct and indirect economic control exerted by both external oppressors in the developed world and their own domestic elites necessitates revolutionary efforts, or at the very least, substantial reforms within the global capitalist system[37].

Todaro and Smith quoted Theotonio Dos Santos who offered one of the most emphatic assertions in support of the international-dependence school of thought, which is as follows:

> *Underdevelopment, far from constituting a state of backwardness prior to capitalism, is rather a consequence and a particular form of capitalist development known as dependent capitalism.…Dependence is a conditioning situation in which the economies of one group of countries are conditioned by the development and expansion of others. A relationship of interdependence between two or more economies or between such economies and the world trading system becomes a dependent relationship when some countries can expand through self-impulsion while others, being in a dependent position, can only expand as a reflection of the expansion of the dominant countries, which may have positive or negative effects on their immediate development. In either case, the basic situation of dependence causes these countries to be both backward and exploited. Dominant countries are endowed with technological, commercial, capital and socio-political predominance over dependent countries—the form of this predominance varying according to the particular historical moment—and can therefore exploit them, and extract part of the locally produced surplus. Dependence, then, is based upon an international division of labour which allows industrial development to take place in some countries while restricting it in others, whose growth is conditioned by and subjected to the power centres of the world.*[36]

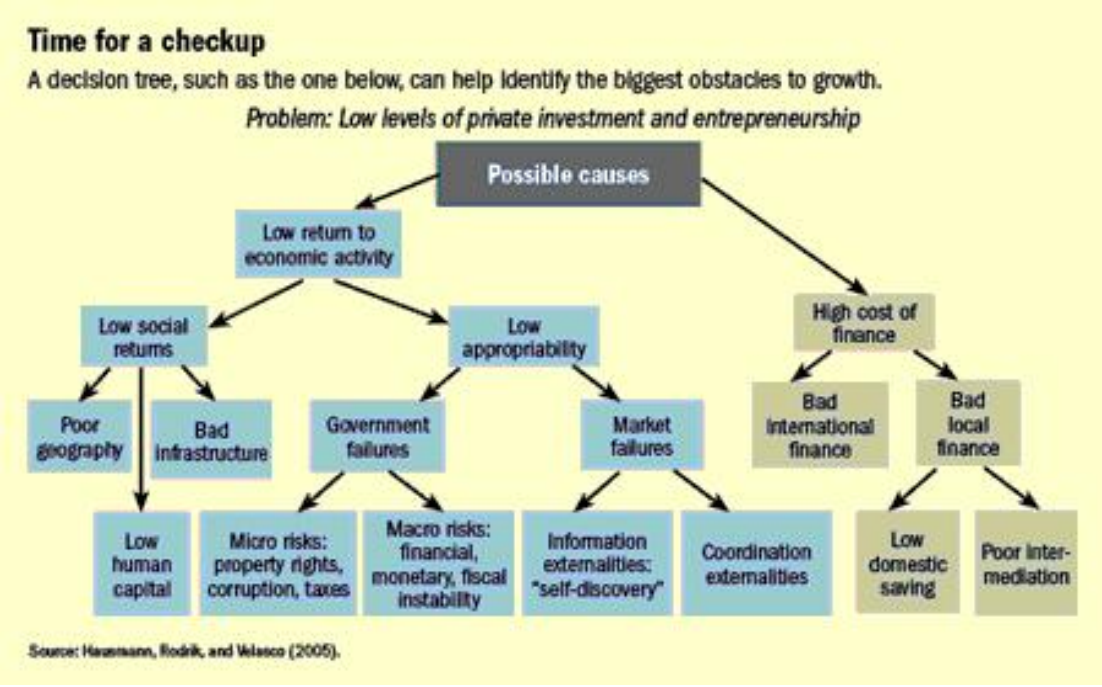
2.2.2 The Hausmann-Rodrick-Velasco Growth Diagnostics Framework

Economists Ricardo Hausmann, Dani Rodrik, and Andrés Velasco introduced a novel diagnostic framework that offers fresh insights into the study of economic instability, particularly in relation to the factors contributing to growing inequality. Their innovative approach centers on a decision tree framework for growth diagnostics, designed to identify the primary obstacles impeding a country's economic growth. This approach holds distinct advantages over alternative methods of policy selection, as outlined in their framework.

According to their analysis, countries grapple with a diverse array of constraints as they endeavor to foster growth and enact reforms. The economists argue that countries should pinpoint the one or two most pressing constraints on their economies and direct their efforts

towards addressing these challenges[36,47]. Traditional policymaking often involves attempting to address all issues simultaneously or focusing on non-critical factors that may not significantly impact growth potential, leading to further economic imbalances. Instead of trying to predict future obstacles to growth, their model utilizes a decision tree approach to identify current constraints that can spur economic growth and recognize constraints that naturally arise as an economy develops. This method offers a more practical and efficient way to allocate resources and focus efforts.

To substantiate their theory, the economists conducted case studies in Brazil, El Salvador, and the Dominican Republic. In the cases of Brazil and El Salvador, despite their efforts to implement comprehensive reforms following international best practices, both countries encountered extended periods of sluggish economic growth. In contrast, the Dominican Republic managed to circumvent its most significant economic constraint with minimal reform endeavors[47].



Source: Ricardo Hausmann, Dani Rodrik, and Andrés Velasco, Getting the diagnosis right, *Finance and Development* 43 (2006)[47].

According to the HRV diagram above, Low investor returns may be the result of investors' failure to gain a fair share of the benefits of their profitable investments. A low-income country's ability to initiate and sustain economic development may be hampered by poor geography. Low human capital management - including skills, education, and health - supplements other areas of production, diminishing economic activity returns. Every growing country must provide the key infrastructure needed to build and sustain a modern economy, beginning with basic physical infrastructure such as roads, bridges, railroads, ports, telephones, and other utilities. Otherwise, high-return economic enterprises may become unprofitable as a result of inadequate infrastructure. In certain countries, inadequate and uneven infrastructure is the principal impediment to increasing growth; in such cases, measures aimed at delivering it would have the biggest impact on investment and growth. The problem could be one of low appropriability, which means that investors are not receiving a fair share of investment gains. A poor rate of return on economic operations causes low appropriability. Appropriability concerns can arise as a result of either government or market failures. In the HRV diagram, government failures are classed as either micro or macro hazards. Micro risks address fundamental institutional weaknesses such as insufficient property rights, government wrongdoing, and exorbitant effective taxation. That is, even if the return on economic activity is high enough, elites rather than investors may receive a disproportionate share of the advantages, making investment unappealing. Despite the difficulty of changing institutions in an efficient manner when reform threatens the interests of elites, when micro risks are binding, such reform must become a development priority. Large-scale market failures could be the source of the issue.In other

instances, the primary problem may not be the underlying low rates of return but rather an abnormally high cost of finance, which may reflect bad local finance due to either a lack of loanable funds through domestic financial markets, which can be linked to a lack of domestic saving, or poor intermediation as a result of an inadequate or overly regulated monetary system[36,37,47].

2.2.3 World System Theory

The world system theory, initially proposed by Immanuel Wallerstein, posits that globalization emerged as a phenomena concurrent with the ascendance of capitalism throughout the 16th century. The theory, similar to other theories, offers a critique of capitalism as a pervasive system that has permeated the global landscape over the course of the past five centuries. It posits that capitalism has superseded pre-existing systems, exerting control over markets and various economic variables, thereby unifying them within a singular spatial framework that has progressively evolved into the phenomenon recognized today as globalization. The concept of world system theory does not specifically align with the term globalization. However, its underlying explanation revolves around the historical development of a global system that has unified the world into a cohesive unit[2,48].

The theory under consideration grounds its analyses on a capitalist framework that divides the global landscape into three distinct regions. The first region, known as the core, consists of the most influential and advanced nations worldwide, namely Western Europe, North America, and Japan. The second region, referred to as the periphery, encompasses geographical areas that have historically been subjected to the dominance of the core regions through colonialism. This includes Latin America, Africa, Asia, the Middle East, and Eastern Europe. Lastly, the third

region known as the semi-periphery comprises regions that are in a transitional state, either ascending from the periphery or descending from the core[48]. Each of these regions assumes a significant role in the global division of labour, facilitating the exchange of values, particularly from the periphery to the core. This phenomenon, as theorized by Wallerstein, serves as a foundation for the perpetuation of exploitation and inequality on a global scale.

The world system theory places significant emphasis on the concept of interstate rivalry, which serves as a forerunner to the emergence of the world system. According to this theoretical perspective, no single nation-state assumes the preeminent position within the global system or economy. However, there is a consistent pattern of growth and crisis, as well as outward expansion, heightened industrialization, and the commodification of resources. Additionally, there is ongoing competition among core powers to establish dominance over the entire system, alongside competition from external powers operating outside of the system. Wallerstein's hypothesis offers a plausible explanation for social transformation in the era of globalization, as it elucidates the fundamental causal tendencies of an imminent catastrophe inside the current world order[2]. This analysis seeks to elucidate the pervasive influence of capitalism on nations across the globe, resulting in the emergence of exploitative practices and socioeconomic disparities. Ultimately, this phenomenon is regarded as a crisis of immeasurable magnitude[48].

2.3 Review of Empirical Studies

The process of globalization has produced many effects in countries across the word on differing spheres and magnitudes, to the extent that it is a broadly approached component of recent research. The impact of institutional involvement in globalization on the income inequality of nation states is a widely researched topic of study in the academia, and this study will in this

section, draw from some previous researches on the subject matter to get to see the views of different researchers, and also serve as a background to the gap which this study has set out to fill. This study cannot claim not have a glimpse through every available previous research, as that is impossible, however, it will draw insight from as many studies as possible on each of the following subheadings.

2.3.1 Institutions and Globalization

A group of researchers conducted an investigation into the significance of institutional development in the relationship between globalization and economic growth. The researchers employed the System GMM methodology to analyse a dataset of 124 countries for the period from 1996 to 2019. It has been determined that nations that have enhanced institutional quality tend to derive greater advantages from economic globalization. Therefore, it is essential to have policy complementarities in place in order to establish a connection between economic globalization and growth. By doing an analysis of the marginal effect, a minimal threshold level of institutional quality was identified. The study additionally conducted a sensitivity analysis by comparing the outcomes of several econometric methodologies. As a result, a series of regressions were conducted, encompassing numerous growth models, in order to ascertain the model that exhibited the highest degree of stability and robustness[49].

The researchers conducted a study utilizing time series data spanning from 1982 to 2016 to investigate the impact of globalization and institutional quality on the economic performance of the Indian economy. In their analysis, they also incorporated the influence of financial development as an endogenous factor. The researchers employed the Saikkonen and Lütkepohl unit root test to examine the stationarity qualities of the variables. Additionally, the Bayer-Hanck

co-integration test was utilized to assess the long- and short-run relationships among the variables. The study employed the autoregressive distributed lag technique (ARDL) to establish the robustness of the findings. Additionally, the Granger causality test was utilized to evaluate the causal relationship between the variables. The empirical evidence suggests the presence of a co-integrating connection between the variables, and the autoregressive distributed lag (ARDL) estimates demonstrate that both globalization and institutional quality play significant roles in influencing India's economic success. Nevertheless, the impact of institutional integrity on short-term economic growth is negligible. The research revealed that the quality of institutions and the index of globalization play a pivotal role in fostering economic growth. Hence, it is imperative that policy initiatives concentrate on enhancing these indicators through the provision of safeguards for property rights, mitigating government corruption, minimizing political volatility, ensuring pricing stability, and establishing a stable macroeconomic framework. This study suggests that policy measures should be directed towards the advancement of the financial sector and the facilitation of financial integration. These actions are expected to foster an environment conducive to the effective distribution of credit[50].

A group of scholars conducted a study to examine the influence of institutional quality on trade costs across 133 countries from 1995 to 2014. The findings of the study indicate that there is a substantial negative relationship between institutional quality and the three categories of trade costs, namely overall trade costs, trade costs of agricultural goods, and trade costs of manufactured goods. Moreover, the impact of institutional quality exhibited statistical significance in the reduction of trade costs across various trading country pairs, distinct sub periods, components of institutional quality, and the endogeneity concern. The study made a valuable contribution to the existing body of literature by providing empirical evidence that

supports the existence of a substantial and adverse correlation between institutional quality and trade costs on a worldwide scale[51].

Certain scholars endeavored to attain an enhanced comprehension of the correlation between a nation's institutional quality and its levels of innovation activities and outcomes. After accounting for the influence of research and development (R&D) efforts and foreign direct investments (FDI), the study conducted regression analysis in order to determine the relationship between the quality of a country's institutions and its innovative activities. The data utilized in this study was sourced from two reputable indices: the Global Innovation Index (GII) for measuring innovation activities, and the Worldwide Governance Index, which is developed by the World Bank and assesses the quality of institutions. These indices were employed to gather information on 127 countries. The findings indicate that the efficacy of public administration and the quality of regulation are institutional factors that are linked to innovation activities. The report conducted a clustering analysis to categorize nations based on their ranking in terms of innovative activities and the quality of institutional circumstances. This ranking was determined by considering factors such as government effectiveness, regulatory quality, research and development (R&D) expenditure, foreign direct investment (FDI), and the Global innovative Index (GII). The 127 countries were classified into three clusters according to this new compound classification: mature innovators, new innovators, and structuring for innovation[52].

The influence of institutional quality on the facilitation of foreign direct investment (FDI) was empirically evaluated by a group of academics. They examined the impact mechanism using panel data at the national level from countries along the Belt and Road. The data set has undergone normalization for all variables, followed by the application of principal component analysis. To address the issues of heteroscedasticity and endogeneity, robust standard errors and

the dynamic Generalized Method of Moments (GMM) approach have been employed in the empirical models. The findings of the study demonstrate that there is a strong and positive relationship between the quality of institutions and the level of facilitation of foreign direct investment (FDI). Moreover, the effect mechanism encompasses the mediating mechanism. In essence, the impact of institutional quality, which fosters the facilitation of foreign direct investment (FDI), is contingent upon various elements, including laws and regulations. Furthermore, the execution of the Belt and Road Initiative (BRI) has considerably bolstered the promotional impact of institutional quality on the facilitation of foreign direct investment (FDI). The recommendation put forth is for policymakers to prioritize the enhancement of institutional quality and the efficacy of mediating mechanisms, such as laws and regulations, within the institutional framework[53].

The relationship between institutional quality and financial development in developing and rising countries was reexamined by a group of scholars utilizing a panel data set comprising 189 nations and employs various dynamic models such as ordinary least squares (OLS), fixed effects, random effects, and generalised method of moments (GMM) estimators. The study's empirical results rely on the Generalised Method of Moments (GMM). Their findings suggested that strong institutions play a crucial role in fostering financial development. More specifically, the study demonstrated that factors such as political stability, control of corruption, and regulatory quality have a beneficial impact on financial development in the worldwide panel of analysis. The impact of the rule of law on financial development is predominantly negative, indicating a widespread weakness in the rule of law across numerous countries worldwide. The favourable impact of the control of corruption index on financial development in developing and global panels is evident, suggesting that a significant number of nations have successfully reduced

corruption to a low level. The research additionally revealed that developing nations have made strides in decreasing corruption; nevertheless, it determined that other indicators pertaining to institutions were not found to be statistically significant. The overarching finding suggested that institutions of high quality serve as the primary catalysts for financial growth, hence fostering its advancement. The report proposes that developing and growing nations should prioritize enhancing institutional quality by a reassessment of issues such as the rule of law, government effectiveness, and voice accountability. This would contribute to overall improvement in these countries[54].

Several authors conducted a comprehensive analysis of the effects of institutional quality, border and transit efficiency, as well as physical and communication infrastructure on both overall and intra-Africa trade. This analysis encompassed a total of 44 African nations and their 173 trade partners, spanning the time period from 2000 to 2014. Principal component analysis was utilized to create aggregate indicators for the assessment of economic institutions, border and transit efficiency, as well as physical and communication infrastructure. The results revealed that the strength of intra-Africa and overall Africa's trade is significantly influenced by factors such as the quality of institutions, efficiency of borders and transportation, and the state of physical and communication infrastructure. The estimations also suggest that the impact of the quality of institutions, physical infrastructure, and communication infrastructure on trade flow tends to be greater as GDP per capita increases. On the other hand, there is a decline in the marginal effect of border and transport efficiency on commerce when GDP per capita increases. The authors construct a simulation in which they assess the improvement of each indicator by comparing it to the performance of the best performer in the sample. The results of their study remain consistent

and reliable when various estimating methods are employed to address the possible issue of endogeneity[55].

2.3.2 Institutions and Income Inequality

A group of scholars conducted an analysis on the correlation between institutional quality and income inequality in selected post-Soviet nations from 2002 to 2017. The researchers employed panel analysis to examine the relationship between institutional quality and income inequality, revealing a non monotonic association between these two variables. The relationship between institutional quality and income disparity exhibits a positive association up to a specific threshold, beyond which higher institutional quality is found to be inversely related to income inequality. The increasing level of institutional quality contributes to a widening disparity in income distribution, particularly between the wealthiest social stratum and the lower-income and middle-income classes. A significant regulatory factor is observed to have a role in this process, which appears to disproportionately benefit the top 20% of individuals[56].

A number of scholars conducted research on the impact of reconstituted institutional quality on the phenomenon of severe income inequality. . This study examined the time frame spanning from 2010 to 2017 and employed the quantile regression technique. This choice is made in response to the rejection of the assumption of normality in the residuals and the presence of data clustering. A selection of 43 nations was made depending on the availability of data. The presence of wealth-generating industries (WGIs) does not consistently exhibit a negative correlation with income inequality. All of the recomposed WGI-plus and WGI-minus variables exhibit statistical significance at the appropriate direction, with the exception of one case which was insignificant. These findings have six implications. The World Governance Indicators (WGI) have implicitly established democracy and free market as institutions of high quality. However,

empirical evidence suggests that the positive association between these institutions and their perceived goodness is not entirely accurate. Furthermore, the identification of positive outcomes in the realm of corruption control suggests the existence of potential significant deficiencies in terms of policy, perception, and the conceptual framework surrounding this issue. Moreover, it is worth noting that middle-income countries have a comparatively higher prevalence of anomalies. In addition, the relatively less significant outcomes of specific World Governance Indicators (WGI) components in middle-income nations raise concerns about the efficacy of their system of checks and balances. This prompts a critical examination of the political determination and effectiveness of governance in promoting inclusivity. Furthermore, the noteworthy findings of the restructured World Governance Indicators (WGI) underscore the need to refrain from amalgamating all facets of institutional quality in forthcoming studies and policy formulation[57].

A group of scholars conducted an analysis to investigate the impact of institutional quality on income inequality in Africa. Through the use of a dynamic two-step difference generalized method of moments (GMM) approach, incorporating robust standard errors, the researchers ascertained that there exists no statistically significant impact of institutions in a broader sense on the level of income inequality. This analysis was conducted throughout the time span from 1990 to 2017. Nevertheless, it has been discovered that indices of institutional quality, such as the extent of corruption control and the rigorous execution of the rule of law, have a substantial impact on the reduction of economic disparity. In addition, the researchers observe that there are no statistically significant impacts of the remaining measures of institutional quality, namely government effectiveness, voice and accountability, regulatory quality, and political stability, on income inequality within their selected sample. It has been proposed that greater emphasis should be placed on corruption control and strict respect to the rule of law in order to achieve a

fair distribution of income in Africa. Moreover, they reinforce recommendations that advocate for the advancement of institutional development in Africa, given the prevailing state of overall institutional fragility in the region[58].

Some researchers conducted an investigation of the impact of trade openness on income inequality utilizing the panel system Generalized Method of Moments (GMM). The sample comprises a total of 65 countries, encompassing both developed and developing nations. The time frame for the study spans from 1984 to 2012. Additionally, this paper presents novel empirical findings that contribute to our understanding of how institutional quality influences the relationship between trade openness and income inequality. The findings derived from empirical analysis indicated a positive correlation between trade openness and income disparity. Furthermore, the analysis of the marginal effect also demonstrates that the quality of institutions plays a significant role in mitigating the relationship between trade openness and income disparity[59].

Some researchers examined the correlation between income inequality and financial development, taking into account the varied levels of institutional quality. In order to achieve this objective, they utilized an imbalanced panel data set encompassing 124 nations throughout the period of 1990-2015. They employed the instrumental variable threshold regression approach for their analysis. The findings of the study indicated that a well-established institutional framework inside a country is associated with greater income equality in conjunction with financial development. Furthermore, it was observed that when the quality of institutions falls below a certain threshold, an increase in GDP growth tends to exacerbate income disparity. On the other hand, it has been found that educational attainment has a significant role in mitigating income inequality. In terms of policy implications, it is possible that the financial sector might play a

significant role in addressing income inequality, provided that policy makers elevate the level of institutional quality to meet the threshold level of the respective country[60].

Some scholars have conducted an analysis on the impact of institutional quality as a supplementary factor in determining the effectiveness of sector-specific allocations of foreign aid. The study focused on the influence of foreign aid in various sectors, including social, economic, production, and multi-sectoral aid, on income inequality in a selected group of countries that receive foreign aid. The research employed the System-Generalized Method of Moment (GMM) technique to analyse a panel dataset consisting of 50 nations that received foreign help. The data covered the time span from 1995 to 2017. The study's empirical results indicated that there is a negative and statistically significant impact on income inequality when considering the interaction variables between sectoral allocations of foreign aid and institutional quality. This conclusion suggests that the quality of institutions is a determining element in the success of sector-specific foreign aid allocations in reducing income inequality in developing nations[61].

Similarly, some scholars have conducted an analysis of the linear and nonlinear long-term association between public expenditure, institutional quality, and income inequality in the region of Asia and the Pacific. The study utilized panel cointegration methods to analyse a dataset spanning from 1988 to 2014. The results of the analysis indicated that both public expenditure and institutional quality have negative long-term, equilibrium impacts on income inequality in the Asia-Pacific region. The relationship between institutional quality and economic inequality exhibits a unidirectional Granger causation. The presence of a non-linear correlation between public expenditure and institutional characteristics associated with income disparity has also been observed. The statement suggests that during the initial phase of institutional development, a nation with a history of increased public spending tends to observe a rise in income inequality.

However, over time, as the country enhances its institutional quality, higher levels of public expenditure are associated with a decrease in income inequality[62].

2.3.3 Globalization and Income Inequality

Some scholars analyzed the effects of three distinct forms of globalization, including trade globalization, financial globalization, and technological globalization, on income disparity within the Asian rising economies. The study employed the Hecksher–Ohlin and Stolper–Samuelson theorem as a theoretical framework to examine the association between globalization and income inequality. The study employs pooling least squares (POLS) and instrumental variable least squares (IVLS) estimation techniques, with a preference for IVLS over POLS. This preference is based on the presence of omitted variable bias and endogeneity issues associated with POLS. In light of limited data availability pertaining to all Asian emerging economies, this study focuses on a subset of 11 countries, namely Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Singapore, South Korea, and Thailand. The time period considered for the trade and technological globalization model spans from 1980 to 2014, while the financial globalization model encompasses the years 1990 to 2014. The phenomenon of trade globalization has a substantial role in the reduction of income disparity within the Asian rising nations. The implications of financial globalization on income inequality indicate that the process of financial integration leads to a rise in income disparity. Hence, the advantages of financial globalization are not equitably allocated between individuals of higher socioeconomic status and those of lower socioeconomic status. Technological globalization plays a substantial role in the mitigation of economic disparity. It is imperative for the government to allocate resources towards research and development initiatives, implement an effective financial infrastructure, alleviate trade barriers, and offer subsidies to bolster trade expansion[63].

Some scholars conducted a comprehensive analysis of time series data to investigate the impact of globalization on income disparity in Bangladesh from 1975 to 2018. The findings of the study suggested that there exists a substantial and enduring relationship between various indicators of globalization, such as exports, imports, foreign aid, foreign direct investment (FDI), and remittance inflows, and income inequality in the context of Bangladesh. During the study period, it was observed that the income distribution in Bangladesh was adversely affected by the decline in exports, foreign direct investment (FDI), and remittance inflows, while long-term foreign aid and imports showed signs of improvement. However, in the immediate time frame, the model suggests that exports, imports, and foreign direct investment (FDI) have minimal to negligible effects, whereas alterations in foreign aid and remittances have a substantial conservative influence in attempting to address the system[64].

Similarly, some scholars analyzed the impact of financial globalization on the distribution of income. The researchers utilized panel quantile regression analysis to investigate the impact of financial globalization on income inequality across a span of 73 nations from 2000 to 2016. The researchers utilized fixed effect and panel quantile regressions to examine the varying impacts of financial globalization on different income groups. They categorized the countries into several income groups in order to facilitate comparisons. Additionally, the researchers dis-aggregated financial globalization into de facto and de jure financial globalization in order to examine potential variations in their impact on income inequality. In general, financial globalization exacerbates income disparity to a greater extent among individuals situated in the lower quantiles of the inequality spectrum. The phenomenon of financial globalization, as recognised by legal frameworks, serves to diminish income inequality among nations of higher economic status. In high-income nations, the implementation of de jure financial globalization has been found to

have a more positive impact on income distribution, particularly at the lower quantiles of inequality. In contrast, the phenomenon of de facto financial globalization has been found to exacerbate inequality, irrespective of the income classification of nations[65].

In Ghana, a researcher investigated the impact of foreign direct investment, trade openness, and foreign remittance on income inequality. The study employed the vector error correction model to analyse the impact of foreign direct investment (FDI) inflow, foreign remittance, trade openness, and income inequality in Ghana. The findings suggested that Foreign Remittance, Foreign Direct Investment (FDI), Trade Openness, and Gini index are integrated at order one. Furthermore, the use of Johansen's test for cointegration indicates the presence of a long run association between the Gini coefficient, which represents income distribution, and the independent variables under investigation. The study additionally revealed that there exists a notable inverse correlation between international remittance and income disparity in Ghana, but FDI inflows do not exhibit a statistically significant influence on Ghana's income inequality[66].

Some scholars examined the effects of globalization on income inequality, focusing on its significant economic, social, and political aspects. The analysis used a comprehensive data set consisting of 121 nations, spanning the years 1984 to 2014. Additionally, they examined if there are variations in the connections between globalization and inequality based on economic, financial, and political country risk variables. The findings indicated that globalization has a negative impact on income distribution. However, they also found that economic and financial stability can help alleviate this detrimental effect. Furthermore, it was observed that lower-income or non-OECD countries tend to experience heightened levels of inequality as a consequence of the process of globalization. Understanding these links can assist governmental

entities in developing more targeted policies with the objective of enhancing income distribution[67].

Likewise, some researchers examined the potential influence of globalization and energy use on income disparity within developing nations. The study utilized the System-GMM methodology on a panel data set spanning from 1996 to 2018. The data set consisted of observations from sixty-nine developing nations, as classified by the World Bank. In order to enhance the credibility of the empirical results, the study conducted regression analyses including various interaction terms. Specifically, the interaction variables between overall globalization and energy use, political globalization and energy consumption, and social globalization and energy consumption are regressed against income inequality. The primary outcome of the research indicated a positive correlation between globalization and income disparity, with a statistically significant relationship. The study also revealed an inverse relationship between energy consumption and income disparity. The study posits that it would be beneficial for developing nations to implement policies aimed at facilitating market openness on a global scale, harnessing the potential of globalization, and advocating for measures that mitigate income inequality[68].

In Europe, some researchers analyzed the effects of globalization on income inequality within both developed and emerging economies in the region. A comparative analysis was conducted to examine the impact of globalization on inequality in developed European countries and emerging economies, using an econometric assessment as the basis for analysis. The study examined the fundamental elements and consequences of income inequality dynamics, encompassing both horizontal and vertical dimensions. Furthermore, the inquiry delved into the matter of whether the impact of globalization on economic growth and inequality is uniform throughout emerging and developed nations, respectively[69].

2.4 Conceptual Framework

Figure 2.1 depicts the conceptual interactions among institutional quality, globalization, and income inequality. The nexus between institutional quality, globalization, and income inequality constitutes a critical area of inquiry in contemporary economic research. This conceptual framework aims to elucidate the intricate interplay among these factors, seeking to provide a comprehensive understanding of the mechanisms through which institutional quality and globalization dynamics influence the distribution of income. As the globalized world becomes increasingly interconnected, it is imperative to investigate how institutions, both domestic and international, mediate the impact of globalization on income inequality. This framework lays the groundwork for a nuanced analysis that acknowledges the multifaceted nature of these relationships.

Institutions play a pivotal role in shaping the economic landscape and influencing the distribution of wealth within a society. Effective institutions contribute to equitable economic development by ensuring the rule of law, protecting property rights, and fostering inclusive policies. Conversely, weak or corrupt institutions may exacerbate income inequality by favoring certain groups, hindering economic mobility, and impeding the fair allocation of resources. The conceptual framework explores how variations in institutional quality mediate the relationship between globalization and income inequality, emphasizing the importance of institutional frameworks in determining the distributional consequences of global economic integration.

Globalization, characterized by increased cross-border trade, investment, and information flow, has profound implications for income distribution. The framework scrutinizes how globalization processes impact income inequality through various channels. For instance, the outsourcing of production to low-wage countries may affect employment opportunities and wage levels in high-

income nations. Simultaneously, the mobility of capital and technological advancements may create winners and losers in the global market. By delineating these channels, the conceptual framework aims to identify the mechanisms through which globalization interacts with institutional quality to shape income distribution patterns.

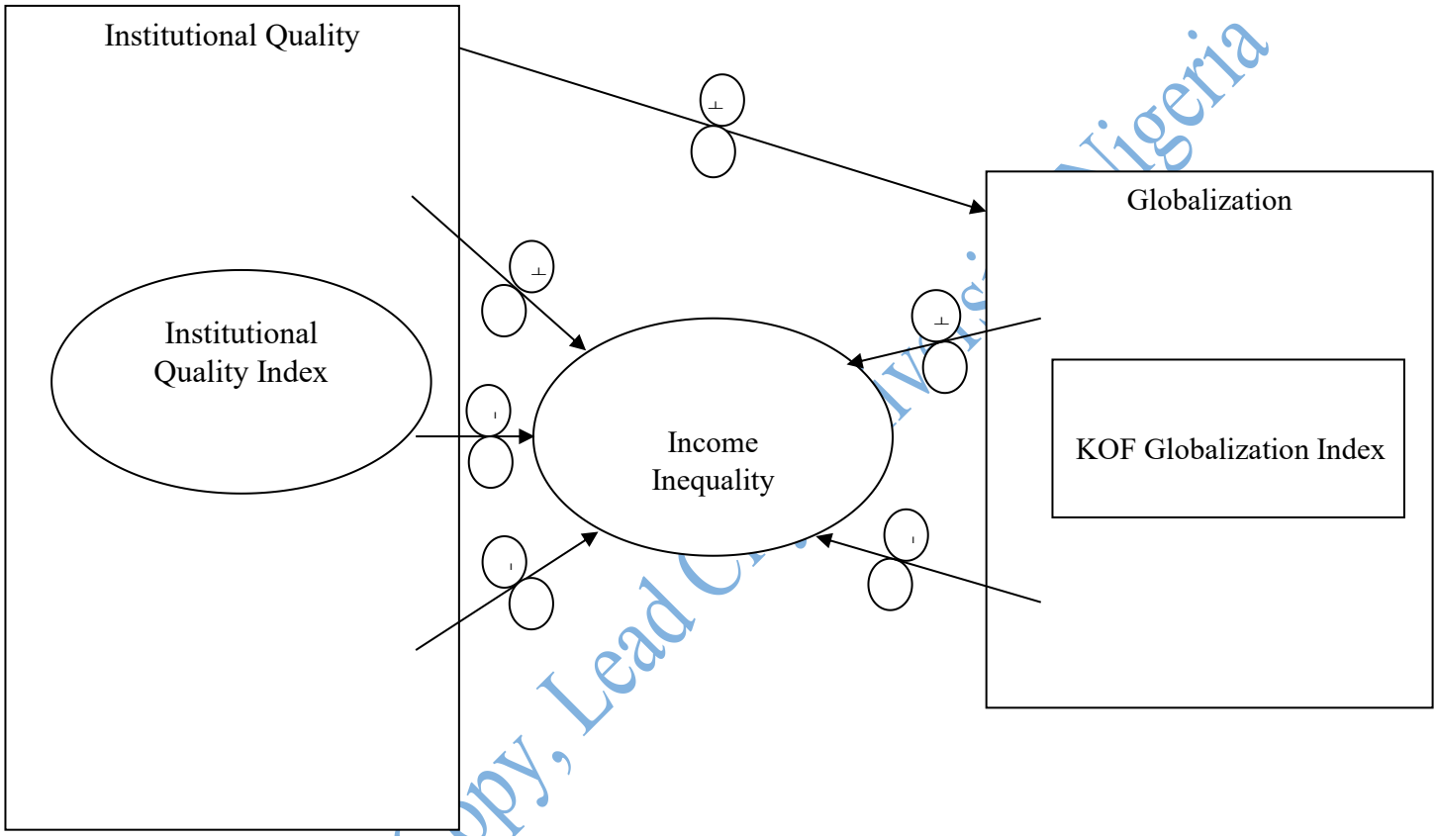


Figure 2.1: Conceptual linkages between institutional quality, globalization and income inequality
Note: (+ sign in circle) denotes increase and (– sign in circle) implies decrease
Source: Author's conceptualization 2023.

This framework underscores the interconnectedness of institutional quality, globalization, and income inequality. It posits that institutional quality not only serves as a mediating factor in the globalization-income inequality relationship but is also influenced by the global economic context. Globalization may exert pressures on domestic institutions, prompting reforms or exacerbating existing weaknesses. Reciprocally, the quality of institutions within a country can impact its integration into the global economy. Understanding these bidirectional relationships is essential for crafting effective policies that mitigate the adverse effects of globalization on income inequality while bolstering institutional resilience in Nigeria.

2.5 Theoretical Framework

The theoretical foundation of the Kuznets inequality hypothesis is crucial to this investigation. According to Kuznets, inequality will rise during the early stages of economic development. Inequality may decline if governments implement redistributive policies that combine progressive taxes with welfare spending at a later stage in the economic cycle. The paragraph that follows discusses the main points of Kuznets' argument regarding the link between inequality and progress and is taken from his 1955 paper:

> The transition away from agriculture, which is typically referred to as industrialization and urbanization, is an invariable accompaniment of growth in developed countries. In the most basic form, the whole population's income distribution can be seen as a synthesis of the total income distributions of the rural and urban populations. The two component income distributions' structure, which we do know a little about, shows that a) the average per capita income of the rural population is typically lower than that of the urban population and b) inequality in the percentage shares within the distribution for the rural population is somewhat narrower than that in the urban population. What conclusions do we draw using this straightforward model? First, given all other factors being equal, the proportion of urban dwellers will increase, favoring the more unequal of the two component distributions. Second, the relative gap in per capita income between the rural and urban populations does not always narrow because of economic expansion; in fact,

> some evidence suggests that it is, at best, stable and tends to widen as per capita productivity in urban rather than agricultural pursuits rise more quickly. Inequality in the distribution of all income should rise if this is the case.[70]

Two sub-processes make up the Kuznets process, which is the growing of inequality with structural change (the movement of labor away from agriculture). Within-sector inequality is the movement of the population from a sector with low within-sector inequality to a sector with higher within-sector inequality, and between-sector inequality is the movement of the population from a sector characterized by lower mean income to a sector characterized by higher mean income. Inequality will undoubtedly rise as a result of structural change if both sub-processes move in the same direction, that is, if employees shift from a sector with a low mean and low variance in earnings to one with a higher mean and high variance. However, it is less certain that inequality will inevitably rise if workers transfer from a sector with a low mean income but large variance of income to a sector with a higher mean income but reduced variance of income[70].

Following the above discussion on the Kuznets Curve hypothesis, the general form of the relationship between income growth and income inequality is stated as:

$$ineq = f(inc, inc^2) \tag{2.1}$$

The above model states income inequality (*ineq*) as a function of income per capita and the square of income per capita. In mathematical form, it becomes:

$$ineq = \theta_0 + \theta_1 inc + \theta_2 inc^2 \tag{2.2}$$

Where: *ineq* represents income inequality; *inc* is income per capita measured by gross domestic product per capita; inc^2 denotes the square of income per capita; θ_0 is constant; θ_1 is the parameter of *inc*; θ_2 is the coefficient of inc^2. From the equation, there is no relationship if

$\sigma_1 = \sigma_2 = 0$. Meanwhile, if $\sigma_1 < 0, \sigma_2 = 0$ and/or $\sigma_1 > 0, \sigma_2 = 0$, the relationship is said to be monotonically reducing and/or increasing respectively. Also, if $\sigma_1 < 0, \sigma_2 > 0$, a U-shape relationship is represented. However, if $\sigma_1 > 0, \sigma_2 < 0$, an inverted U-shape relationship is depicted, that is, the Kuznets Curve hypothesis exists.

Regarding globalization, the advocate thought it reduced the disparate distribution of income in an economy. More specifically, there has been discussion on whether the rise of globalization is accompanied by an increase in inequality. The effects of globalization on inequality are becoming more and more politicized and disparate. Globalization is criticized for exacerbating inequality within and across nations[71,72]. Despite the fact that globalization may increase people's relative and absolute wages, some research indicates that there are definite winners and losers. Others contend that these assertions are demonstrably false, asserting that the collapse of national borders and the ensuing economic integration has lifted millions out of poverty and reduced inequality[73]. Incorporating globalization indices into equation (2.2), it becomes:

$$ineq = \theta_0 + \theta_1 inc + \theta_2 inc^2 + \Phi glob \tag{2.3}$$

The variables and parameters remained as earlier discussed while *glob* denotes globalization variables and Φ is the coefficient of globalization.

In shaping the economic terrain and molding wealth distribution within a society, institutions assume a crucial role. Robust institutions play a key part in fostering fair economic development by upholding the rule of law, safeguarding property rights, and nurturing inclusive policies. On the flip side, institutions characterized by weakness or corruption can escalate income inequality by exhibiting favoritism towards specific groups, obstructing economic mobility, and obstructing

the just allocation of resources. Integrating institutional quality indicators into equation (2.3), it becomes:

$$ineq = \theta_0 + \theta_1 inc + \theta_2 inc^2 + \Phi glob + \mathrm{B} inst \quad (2.4)$$

Equally, the variables and parameters remained as earlier discussed while *inst* denotes Institutional quality variables and B is the coefficient of Institutional quality. The above model forms the theoretical basis of this study which is aimed towards investigating the interrelationship among Institutional quality, globalization and income inequality in Nigeria.

2.6 Summary of Gaps in Literature Reviewed

The existing literature on institutional quality, globalization, and income inequality reveals several gaps that merit further research and exploration. While numerous studies have examined each of these elements independently, there is a need for more comprehensive investigations that consider their intricate interplay and how they collectively influence income inequality.

Firstly, there is a gap in understanding the precise mechanisms through which institutional quality affects income inequality in a globalized context. While it is acknowledged that strong institutions can mitigate inequality, the specific channels and dynamics involved require more in-depth analysis. Research should delve into whether certain institutional features, such as property rights protection or the rule of law, have varying impacts on income distribution in the face of globalization.

Secondly, literature often explores globalization as a singular phenomenon, overlooking its multidimensional nature. This research discern between different aspects of globalization, such as trade liberalization, financial integration, and technology transfer, to pinpoint which

dimensions contribute most significantly to income inequality. Additionally, the mediating role of institutions in the globalization-income inequality relationship remains underexplored.

Lastly, there is a scarcity of research that considers the role of specific policy interventions in addressing income inequality in the context of globalization and institutional quality. Examining the effectiveness of various policy measures, such as progressive taxation, social safety nets, or education reforms, in mitigating inequality within the globalized framework and under different institutional settings would offer practical insights for policymakers.

In conclusion, the literature on institutional quality, globalization, and income inequality calls for more nuanced and holistic examinations that bridge the gaps in understanding the complex interactions among these factors. Addressing these gaps would contribute to a more comprehensive grasp of the forces shaping income distribution in an increasingly globalized world.

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Chapter Three

Methodology

3.0 Preamble

This chapter discusses the methodology employed to estimate the parameters through empirical modelling and estimating approaches. The discourse within this chapter is segmented into four distinct areas. Therefore, the empirical modelling is represented in accordance with the particular aims of the investigation. In the second section, the theoretical framework is introduced to elucidate the underlying assumptions regarding the relationships between the variables in the model specifications. The third section of the paper outlines the estimating methodologies employed to estimate the coefficients, while the last section presents the data sources and measurements utilized.

3.1 Model Specification

3.1.1 Empirical Model of the Relationship between institutional quality and globalization

Based on the conceptual framework presented in the last section of the preceding chapter and drawing from previous research models, we have formulated an adapted model that delineates the connections between institutional quality and globalization while accounting for pertinent control variables, such as income per capita, investment, financial sector development, interest rates, and inflation. This model is expressed in functional form as follows[1,2,3,4]:

$$glob_t = f(insq_t, gdppc_t, inv_t, fsd_t, \text{int}_t, \text{inf}_t) \tag{3.1}$$

In mathematical form, it becomes:

$$glob_t = \varphi_0 + \varphi_1 insq_t + \varphi_2 gdppc_t + \varphi_3 inv_t + \varphi_4 fsd_t + \varphi_5 \text{int}_t + \varphi_6 \text{inf}_t + e_t \tag{3.2}$$

Where: *glob* represents globalization indices; *insq* denotes institutional quality; *gdppc* denotes gross domestic product (GDP) per capita growth measuring income per capita; *inv* represents capital investment measured by gross fixed capital formation to GDP; *fsd* is financial sector development proxy by domestic credit to private sector by banks to GDP; *int* denotes interest rate; *inf* is inflation rate; φ_0, φ_{1-6} are parameters; *t* denotes time; and *e* is error term.

3.1.2 Empirical Model of the nexus between institutional quality and income inequality

For this sub-section, the study adapts and modifies the model of previous studies to investigate the impact of institutions on income inequality in Nigeria[5,6,7,8]. The model specifies income inequality (*ineq*) as a function of institutional quality (*insq*), including other controlling variables like income per capita (*gdppc*), capital investment (*inv*), financial sector development proxy by domestic credit to private sector by banks to GDP (*fsd*), inflation rate (*inf*), and interest rate (*int*). Consequently, the model is stated functionally as:

$$ineq_t = f(insq_t, inv_t, gdppc_t, fsd_t, t\inf_t, \text{int}_t) \tag{3.3}$$

In mathematical form, it becomes:

$$ineq_t = \gamma_0 + \gamma_1 insq_t + \gamma_2 inv_t + \gamma_3 gdppc_t + \gamma_4 fsd_t + \gamma_5 \inf_t + \gamma_6 \text{int}_t + \nu_t \tag{3.4}$$

Where: *ineq* denotes income inequality; *insq* is institutional quality; *inv* represents capital investment measured by gross fixed capital formation to GDP; *gdppc* denotes gross domestic product (GDP) per capita growth; *fsd* is financial sector development proxy by domestic credit to private sector by banks to GDP; *inf* is inflation rate; *int* denotes interest rate; γ_0, γ_{1-6} are parameters; *t* denotes time; and ν is error term.

3.1.3 Empirical Model of the nexus between globalization and income inequality

To investigate the impact of globalization on income inequality, the study modeled income inequality as a function of globalization indices, including the relevant control variables i.e. income per capita, capital investment, financial sector development, interest rate, and inflation rate[9,10,11]. The baseline model for the time series analysis is specified below as:

$$ineq_t = f(glob_t, inv_t, gdppc_t, fsd_t, t\inf_t, \text{int}_t) \quad (3.5)$$

To estimate the parameters, the function is transformed into the generalized equation below as:

$$ineq_t = \theta_0 + \theta_1 glob_t + \theta_2 inv_t + \theta_3 gdppc_t + \theta_4 fsd_t + \theta_5 \inf_t + \theta_6 \text{int}_t + \upsilon_t \quad (3.6)$$

Where: *ineq* denotes income inequality; *glob* is globalization; *inv* represents capital investment measured by gross fixed capital formation to GDP; *gdppc* denotes gross domestic product (GDP) per capita growth; *fsd* is financial sector development proxy by domestic credit to private sector by banks to GDP; *inf* is inflation rate measuring price stability; *int* denotes interest rate; θ_0, θ_{1-6} are parameters; *t* denotes time; and υ is disturbance term.

3.1.4 Empirical Model of the links between institutional quality, globalization and income inequality

In this sub-section, the study adapts and modifies the model of previous studies to investigate the interactive effects of institutions and globalization on income inequality in Nigeria. The model specifies income inequality (*ineq*) as a function of institutional quality (*insq*), globalization (*glob*), interaction of institutional quality and globalization (*insq*×*glob*), including other controlling variables like income per capita (*gdppc*), capital investment (*inv*), financial sector development proxy by domestic credit to private sector by banks to GDP (*fsd*), inflation rate (*inf*), and interest rate (*int*). Consequently, the model is stated functionally as:

$$ineq_t = f(insq_t, glob_t, (insq \times glob)_t, inv_t, gdppc_t, fsd_t, t\inf_t, \text{int}_t) \quad (3.7)$$

In mathematical form, it becomes:

$$ineq_t = \pi_0 + \pi_1 insq_t + \pi_2 glob_t + \pi_3 (insq \times glob)_t + \pi_4 inv_t + \pi_5 gdppc_t + \pi_6 fsd_t + \pi_7 \inf_t + \pi_8 \text{int}_t + \varepsilon_t \quad (3.8)$$

Where: *ineq* denotes income inequality; *insq* is institutional quality; *glob* denotes globalization; *insq*×*glob* is the interaction of institutional quality and globalization; *inv* represents capital investment measured by gross fixed capital formation to GDP; *gdppc* denotes gross domestic product (GDP) per capita growth; *fsd* is financial sector development proxy by domestic credit to private sector by banks to GDP; *inf* is inflation rate; *int* denotes interest rate; π_0, π_{1-8} are parameters; *t* denotes time; and ε is error term.

3.2 Theoretical Expectation

For globalization model, the study expects a direct relationship between institutional quality and globalization measures. Intuitively, it is reasonable to expect that countries with higher institutional quality would be more likely to participate and benefit from globalization. Strong institutions provide a favourable environment for economic growth, investment, and trade. They help protect property rights, enforce contracts, and ensure a level playing field for businesses. Countries with well-functioning institutions are typically more attractive to foreign investors and are better equipped to integrate into global markets. Similarly, capital investment, income per capita, and financial sector development have positive level of association with globalization. In contrary, inflation rate and interest rate have an indirect impact on the level of globalization measured by trade openness and KOF index. This means that stability in general price and low interest have the chances of improving trade volume with other countries.

Concerning income inequality model, the study presumes that an improvement in institutional quality has a negative impact on income inequality in the country. Thus, higher institutional quality is generally associated with more stable and predictable economic and political environments. There is a theoretical expectation that higher institutional quality can help mitigate income inequality. Strong institutions can provide a more conducive environment for economic growth, investment, and social development. They can enforce property rights, ensure contract enforcement, and promote fair competition. By providing a level playing field for businesses and individuals, strong institutions can help create opportunities for upward mobility and reduce the concentration of wealth and power in the hands of a few. Concerning globalization and inequality, globalization can lead to a reduction in income inequality between countries. According to convergence theory, it suggests that as countries integrate into the global economy, they can benefit from technology transfer, access to larger markets, and increased trade, which can contribute to economic growth and poverty reduction. This, in turn, may lead to a decrease in global income inequality. Likewise, capital and income per capita are expected to enhance the level of equality. Output growth is expected to have an indirect relationship with inequality. If there is an inflow of domestic credit to private sector by banks through an improved financial sector, it is expected to increase domestic investment as there is high tendency of increasing equal distribution of income in an economy. However, high inflation and interest rates are expected to cause an increase to income inequality.

3.3 Estimation Techniques

The specification and estimation of the models requires that we test the time series properties of the data in order to determine whether the variables contain integrated components, hence, this study adopt time series estimation techniques. Before estimating the parameters, the study examines the stationarity (presence of a unit root) of the variables using the Augmented Dickey Fuller (ADF) test. Afterwards, the study tests for the cointegration of the variables depending on the results of the stationarity of the variables. In addition, the appropriate estimator was also employed to evaluate the coefficients of the empirical models.

3.3.1 Unit root test

This study used the unit root test to test for the stationarity of the times series data collected for the research to avoid the danger of bias that stationarity of data may pose to the study if they are not checked. The unit root test was employed because in the literature most time series variables are non-stationary and using non-stationary variables in the model might lead to a spurious regression. In order to ascertain whether time series data were stationary or non-stationary and to determine the number of times (the level) at which the variables must be differenced before becoming stationary, unit root tests were conducted. The Dickey – Fuller regression is estimated as follows for unit root.

$$\Delta Y_t = \lambda Y_{t-1} + V_t \qquad (3.9)$$

If λ equals 0, Y_t is non-stationary, as a result Y_t and X_t are not co-integrated. In order words, if λ is significantly different from 0 Y_t and X_t are found integrated individually. Given the inherent weakness of the unit root to distinguish between null and the alternative hypotheses, it is

desirable that the Augmented Dickey Fuller (ADF) test be applied. To be co-integrated; both Y_t and X_t must have the same order of integration[12,13]. The ADF regression is specified as follows:

$$\Delta Y_t = \alpha + \beta t + \delta Y_{t-1} + \gamma_i \sum_{t=1}^{m} \Delta Y_{t-1} + \varepsilon_t \quad (3.10)$$

Δ is the first difference operator, ε_t is the new random error term, M is the optimum number of lags needed to obtain white noise. The null hypothesis of non-stationarity is rejected if the estimated ADF statistic is found to be larger in absolute term or more negative than its critical values at 1 or 5 percent level of significance.

3.3.2 Co-integration test

The purpose of the co-integration test is to determine whether a group of non-stationary time series is co-integrated to reduce bias. The concept of co-integration creates the link between integrated processes and the concept of steady state equilibrium[14]. Thus, in this study, autoregressive distributed lag (ARDL) tests for co-integration analysis was employed to investigate the long-term relationship between the variables of interest.

3.3.3 ARDL Estimation Test

In this study, the autoregressive distributed lag (ARDL) was used to estimate the short-run and long-run estimates of the existing relationship among institutional quality, globalization and income inequality. Firstly, this methodology offers three notable advantages. (a) It accommodates limited data set, making it useful when working with small sample data. (b) It effectively handles variables with mixed stationarity levels, encompassing both I(0) and I(1). (c) One of its strengths lies in its ability to derive both long-term and short-term estimates simultaneously[15].

In the selection of the lag length, the Akaike information criteria (AIC) plays a pivotal role. This criterion aids in determining the appropriate lag order for the model. Subsequently, the decision regarding cointegration is based on the calculated F-statistic value.

To ascertain the presence of co-integration, our computed F-statistic value is compared to two reference values, namely the upper bound and lower bound. These reference values are established by a respected scholar and serve as benchmarks for the analysis[16]. In our decision-making process:(a) If the calculated F-statistic value exceeds the upper bound, it lends support to the hypothesis of co-integration. (b) Conversely, if the calculated value falls below the lower bound, it indicates the absence of co-integration. (c) When the calculated F-statistic value falls between these two bounds, the results are inconclusive, necessitating further examination and analysis. This method and its associated decision criteria provide a robust framework for exploring the relationships between institutional quality, globalization, and relevant control variables in empirical research.

3.4 Sources of Data

This study examines the links among institutional quality, globalization, and income inequality in Nigeria for the period 1985 to 2020. The study uses secondary type of time series data for the variables, globalization, income inequality, gross domestic product per capita, investment, inflation rate, financial sector development, and interest rate that were obtained from the Statistical Bulletin Annual Report of the Central Bank of Nigeria (CBN) 2022 and World Bank Development Indicators 2022. Table 3.1 presents the source and measurement of the variables.

Table 3.1: Definition and source of data and variable measurements

Variables	Description	Measurement	Data source
ineq	Gini coefficient is used to measure income inequality within a country's population. The coefficient ranges from 0 to 1.	Index (0 represents perfect equality and 1 represents maximum inequality).	World Development Indicators (2023)
glob	Globalization measured by trade openness (which captures the total trade as a percentage of gross domestic product) and KOF globalization index.	It is measured as total trade as a percentage of GDP and index	World Development Indicators (2023)
gdppc	GDP per capita growth is the total monetary income earned per person in a country.	Annual growth rate (%)	World Development Indicators (2023)
inv	Capital investment involves all private expenses on fixed capital goods to GDP.	It is measured as total gross fixed capital formation as % of GDP	World Development Indicators (2023)
inf	Inflation is measured as the percentage change in general price level using 2005 as the base year.	It is measured as an annual rate of consumer price index	World Development Indicator (2023)
fsd	Financial sector development includes the domestic credit to private sector by banks	It is measured as percentage of GDP	World Development Indicators (2023)
int	Interest rate spreads captures the difference between deposit and lending rate.	It is measured by rates (%)	World Development Indicators (2023)

Source: Author's compilation (2023).

Endnotes

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Chapter Four

Results and Discussion

4.0 Preamble

This study entails data presentation, estimation, and the results of the empirical investigation of the links among institutional quality, globalization and income inequality in Nigeria. Also, it addresses the long-run and short-run relationship among institutional quality, globalization and income inequality in Nigeria. This is divided into descriptive analysis which include the mean, median as well measures of variation, it also takes into consideration the trend analysis which shows the trend of the time series data used from 1985 to 2020 and econometric analysis which focuses on unit root tests, co-integration test and autoregressive distributed lagged model.

4.1 Presentation of Results

4.1.1 Summary Statistics

The summary of the preliminary analysis showing the mean, standard deviation, skewness and peakedness of the variables employed for analyzing the relationship among institutional quality, globalization and income inequality in Nigeria is presented in Table 4.1.

From Table 4.1, it shows that the mean of income inequality measured by gini is 41.52%. Correspondingly, the table revealed its maximum value to be 51.9% and minimum value to be 35.1%. This indicates that the income inequality in Nigeria is relatively high. The average of institutional quality stood at 2.990 indicating the low level of institutions in terms of government stability, control of corruption, law and order and bureaucracy quality. The average of globalization proxy by kofgi stood at 49.19%, while the table presents the maximum and minimum value to 57.2% and 37.62% respectively. In addition, the average values of gross fixed

capital formation, gross domestic product per capita, financial sector development measured by domestic credit to private sector by banks, inflation and interest rate are 30.61%, 9.7%, 19.51% and 2.54% respectively. Also their maximum values are 54.95%, 12.46%, 19.62%, 72.84% and 18.18% whereas the minimum values are at 14.17%, -4.46%, 4.95%, 5.39% and -31.45 correspondingly.

Table 4.1: Descriptive statistics

	GINI	INST	KOFGI	GFCF	GDPPC	FSD	INF	INT
Mean	41.51714	2.990157	49.1896	30.60888	1.548636	9.73014	19.51369	2.547113
Median	40.1	2.958333	49.54598	26.76866	1.634594	8.435095	12.55496	5.37128
Maximum	51.9	3.9375	57.22692	54.94827	12.45747	19.6256	72.8355	18.18
Minimum	35.1	1.9375	37.62296	14.16873	-4.457078	4.957522	5.388008	-31.45257
Std. Dev.	6.091242	0.417046	6.471732	13.07636	3.845034	3.567212	17.82607	10.09646
Skewness	0.73056	-0.142645	-0.395463	0.321475	0.496722	0.989421	1.703021	-1.192216
Kurtosis	2.126352	3.682634	1.80556	1.816227	3.338651	3.640444	4.547347	5.073133
Jarque-Bera	4.226446	0.798262	2.992865	2.646443	1.606523	6.308732	20.40997	14.55912
Probability	0.120848	0.670903	0.223928	0.266276	0.447866	0.042665	0.000037	0.000689
Observations	35	35	35	35	35	35	35	35

Source: Author's computation (2023).

Moreover, the skewness which measures the asymmetry of the distribution of the series around its mean always has a normal distribution at zero. A positive skewness implies that the distribution has a long right tail and a negative skewness implies that the distribution has a long left tail. The outcomes from Table 4.1 showed that all the variables are positively skewed except for institutional quality, KOF globalization index and interest rate (which are negatively skewed) thereby implying long right tails. Also, Kurtosis measures the peakedness or flatness of the distribution of the series. If the kurtosis is above three, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal. The result from the table indicated that only the values of institutional quality, gdp per capita, financial sector development, inflation and interest rate exceed three which implies peakedness or leptokurtic. As for the other variables, their values are below three therefore implying flatness or platykurtic. This implies that the variables are not normally distributed.

The trend analysis of variables used to analysis the interrelationship between institutional quality, globalization and income inequality in Nigeria are presented in Figures 1 and 2. Figure 1 shows the trend series of institutional quality and globalization in Nigeria while the trend analysis of institutional quality and globalization and income inequality is presented in Figure 2.

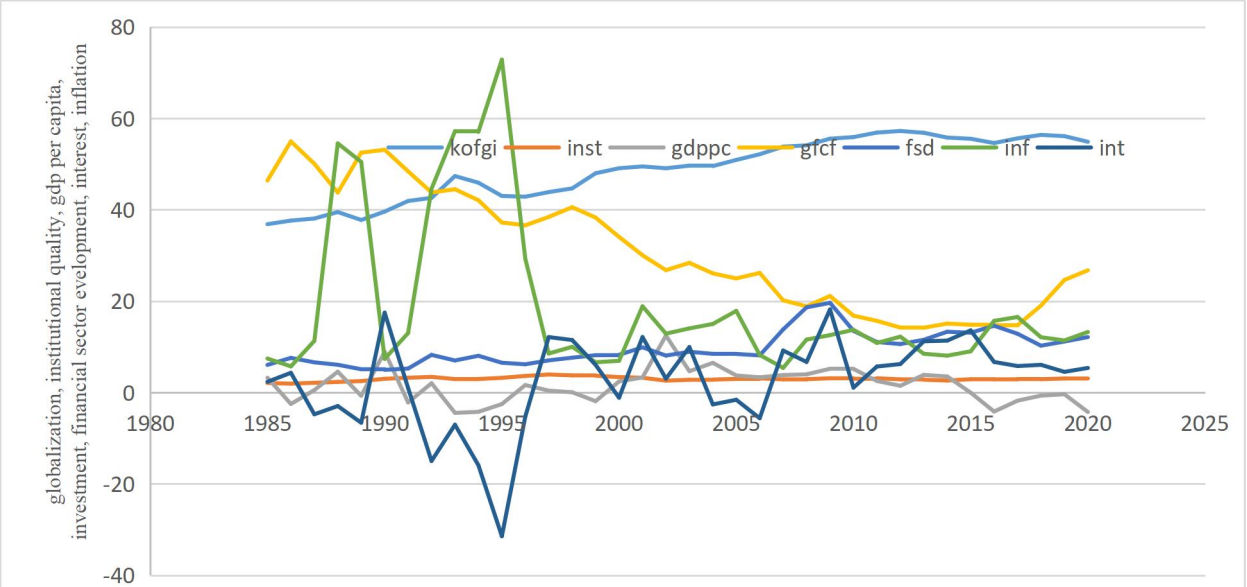

Figure 1: Trend Analysis of institutional quality and globalization in Nigeria
Source: Author's computation (2023)

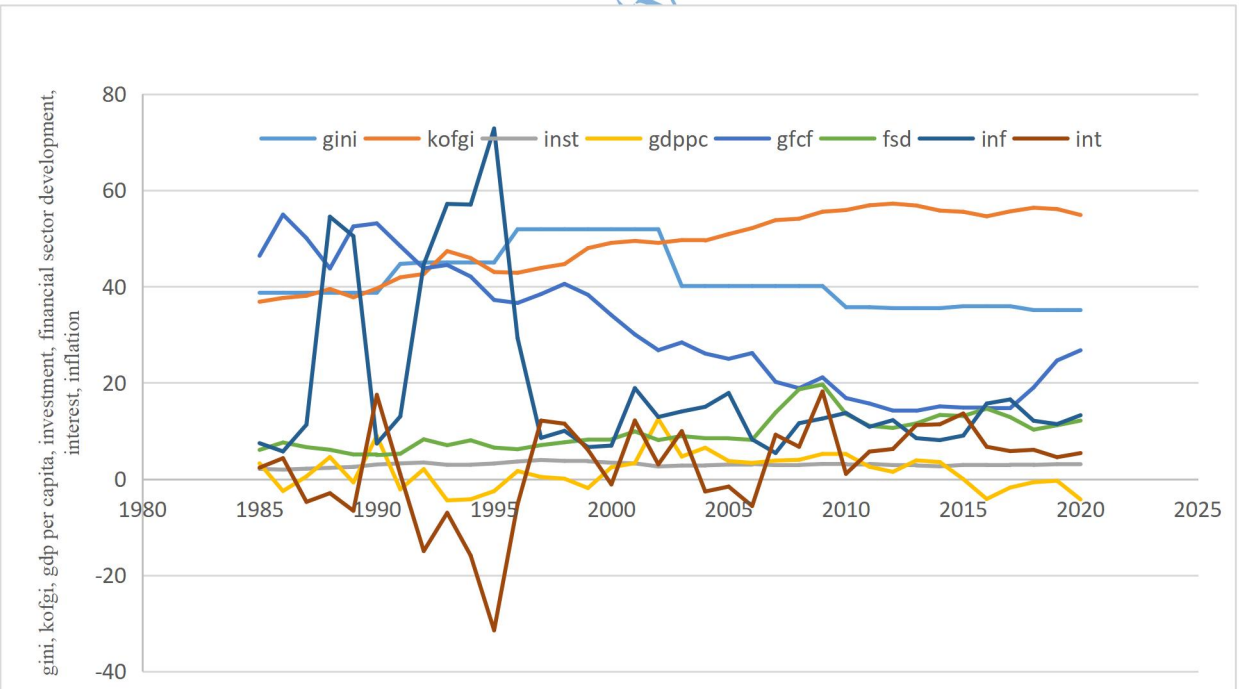

Figure 2: Trend analysis of institutional quality, globalization, and income inequality in Nigeria
Source: Author's computation (2023)

Table 4.2: Correlation Matrix

	gini	*Inst*	*kofgi*	*gfcf*	*gdppc*	*fsd*	*inf*	*int*
gini	1							
inst	0.5702	1						
kofgi	-0.4417	0.1156	1					
gfcf	0.4342	-0.0605	-0.9517	1				
gdppc	0.0592	-0.1263	0.0868	-0.1917	1			
fsd	-0.4229	-0.0323	0.7743	-0.7667	0.0873	1		
inf	0.1482	-0.0546	-0.4261	0.3997	-0.3118	-0.3701	1	

Source: Author's computation (2023).

4.1.2 Correlation Analysis

The correlation analyses of the variables are presented in Table 4.2. The coefficients show that the level of association between the variables used to explain the existing relationship among institutional quality, globalization, and income inequality in Nigeria.

From Table 4.2, the results show that KOF globalization index is positively correlated with institutional quality while gross fixed capita formation, gdp per capita, financial sector development, and inflation are negatively correlated with institutional quality. As for income inequality measured by gini as the outcome variable, the results show that institutional quality, gross fixed capita formation, gdp per capita, and inflation are positively correlated with income inequality while KOF globalization index and financial sector development are negatively correlated with income inequality. Meanwhile, the correlation coefficients of these controlling variables are equally reported. Some of the correlation coefficients are weak which indicate the absence of multicollinearity problem. Consequently, these results are just preliminary analysis subject to confirmation using the appropriate estimation method to reveal the parameter signs and magnitudes of the variables.

4.3 Pre-Estimation Tests (Unit Root Test)

This section presents the unit root test results as it examines the stationarity level of the variables. It is used to check for the presence of a unit root i.e. if the variables are not stationary at levels. This unit root test is carried out using the Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) tests. This is the first test carried out before the co-integration analysis and is known as the pre estimation test. The ADF and PP are carried out using the E-views software package and the results from the test are presented in Table 4.3.

Table 4.4: ADF and PP Test Results [Trend and Intercept]

Variables	Augmented Dickey Fuller Test		Phillip-Perron Test		Remarks
	Stat at level	Stat at first diff.	Stat at level	Stat at first diff.	
gini	-1.1047(0)[-2.954]	-5.5356***(3)[-3.646]	-1.1417(1)[-2.951]	-5.5356***(0)[-3.646]	I(1)
inst	-2.8708(0) [-2.951]	-4.6677***(0)[-3.646]	-2.880(4)[-2.951]	-4.5722***(7)[-3.646]	I(1)
kofgi	-2.0173(8)[-2.981]	-6.3270***(4)[-3.580]	-1.8712(5)[-2.951]	-4.9293***(3)[-3.646]	I(1)
gfcf	-1.9662(0)[-2.951]	-4.9298***(0)[-3.646]	-1.9886(3)[-3.639]	-4.8884***(2)[-2.954]	I(1)
gdppc	-3.706***(0)[-3.694]	-	-3.592***(1)[-3.592]	-	I(0)
fsd	-2.329(1)[-2.954]	-5.378***(2)[-3.661]	-1.5406(1)[-2.951]	-4.2689***(3)[-3.646]	I(1)
inf	-4.539***(7)[-3.699]	-	-2.8521*(2)[-2.951]	-	I(0)
int	-3.535***(0)[-2.951]	-	-3.557***(2)[-2.951]	-	I(0)

Note: ***, ** and * signify significance level at 1%, 5% and 10% respectively.
Sources: Author's computation (2023).

Furthermore, the a priori expectation when using the ADF and PP tests is that a variable is stationary when the value of the ADF and PP test statistics are greater than the critical value at 5%. From the test result reported in Table 4.3, GDP per capita, inflation and interest rate were found not to accept the null hypothesis they have unit root test at 5% level. This implies that the series (i.e. GDP per capita, inflation and interest rate) are stationary at levels. Thus, their series are integrated at order zero i.e. I(0). However, the series of income inequality measured by gini, institutional quality, kof globalization index, gross fixed capital formation and financial sector development are not stationary at levels but they are integrated of order one i.e. I(1). Therefore, they were found not to reject the null hypothesis no stationary at level but after several iterations based on the number of lag length and differencing, the series were found to reject the null hypothesis at first difference. This indicates that the first-difference of these series (i.e. gini, institutional quality, kof globalization index, gross fixed capital formation and financial sector development) were stationary.

4.4 Presentation of Results

4.4.1 Empirical Result of the Relationship between institutional quality and globalization

Cointegration Results

In this section, the long-run relationship between institutional quality, globalization and other controlling variables are tested using the autoregressive distributed lag (ARDL) bound cointegration tests prior to the estimation of both the short-run and long-run parameters. For the first model showing the relationship between institutional quality, gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation and kof globalization index, the ARDL bound test is employed because it is suitable for variables at different order of integration. The F-statistics estimate for testing the existence of long-run relationship between institutional quality, globalization and other controlling variables in Nigeria is presented in Table 4.4.

Table 4.4 showed that the estimated F-statistics of the normalized equation (F_{arb} = 5.6282) is greater than the lower and upper critical bound at 1% significance level. This implies that the null hypothesis of no long-run relationship is rejected at 1% significance level. The implication of the above estimation is that institutional quality, control variables (such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation) and kof globalization index, all have equilibrium condition that keep them together in the long-run. Thus, there exists a long-run relationship between institutional quality and globalization in Nigeria.

Table 4.4.1: Existence of long-run cointegration between institutional quality and globalization (1, 2, 2, 0, 1, 1, 1)

Test Statistic	**Value**	**K**
F-statistics (kofgi, inst, gdppc, gfcf, fsd, int, inf)	5.6282	6
Critical Value Bounds		
Significance	**I(0) Bound**	**I(1) Bound**
10%	1.99	2.94
5%	2.27	3.28
2.5%	2.55	3.61
1%	2.88	3.99

Source: Author's computation (2023).

Results of Short-run and Long-run Estimates

In this sub-section, this discussion answers the first null hypothesis that institutional quality has no significant effect on globalization in Nigeria. This examines both the short-run and long-run estimates of institutional quality and other controlling variables in Nigeria using the estimated ARDL approach described extensively in the previous chapter. The estimated ARDL model is a composite of short-run and long-run estimates of the interrelationship among considered series in this study. The clear evidence of the empirical estimates from institutional quality, control variables (such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation) and kof globalization index are presented in Table 4.5.

The short-run estimation results show the error correction mechanism which measures the speed or degree of adjustment. It is the rate of adjustment at which the dependent variable changes due to changes in the independent variables. The short run analysis shows the dynamic pattern in the model and to ensure that dynamics of the model have not been constrained by inappropriate lag length specification. The ARDL test automatically choose the lag length on all variables as the model was set at four to ensure sufficient degree of the freedom based on automatic selection of Akaike Information Criterion. The short-run estimates of the relationship between institutional quality and globalization is presented in Table 4.5. The coefficient of the ECT is found to be negative and statistically significant at the conventional level. The ECT value (-0.3494) implied that the model corrects its short-run disequilibrium by 34.94% speed of adjustment in order to return to the long run equilibrium.

Table 4.5: Results of Estimated ARDL Model of Globalization

Dependent Variable: KOFGI
Selected Model: ARDL(1, 2, 2, 0, 1, 1, 1)
Sample: 1985 2020 **Included observations:** 33

Short-Run Estimates				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(INST)	-3.470497	0.679135	-5.110173	0.0001
Δ(INST(-1))	-1.081189	0.703926	-1.535942	0.1419
Δ(GDPPC)	-0.244564	0.049586	-4.932083	0.0001
Δ(GDPPC(-1))	-0.13201	0.048567	-2.718069	0.0141
Δ(FSD)	-0.155249	0.079543	-1.951755	0.0667
Δ(INT)	-0.004362	0.021538	-0.202521	0.8418
Δ(INF)	-0.083887	0.017656	-4.751166	0.0002
ECT(-1)	-0.349416	0.044185	-7.90794	0.0000
Long-run Estimates				
INST	-2.728306	2.160398	-1.262872	0.2228
GDPPC	-0.299921	0.223425	-1.342376	0.1962
GFCF	0.080333	0.185543	0.43296	0.6702
FSD	1.013072	0.385782	2.626024	0.0171
INT	-0.48855	0.218365	-2.237304	0.0382
INF	-0.450424	0.168776	-2.66876	0.0157
C	58.06915	7.606031	7.634619	0.0000
R-squared	0.756582	**F-stat**	5.6282 (0.000)	
Adj. R-squared	0.688425	**D-Watson**	1.779298	

Source: Author's computation (2023).

As for the short-run, the negative coefficient of the current and first lag of institutional quality shows that it has negative and significant impact on globalization at 5%. Likewise, the coefficients of the short-run of gross domestic product per capita at current and lag one, are negative and significant statistically. It means that the level of income per capita in short run have an adverse and significant impact on globalization at 5%. As for financial sector development and interest rate both at their current level show a negative impact on globalization, which implies that they have adverse impact on globalization in Nigeria in the short run but are both not statistically significant at 5%. Lastly, for inflation at the current level show a negative impact on globalization, which implies that consumer price index have an adverse impact on globalization in Nigeria in the short run and it is statistically significant at 5%.

The long-run estimates in Table 4.5 indicated that institutional quality have negative impact on globalization in Nigeria. However, the probability value was found to be insignificant at the 5% conventional level. Likewise, the control variables i.e. interest rate and inflation are statistically significant at 5% conventional level and have negative impact on globalization. The two indicators conform to the theoretical expectation and also statistically proven. Thus, a 1% increase in interest rate and inflation will adversely affect globalization by -0.488% and -0.450% respectively in the long run. Meanwhile, gross fixed capital formation and financial sector development have positive impact on globalization in the long-run. Thus, a 1% increase in gross fixed capital formation and financial sector development will improve globalization by 0.080% and 1.013% respectively in the long run.

The coefficient of determination (Adjusted-R^2) is high (68.84%) indicating that about 68.84% of the total variations in globalization was explained by the variables in the model. It simply indicated that the variation of changes in globalization was explained by 68.84% variations in

institutional quality and other controlling variables. The overall test using the F-statistic (5.6282) is statistically significant at 5% level of significance showing that model is well specified and statistically significant. The Durbin Watson statistic (1.7793) shows that there is absence of serial autocorrelation in the model.

Diagnostic Test

The estimated ARDL model is tested for heteroscedasticity, serial correlation, functional form misspecification, parameter stability and normality. The results from these tests are shown in Table 4.6. The estimated ARDL model revealed that the model passed the serial correlation, normality test, and heteroskedasticity test. It means that the error terms are normally distributed with same variables and they are not serially correlated. Also, the Ramsey RESET test was satisfactory for the ARDL model indicating that the model is well distributed. As well, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) respectively presented in Figures 3a and 3b are stable.

Table 4.6: Diagnostic Tests of Selected ARDL Model

Results	
Serial Correlation: 1.1155 [0.8917]	**Normality Test:**3.9007 [0.0039]
Functional Form:0.1118 [0.9132]	**Heteroskedasticity Test:**0.1819 [0.9131]

Source: Author's computation (2023).

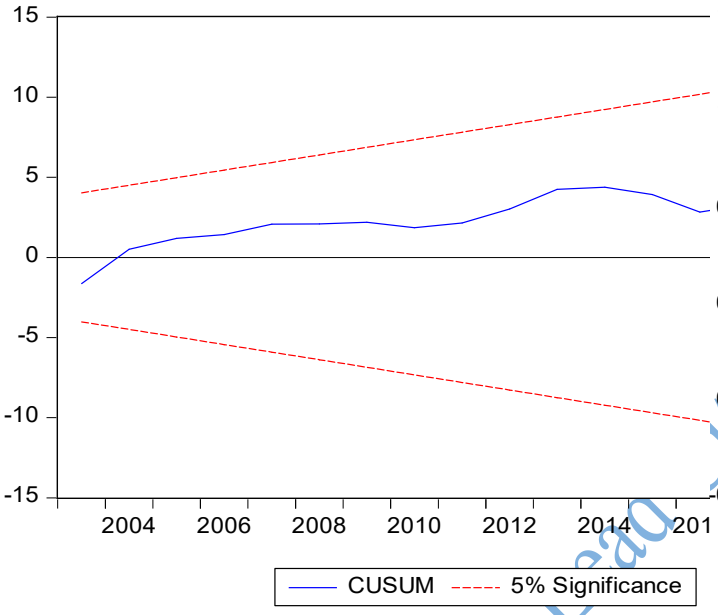

Figure 3a: Cumulative Sum

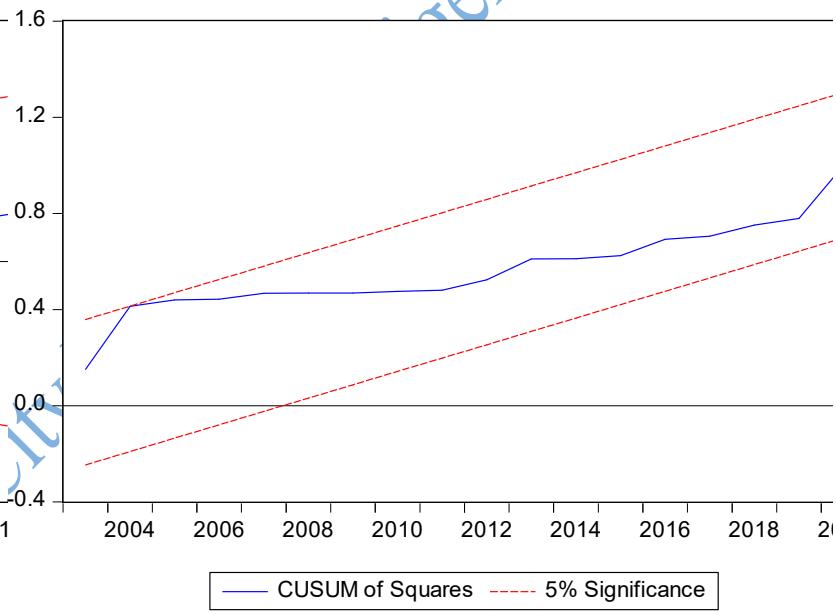

Figure 3b: Cumulative Sum of Square

Source: Author's computation (2023).

4.6.1 Empirical Result of the Relationship between Institutional quality and Income Inequality

Cointegration Results

In this section, the long-run relationship between institutional quality, income inequality and other controlling variables are tested using the autoregressive distributed lag (ARDL) bound cointegration tests prior to the estimation of both the short-run and long-run parameters. For the first model showing the relationship between institutional quality, gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation and kof globalization index, the ARDL bound test is employed because it is suitable for variables at different order of integration. The F-statistics estimate for testing the existence of long-run relationship between institutional quality, income inequality and other controlling variables in Nigeria is presented in Table 4.7.

Table 4.7 showed that the estimated F-statistics of the normalized equation (F_{arb} = 5.6282) is greater than the lower and upper critical bound at 1% significance level. This implies that the null hypothesis of no long-run relationship is rejected at 1% significance level. The implication of the above estimation is that institutional quality, control variables (such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation) and income ineequality, all have equilibrium condition that keep them together in the long-run. Thus, there exists a long-run relationship between institutional quality and globalization in Nigeria.

Table 4.7: Existence of long-run cointegration between institutional quality and income inequality (3, 1, 3, 2, 3, 1, 1)

Test Statistic	**Value**	**K**
F-statistics (inst, gdppc, gfcf, fsd, int, inf)	13.6485	6
Critical Value Bounds		
Significance	**I(0) Bound**	**I(1) Bound**
10%	1.99	2.94
5%	2.27	3.28
2.5%	2.55	3.61
1%	2.88	3.99

Source: Author's computation (2023).

Results of Short-run and Long-run Estimates

In this sub-section, this discussion answers the second null hypothesis that institutional quality has no significant effect on income inequality in Nigeria. This examines both the short-run and long-run estimates of institutional quality and other controlling variables in Nigeria using the estimated ARDL approach described extensively in the previous chapter. The estimated ARDL model is a composite of short-run and long-run estimates of the interrelationship among considered series in this study. The clear evidence of the empirical estimates from institutional quality, control variables (such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation) and income inequality are presented in Table 4.8.

The short-run estimation results show the error correction mechanism which measures the speed or degree of adjustment. It is the rate of adjustment at which the dependent variable changes due to changes in the independent variables. The short run analysis shows the dynamic pattern in the model and to ensure that dynamics of the model have not been constrained by inappropriate lag length specification. The ARDL test automatically choose the lag length on all variables as the model was set at four to ensure sufficient degree of the freedom based on automatic selection of Akaike Information Criterion. The short-run estimates of the relationship between institutional quality and globalization is presented in Table 4.5. The coefficient of the ECT is found to be negative and statistically significant at the conventional level. The ECT value (-0.7943) implied that the model corrects its short-run disequilibrium by 79.43% speed of adjustment in order to return to the long run equilibrium.

Table 4.8: Results of Estimated ARDL Model of Income Inequality

Dependent Variable: GINI
Selected Model: ARDL(3, 1, 3, 2, 3, 1, 1)
Sample: 1985 2020 **Included observations:** 33

Short-Run Estimates				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(GINI(-1))	-0.343447	0.070137	-4.896777	0.0004
Δ(GINI(-2))	-0.306259	0.078616	-3.895631	0.0021
Δ(INST)	1.938517	0.800634	2.421226	0.0322
Δ(GDPPC)	0.097395	0.059008	1.65053	0.1247
Δ(GDPPC(-1))	0.482953	0.07736	6.242916	0.0000
Δ(GDPPC(-2))	0.312462	0.073325	4.261345	0.0011
Δ(GFCF)	-0.353334	0.064463	-5.481208	0.0001
Δ(GFCF(-1))	-0.450441	0.059877	-7.522735	0.0000
Δ(FSD)	-0.191504	0.116169	-1.648504	0.1252
Δ(FSD(-1))	0.716462	0.109389	6.549665	0.0000
Δ(FSD(-2))	0.482021	0.108438	4.445123	0.0008
Δ(INT)	0.111987	0.029894	3.746117	0.0028
Δ(INF)	0.006289	0.017851	0.352339	0.7307
ECT(-1)	-0.7943	0.060411	-13.14835	0.0000
Long-run Estimates				
INST	11.50009	1.485209	7.743076	0.0000
GDPPC	-0.519618	0.2089	-2.4874	0.0286
GFCF	-0.018641	0.075464	-0.247014	0.8091
FSD	-1.123571	0.251214	-4.472563	0.0008
INT	0.235764	0.103023	2.288454	0.041
INF	0.101014	0.065916	1.532455	0.1513
C	15.63944	6.263652	2.496856	0.0281

R-squared	0.92863	**F-stat**	13.6484 (0.0000)
Adj. R-squared	0.87978	**D-Watson**	2.6867

Source: Author's computation (2023).

In the short-run, the results reveals the immediate effects of changes in independent variables on the dependent variable, GINI. Several key observations emerge from the short-run estimates. First, lagged values of GINI (Δ (GINI(-1)) and Δ (GINI(-2))) exhibit negative coefficients, indicating that if GINI was higher in the previous periods, it tends to exert a negative influence on GINI in the current period. This implies a tendency for GINI to revert towards its long-run equilibrium when it deviates from it in the short run. These effects are statistically significant.

Moreover, variables such as Δ (INST), Δ(GDPPC), Δ(GFCF), Δ(INT), and Δ(INF) also impact GINI in the short run. Δ(INST) and Δ(INT) have positive coefficients, signifying that an increase in these variables leads to an immediate increase in GINI. Conversely, Δ(GDPPC) and Δ(GFCF) have positive and negative coefficients, respectively, indicating that they affect GINI in the short run. Δ(GDPPC(-1)) and Δ(GDPPC(-2)) are particularly significant, suggesting that past changes in GDP per capita strongly influence GINI in the current period.

On the other hand, Δ(FSD) and its lagged values, while showing varying coefficients, are not statistically significant in the short run. Finally, the Error Correction Term (ECT(-1)) has a large negative coefficient, indicating rapid adjustment towards the long-run equilibrium after deviations, which is crucial for understanding the short-run dynamics of the model.

In the long run, your model provides insights into the equilibrium relationships between the independent variables and GINI after all short-run adjustments have taken place. These estimates highlight the sustained impacts of the variables. Notably, INST exhibits a strong positive relationship with GINI, indicating that an increase in INST leads to a consistent increase in income inequality (GINI) in the long run. GDPPC, on the other hand, shows a negative long-run relationship with GINI, implying that a higher GDP per capita is associated with lower income inequality.

GFCF does not appear to have a statistically significant relationship with GINI in the long run, as its coefficient is small and inconclusive. FSD, however, has a significant negative coefficient in the long run, suggesting that higher financial sector development is associated with lower income inequality. INT has a positive long-run relationship with GINI, indicating that higher interest rates are linked to increased income inequality. Lastly, INF shows a positive long-run relationship with GINI, but the relationship is not statistically significant.

The coefficient of determination (Adjusted-R^2) is high (87.98%) indicating that about 87.98% of the total variations in income inequality was explained by the variables in the model. It simply indicated that the variation of changes in income inequality was explained by 87.98% variations in institutional quality and other controlling variables. The overall test using the F-statistic (13.6484) is statistically significant at 5% level of significance showing that model is well specified and statistically significant. The Durbin Watson statistic (2.6867) shows that there is absence of serial autocorrelation in the model.

Diagnostic Test

The estimated ARDL model is tested for heteroscedasticity, serial correlation, functional form misspecification, parameter stability and normality. The results from these tests are shown in Table 4.9. The estimated ARDL model revealed that the model passed the serial correlation, normality test, and heteroskedasticity test. It means that the error terms are normally distributed with same variables and they are not serially correlated. Also, the Ramsey RESET test was satisfactory for the ARDL model indicating that the model is well distributed.As well, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) respectively presented in Figures 3a and 3b are stable.

Table 4.9: Diagnostic Tests of Selected ARDL Model

Results	
Serial Correlation: 7.1925 [0.0116]	**Normality Test:** 0.4303 [0.8064]
Functional Form:0.1118 [0.9132]	**Heteroskedasticity Test:**0.1819 [0.9131]

Source: Author's computation (2023).

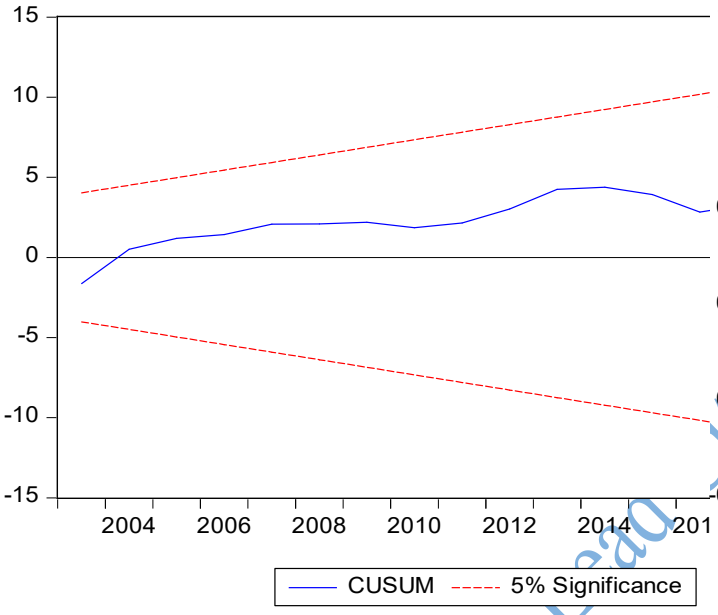

Figure 3a: Cumulative Sum

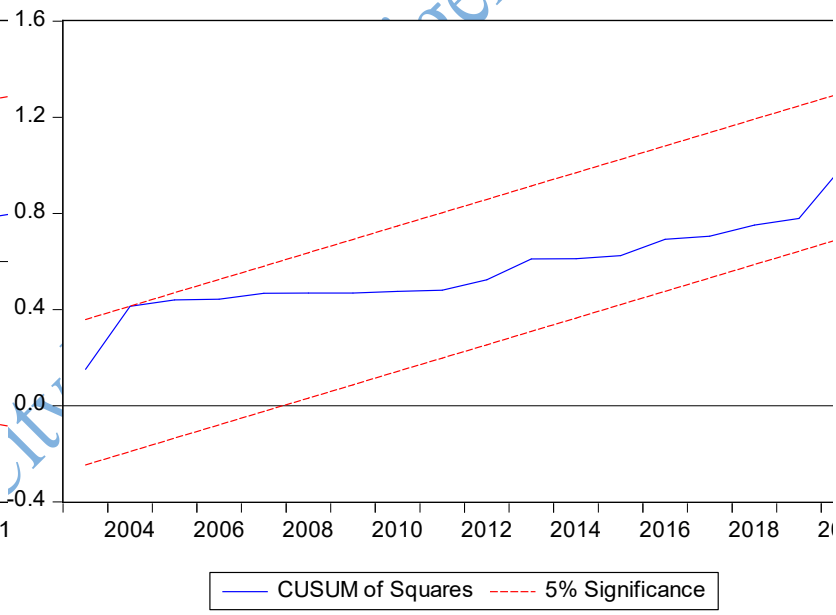

Figure 3b: Cumulative Sum of Square

Source: Author's computation (2023).

4.9.1 Empirical Model of the Nexus between Globalization and Income Inequality

Cointegration Test Result

The study tests the long-run relationship between globalization and income inequality and other controlling variables using the autoregressive distributed lag (ARDL) bound cointegration tests in the stated hypotheses before estimating both the short-run and long-run parameters. For the model showing the relationship between globalization, income inequality and other controlling variables, the ARDL bound test is employed because it is suitable for variables at different order of integration. The F-statistics estimate for testing the existence of long-run relationship between globalization, income inequality and other controlling variables in Nigeria is presented in Table 4.10.

From the table, the estimated F-statistics of the normalized equation (F_{arb} = 13.6483) is greater than the lower and upper critical bound at 1% significance level. This implies that the null hypothesis of no long-run relationship is rejected at 1% significance level. The implication of the above estimation is that globalization, control variables (such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation) and income inequality, all have equilibrium condition that keep them together in the long-run. Thus, there exists a long-run relationship between globalization and income inequality in Nigeria.

Table 4.10: Existence of Long-Run cointegration between l globalization and income inequality (2, 0, 2, 2, 2, 2, 2)

Test Statistic	**Value**	**K**
F-statistics (gini, inst, gdppc, gfcf, fsd, int, inf)	13.6483	6
Critical Value Bounds		
Significance	**I(0) Bound**	**I(1) Bound**
10%	1.99	2.94
5%	2.27	3.28
2.5%	2.55	3.61
1%	2.88	3.99

Source: Author's computation (2023).

Results of Short-run and Long-run Estimates

The discussion in here answers the third null hypothesis that globalization have no significant effect on income inequality in Nigeria. It examines both the short-run and long-run relationship estimates of globalization, income inequality and other controlling variables in Nigeria using the estimated ARDL approach described extensively in the previous chapter. The estimated ARDL model is a composite of short-run and long-run estimates of the interrelationship among considered series in this study. The clear evidence of our empirical estimates from globalization, gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation, and income inequality are presented in Table 4.11.

The short-run estimation results show the error correction mechanism which measures the speed or degree of adjustment. It is the rate of adjustment at which the dependent variable changes due to changes in the independent variables. The short run analysis shows the dynamic pattern in the model and to ensure that dynamics of the model have not been constrained by inappropriate lag length specification. The ARDL test automatically choose the lag length on all variables as the model was set at four to ensure sufficient degree of the freedom based on automatic selection of Akaike Information Criterion. The short-run estimates of the relationship between globalization and income inequality is presented in Table 4.11. The coefficient of the ECT is found to be negative and statistically significant at the conventional level. The ECT value (-0.3200) implied that the model corrects its short-run disequilibrium by 32.00% speed of adjustment in order to return to the long run equilibrium.

Table 4.11: Results of Estimated ARDL Model of Income Inequality

Dependent Variable: GINI
Selected Model: ARDL(2, 4, 0, 4, 3, 4)
Sample: 1985 2020 **Included observations:** 33

Short-Run Estimates				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(GINI(-1))	-0.247671	0.107121	-2.312069	0.0328
Δ(KOFGI)	0.443636	0.220503	2.011933	0.0594
Δ(KOFGI(-1))	-0.972409	0.244514	-3.976905	0.0009
Δ(GDPPC)	-0.138983	0.077462	-1.794225	0.0896
Δ(GFCF)	0.047339	0.095044	0.498078	0.6245
Δ(GFCF(-1))	-0.812666	0.12095	-6.719027	0.0000
Δ(INT)	-0.027823	0.0346	-0.804114	0.4318
ECT(-1)	-0.320017	0.03897	-8.211863	0.0000
Long-run Estimates				
KOFGI	2.120004	0.957327	2.214505	0.0399
GDPPC	-1.899117	0.606318	-3.13221	0.0058
GFCF	1.579716	0.532842	2.964697	0.0083
FSD	0.028872	0.524607	0.055035	0.9567
INF	-0.452256	0.145817	-3.10153	0.0062
INT	-0.312287	0.262119	-1.191394	0.249
C	-98.94159	61.49422	-1.608958	0.125

R-squared	0.74872	**F-stat**	6.0691 (0.0000)
Adj. R-squared	0.66832	**D-Watson**	2.453

Source: Author's computation (2023).

The coefficient of the short-run at lag one of change in income income inequality proxy by gini is significant at 5% level, which implies that the previous level of income inequality play a key role on the current level of income inequality in Nigeria. Meanwhile, the current and first lags of globalization have positive and negative impact at 10% and 5% level of significance respectively. As for gdp per capita at current level and gross fixed capita formation at first lag the result show that they both have a negative and statistically significant impact on income inequality in the short run in Nigeria. Thus, this results corroborate with apriori expectations.

The long-run estimates from Table 4.11 indicated that globalization has positive impact on income inequality in Nigeria. The result shows that the indicator was not in tandem with the theoretical expectations and is statistically significant at 5%. It means that globalization is one of the factors responsible for discrepancy in income levels in Nigeria. On magnitude basis, a unit increase in globalization will cause income inequality to increase by 2.12%. As for gdp per capita the result shows a negative and statistically significant effect on income inequality, this is line with the theoretical expectation. As for the gross fixed capita formation the result shows that there exist a positive impact on income inequality and it is statistically significant at 5%, however, this result does not allign with theoretical expectations. Likewise, as regards inflation rate the result shows a negative impact on income inequality and it is statistically significant at 5%.

The coefficient of determination (Adjusted-R^2) is high (66.83%) indicating that about 66.83% of the total variations in income inequality was explained by the variables in the model. It simply indicated that the variation of changes in income inequality was explained by 66.83% variations in globalization changes and other controlling variables. The overall test using the F-statistic (6.0691) is statistically significant at 5% level of significance showing that model is well

specified and statistically significant. The Durbin Watson statistic (2.453) shows that there is absence of serial autocorrelation in the model.

Diagnostic Test

The estimated ARDL model is tested for heteroscedasticity, serial correlation, functional form misspecification, parameter stability and normality. The results from these tests are shown in Table 4.9. The estimated ARDL model revealed that the model passed the serial correlation, normality test, and heteroskedasticity test. It means that the error terms are normally distributed with same variances and they are not serially correlated. Also, the Ramsey RESET test was satisfactory for the ARDL model indicating that the model is well distributed.In addition, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) respectively presented in Figures 4a and 4b are stable.

Table 4.12: Diagnostic Tests of Selected ARDL Model

Results	
Serial Correlation:2.0054 [0.1670]	**Normality Test:**0.6895 [0.7084]
Functional Form: 1.9201 [0.0718]	**Heteroskedasticity Test:**1.4151 [0.2393]

Source: Author's computation (2023).

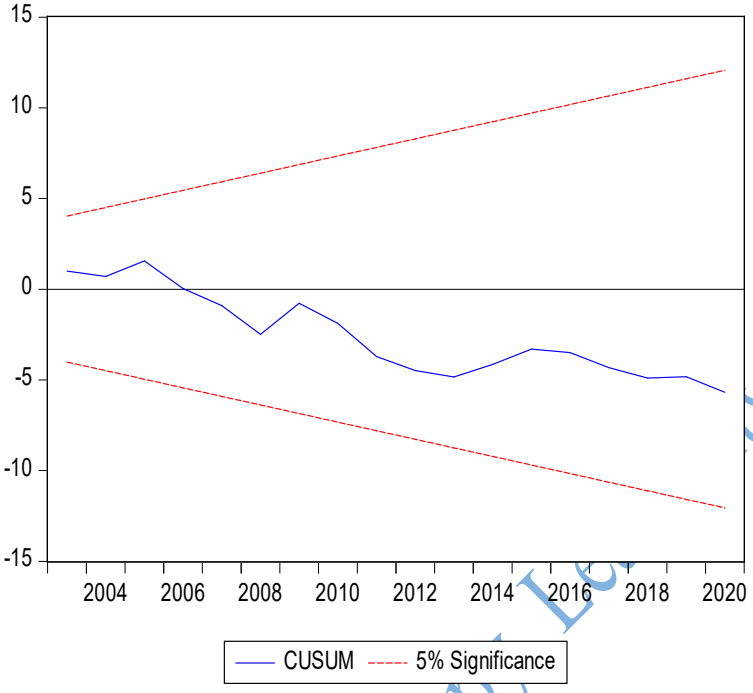

Figure 4a: Cumulative Sum

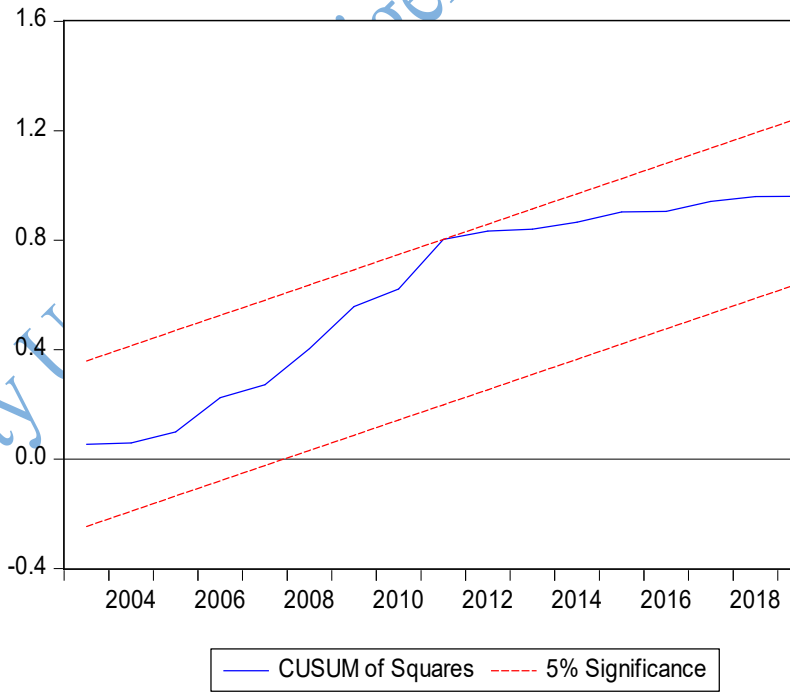

Figure 4b: Cumulative Sum of Square

4.11.1 Empirical Results of the Interactive Effects of Institutional quality and Globalization on Income Inequality

Cointegration Test Result

Concerning this section, the study examines the long-run relationship between the institutional quality, globalization, income inequality and other controlling variables using the autoregrssive distributed lag (ARDL) bound cointegration tests before the estimation of both the short-run and long-run parameters. For the first model showing the relationship among institutional quality, globalization, income inequality, the ARDL bound test is employed because it is suitable for variables at different order of integration. The F-statistics estimate for testing the existence of long-run relationship between institutional quality, globalization, income inequality in Nigeria is presented in Table 4.13.

From the table, the estimated F-statistics of the normalized equation (F_{arb} = 4.4919) is greater than the lower and upper critical bound at 5% significance level. This implies that the null hypothesis of no long-run relationship is rejected at 5% significance level. The implication of the above estimation is that institutional quality, globalization, control variables (such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation) and income inequality, all have equilibrium condition that keep them together in the long-run. Thus, there exists a long-run relationship between institutional quality, globalization, income inequality in Nigeria.

Table 4.13.1: Existence of long-run cointegration among institutional quality, globalization, income inequality (1, 2, 2, 2, 2, 2, 0, 0, 2)

Test Statistic	**Value**	**K**
F-statistics (gini, kofgi, inst, inst*kofgi, gdppc, gfcf, fsd, inf, int)	5.7513	8
Critical Value Bounds		
Significance	**I0 Bound**	**I1 Bound**
10%	1.85	2.85
5%	2.11	3.15
2.5%	2.33	3.42
1%	2.62	3.77

Source: Author's computation (2023).

Results of Short-run and Long-run Estimates

The discussion in here answers the fourth null hypothesis that institutional quality does not have a significant impact between globalization and income inequality in Nigeria. It examines both the short-run and long-run relationship estimates of institutional quality, globalization and income inequality and other controlling variables in Nigeria using the estimated ARDL approach described extensively in the previous chapter. The estimated ARDL model is a composite of short-run and long-run estimates of the interrelationship among considered series in this study. The clear evidence of our empirical estimates from income inequality and the interactive term of institutions and globalization, with other control variables such as gdp per capita, gross fixed capita formation, financial sector development, interest rate, inflation are presented in Table 4.14.

The short-run estimation results show the error correction mechanism which measures the speed or degree of adjustment. It is the rate of adjustment at which the dependent variable changes due to changes in the independent variables. The short run analysis shows the dynamic pattern in the model and to ensure that dynamics of the model have not been constrained by inappropriate lag length specification. The ARDL test automatically choose the lag length on all variables as the model was set at three to ensure sufficient degree of the freedom based on automatic selection of Akaike Information Criterion. The short-run estimates of the relationship among institutional quality, globalization and income inequality are presented in Table 4.14. The coefficient of the ECT is found to be negative and statistically significant at the conventional level. The ECT value (-0.8786) implied that the model corrects its short-run disequilibrium by 87.86% speed of adjustment in order to return to the long run equilibrium.

Table 4.15: Results of Estimated ARDL Model of Income inequality

Dependent Variable: GINI

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

Sample: 1985 2020 **Included observations:** 34

Short-Run Estimates				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(KOFGI)	-4.30228	0.66629	-6.457069	0.0000
Δ(KOFGI(-1))	-3.139094	0.833856	-3.764551	0.0027
Δ (INST)	-57.25819	8.971408	-6.382297	0.0000
Δ(INST(-1))	-42.09445	12.17714	-3.456842	0.0047
Δ(INST_KOFGI)	1.171255	0.189125	6.193012	0.0000
Δ(INST_KOFGI(-1))	0.881115	0.244634	3.601771	0.0036
Δ(GDPPC)	0.28525	0.071379	3.996295	0.0018
Δ(GDPPC(-1))	0.207483	0.076458	2.713694	0.0188
Δ(GFCF)	-0.259095	0.071755	-3.610845	0.0036
Δ(GFCF(-1))	-0.694169	0.107685	-6.446314	0.0000
Δ(INT)	0.062497	0.026094	2.395071	0.0338
Δ(INT(-1))	0.119339	0.027679	4.311591	0.0010
ECT(-1)	-0.8786	0.087577	-10.03236	0.0000
Long-run Estimates				
KOFGI	1.52754	1.129097	1.352886	0.0201
INST	29.16982	12.3169	2.368276	0.0355
INST x KOFGI	-0.556708	0.305189	-1.824144	0.0231
GDPPC	-0.164939	0.215466	-0.765497	0.0458
GFCF	0.405235	0.269648	1.502828	0.0158
FSD	-0.152311	0.186524	-0.816574	0.4301
INF	-0.150633	0.060657	-2.483346	0.0288
INT	-0.056178	0.0805	-0.697867	0.4986
C	-15.50446	10.51109	-1.475057297	0.0035
R-squared	0.903161	**F-stat**	5.7513(0.0000)	
Adj. R-squared	0.847824	**D-Watson**	2.7725	

Source: Author's computation (2023).

As for the short-run, the negative coefficient of globalization at current and first lag shows that it has negative and significant impact on income inequality at 5%. It implies that as globalization is increasing there will be a corresponding decrease in income inequality. Thus this is in line with the theoretical expectations. Likewise, the coefficient of the short-run of institutional quality is negative and significant statistically at 5% conventional level. It means increase in institutional quality will lead to a corresponding decrease in income inequality in Nigeria. Thus this is in line with the theoretical expectations. However, the interactive term of institutional quality and globalization is positive and statistically significant at 5% level in the short run. This implies that globalization increases income inequality due to weak institutions in Nigeria. Also, for gdp per capita at current and first lag, there is a positive and statistically significant relationship between them and income inequality. This does not align with theoretical expectations. As for gross fixed capital formation both at current and first lag they have a positive and statistically significant impact on income inequality at 5% conventional level. This implies that increase in investment reduces income inequality in the short run. Thus, this aligns with theoretical expectations. As for interest rate and income inequality, there exist a positive and statistically significant relationship between them in the short run at 5% conventional level in the short run.

The long-run estimates in Table 4.14 indicated that Kof globalization index has a positive and statistically significant relationship with income inequality in the long run at 5% conventional level. This implies that in the long run globalization will further continue to increase the gaps in income level in Nigeria. As regards institutions, there exists a positive and statistically significant relationship with income inequality at 5% conventional level, this implies that in Nigeria, weak institutions will further expand the gaps in income levels in the long run. As regards the interactive effect of institution and globalization, they have a negative and

statistically significant relationship on income inequality at 5% conventional level. This implies that the role of strong and quality institutions further close the bridge in income disparities in Nigeria in the long run. As for gdp per capita it has a negative and statistically significant relationship on income inequality at 5% conventional level. This implies that increase in GDP per capita further bridge the gaps in income levels. Thus, this aligns with theoretical expectations. As for gross fixed capita formation it has a positive and statistically significant relationship on income inequality at 5% conventional level. This implies that increase in gross fixed capital formation further expands the gaps in income levels. Thus, this does not align with theoretical expectations. Lastly, as for inflation it has a negative and statistically effect on income inequality at 5% conventional level in the longrun. Thus, this does not align with theoretical expectations.

The coefficient of determination (Adjusted-R^2) is high (84.78%) indicating that about 84.78% of the total variations in income inequality was explained by the variables in the model. It simply indicated that the variation of changes in income inequality was explained by 84.78% variations in institutions, globalization and other controlling variables. The overall test using the F-statistic (5.7513) is statistically significant at 5% level of significance showing that model is well specified and statistically significant. The Durbin Watson statistic (2.7725) shows that there is absence of serial autocorrelation in the model.

Diagnostic Test

The estimated ARDL model is tested for heteroscedasticity, serial correlation, functional form misspecification, parameter stability and normality. The results from these tests are shown in Table 4.15. The estimated ARDL model revealed that the model passed the serial correlation, normality test, and heteroskedasticity test. It means that the error terms are normally distributed with same variables and they are not serially correlated. Also, the Ramsey RESET test was

satisfactory for the ARDL model indicating that the model is well distributed. As well, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) respectively presented in Figures 5a and 5b are stable.

Table 4.16: Diagnostic Tests of Selected ARDL Model

Results	
Serial Correlation:8.6413 [0.0066]	**Normality Test:**1.2124 [0.5454]
Functional Form:0.2057 [0.8408]	**Heteroskedasticity Test:**1.8578[0.1347]

Source: Author's computation (2023).

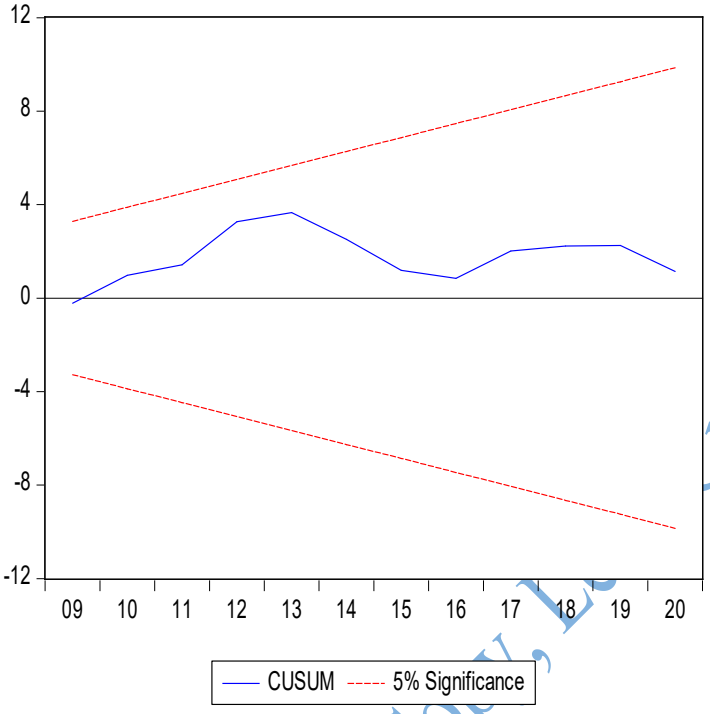

Figure 5a: Cumulative Sum

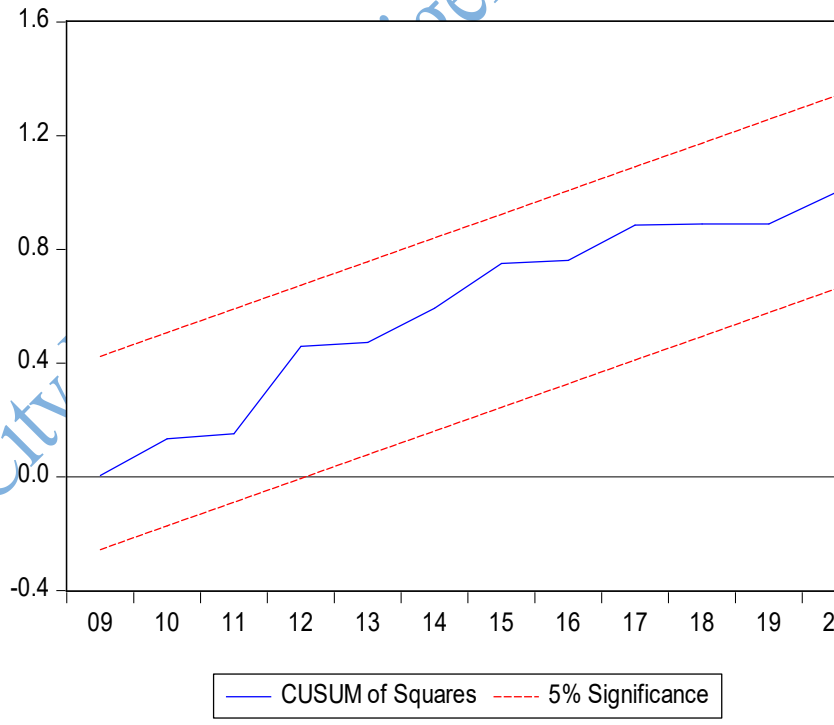

Figure 5b: Cumulative Sum of Square

4.5 Discussion of Findings

The results offer valuable insights into the relationships between various factors and income inequality in Nigeria. This discussion aims to provide a thorough interpretation of these findings.

First and foremost, the long-run estimates reveal a crucial relationship between globalization and income inequality in Nigeria. The positive and statistically significant relationship at a 5% conventional level suggests that as globalization continues to evolve in the long run, it will likely contribute to widening income disparities in the country. This finding is consistent with past studies[1, 2, 3, 4].

Moving on to the role of institutions, the results show a positive and statistically significant relationship between institutions and income inequality in Nigeria at a 5% conventional level. This finding implies that, in the long run, a lack of strong and effective institutions is likely to exacerbate income disparities. It underscores the importance of improving and strengthening institutional frameworks to promote more equitable income distribution in the country. This finding is consistent with past studies[5, 6].

When considering the interactive effect of institutions and globalization, the results reveal a fascinating dynamic. The negative and statistically significant relationship at a 5% conventional level suggests that strong and high-quality institutions can play a role in closing the income inequality gap in Nigeria over time. This finding highlights the potential of well-functioning institutions to counteract the negative effects of globalization and promote more equitable income distribution.

GDP per capita, as another key determinant, exhibits a negative and statistically significant relationship with income inequality at a 5% conventional level. This means that an increase in

GDP per capita has the effect of narrowing income disparities. This finding aligns with theoretical expectations and underscores the importance of economic growth and prosperity in addressing income inequality. The findings is consistent with previous studies [7,8,9].

In contrast, gross fixed capital formation displays a surprising result, with a positive and statistically significant relationship with income inequality at a 5% conventional level. This implies that an increase in gross fixed capital formation may, counter-intuitively, widen income gaps in the long run.

Lastly, inflation's impact on income inequality is explored, revealing a negative and statistically significant effect at a 5% conventional level in the long run. This finding contradicts theoretical expectations and suggests that higher inflation might be associated with reduced income inequality.

In conclusion, the findings shed light on the complex web of factors influencing income inequality in Nigeria. Policymakers should consider the implications of globalization, the critical role of institutions, and the effects of GDP per capita, gross fixed capital formation, and inflation when designing strategies to address income inequality in the long run. It is essential to acknowledge that these relationships are multifaceted, and effective policy responses should be tailored to the specific challenges and dynamics present in the Nigerian context.

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Chapter Five

Conclusion

This chapter presents the summary, conclusion, and recommendation of the study. This is divided into five sections which includes summary of findings, conclusion, recommendations, contribution to knowledge, and suggestions for future studies.

5.1 Summary of Findings

The broad objective of this study was to examine the relationship among institutional quality, globalization and income inequality in Nigeria using annual data from 1985 to 2020. The estimator employed was the ARDL estimation technique. The empirical results of specific objectives are reported and discussed in the previous chapter in details. However, the summary findings from this study are discussed in this sub-section.

The result of the trend analysis did not present a precise or exact relationship among income inequality, globalization, and income inequality in Nigeria whether it is direct or indirect. It however, necessitated the need for empirical analysis with more appropriate econometrics tools as the directions of the variables are inconclusive. The unit root results revealed that some of the series are not stationary at levels but after differencing once, they were stationary. This implies that many of these series trended with prevalent economic, political, financial, social, institutions, trade, and external sector reforms. Therefore, they have stochastic trends. The long-run co-movement of the variables was confirmed using cointegration test. The parameter estimates were estimated using ARDL estimation technique based on the different stationarity order of the variables.

The study reveals a positive and statistically significant relationship between the Kof globalization index and income inequality. This suggests that, in the long run, increasing globalization is likely to widen income disparities in Nigeria.

Weak institutions exhibit a positive and statistically significant relationship with income inequality, implying that inadequate institutional quality will likely exacerbate income disparities over time.

Interestingly, the combination of strong institutions and globalization has a negative and statistically significant relationship with income inequality. This implies that robust institutions can mitigate the negative effects of globalization on income inequality.

An increase in GDP per capita is negatively and statistically associated with income inequality. This aligns with theoretical expectations, indicating that economic growth can lead to more equitable income distribution.

Surprisingly, the study finds a positive and statistically significant relationship between gross fixed capital formation and income inequality. This suggests that an increase in capital formation may widen income disparities in the long run, contrary to theoretical expectations.

Lastly, as for inflation has a negative and statistically significant effect on income inequality. This contradicts theoretical expectations, indicating that higher inflation might be associated with reduced income inequality.

5.2 Conclusion

This study provides an empirical insight on the links among institutional quality, globalization, and income inequality in Nigeria for a period of 1985 and 2020.

When considering the interactive effect of institutions and globalization, the results reveal a fascinating dynamic. The negative and statistically significant relationship at a 5% conventional level suggests that strong and high-quality institutions can play a role in closing the income inequality gap in Nigeria over time. This finding highlights the potential of well-functioning institutions to counteract the negative effects of globalization and promote more equitable income distribution.

The study formulated four specific objectives and evaluated using appropriate statistical methods like auto-regressive estimation technique, whereas pre-estimation tests (such as graph, descriptive statistics, correlation matrix, unit root and cointegration) were carried out to validate the choice of the estimation techniques. Several diagnostic tests such as serial correlation, normality tests, heteroskedasticity test, as well as functional form were carried out to further ensure the validity of the estimation technique.

The long-run estimates in of Kof globalization index has a positive and statistically significant relationship with income inequality in the long run at 5% conventional level. This implies that in the long run globalization will further continue to increase the gaps in income level in Nigeria. As regards institutions, there exists a positive and statistically significant relationship with income inequality at 5% conventional level, this implies that in Nigeria, weak institutions will further expand the gaps in income levels in the long run. As regards the interactive effect of institution and globalization, they have a negative and statistically significant relationship on income inequality at 5% conventional level. This implies that the role of strong and quality

institutions further close the bridge in income disparities in Nigeria in the long run. As for gdp per capita it has a negative and statistically significant relationship on income inequality at 5% conventional level. This implies that increase in GDP per capita further bridge the gaps in income levels. Thus, this aligns with theoretical expectations. As for gross fixed capita formation it has a positive and statistically significant relationship on income inequality at 5% conventional level. This implies that increase in gross fixed capital formation further expands the gaps in income levels. Thus, this does not align with theoretical expectations. Lastly, as for inflation it has a negative and statistically effect on income inequality at 5% conventional level in the longrun. Thus, this does not align with theoretical expectations.

5.3 Recommendations

The following recommendations arising from the empirical results of this study are suggested in this sub-section. The following suggestions are stated as follows:

i. Government should prioritize institution-building initiatives, focusing on strengthening governance, reducing corruption, and enhancing regulatory frameworks to ensure that the benefits of globalization are equitably shared across society.

ii. Recognizing the positive relationship between globalization and income inequality, it is crucial to develop strategies to mitigate the adverse impacts of globalization on income distribution. This might involve targeted social safety nets, education and skill development programs, and policies that support job creation for lower-income individuals.

iii. Government should increase investment in improving the quality and effectiveness of institutions in Nigeria. This includes measures to enhance the rule of law, reduce

corruption, and ensure fair and transparent governance. Strong institutions can play a crucial role in reducing income inequality by creating a level playing field for all citizens.

iv. Government should focus on policies that promote inclusive economic growth. While GDP per capita has a negative relationship with income inequality, ensuring that economic growth benefits all segments of the population is essential. Implement targeted programs to support vulnerable and marginalized groups, providing them with access to education, healthcare, and economic opportunities.

5.4 Contribution to Knowledge

The contributions made by this study to the existing literature are in the areas of identified gaps and achieved with the proposition of appropriate policy suggestions based on the results obtained from empirical findings. The following major contributions are stated below as:.

Empirical Evidence

The research provides empirical evidence of the specific relationships between institutional quality, globalization, and income inequality in Nigeria. This empirical basis enhances the understanding of these relationships and offers concrete data for policymakers and scholars to reference and build upon. It adds credibility to the discourse on the socioeconomic landscape of Nigeria and the role of institutions and globalization in shaping income distribution.

Nuanced Understanding:

By uncovering the positive relationship between institutional quality and income inequality, the work challenges conventional wisdom. While it might seem counterintuitive, the findings highlight the intricate dynamics at play in Nigeria's socioeconomic landscape. This nuanced

understanding is crucial for developing more effective policies that consider the multifaceted nature of income inequality.

Globalization Impact:

The research sheds light on how globalization affects income inequality in Nigeria. The positive relationship between globalization and income inequality underscores the need for policymakers to consider the consequences of globalization on income distribution. This insight is particularly relevant in a globalized world where nations are increasingly interconnected, and economic policies have far-reaching implications.

Policy Implications:

The findings have practical implications for policy formulation in Nigeria. It emphasize the importance of strengthening institutions to mitigate the potentially adverse effects of globalization on income inequality. Policymakers can use this research as a guide to design measures that address income disparities effectively. This knowledge is vital for creating more equitable and just societies.

Interdisciplinary Significance:

The research bridges economics, political science, and international relations, offering an interdisciplinary perspective on the topic. This interdisciplinary approach enriches the academic discourse and contributes to a holistic understanding of the issues at hand. It underscores the complexity of the challenges in addressing income inequality and the need for multifaceted approaches.

5.5 Suggestion for Further Studies

Future studies could delve into the causal mechanisms behind how institutional quality impacts income inequality, examining specific reforms and policies that may lead to more equitable income distribution. This analysis could provide actionable insights for policymakers seeking to design effective strategies to address income disparities.

Secondly, conducting longitudinal research would enable the tracking of changes in income inequality, institutional quality, and globalization over time in Nigeria. This approach could reveal evolving trends and their interconnections, shedding light on whether and how the relationships among these variables are changing.

These research suggestions promise to expand our knowledge of the complex relationship between institutional quality, globalization, and income inequality in Nigeria, ultimately offering a more comprehensive understanding of this critical issue and informing policies and strategies to promote greater income equity in the country.

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Appendix

Descriptive statistics

	GINI	INST	KOFGI	GFCF	GDPPC	FSD	INF	INT
Mean	41.51714	2.990157	49.18960	30.60888	1.548636	9.730140	19.51369	2.547113
Median	40.10000	2.958333	49.54598	26.76866	1.634594	8.435095	12.55496	5.371280
Maximum	51.90000	3.937500	57.22692	54.94827	12.45747	19.62560	72.83550	18.18000
Minimum	35.10000	1.937500	37.62296	14.16873	-4.457078	4.957522	5.388008	-31.45257
Std. Dev.	6.091242	0.417046	6.471732	13.07636	3.845034	3.567212	17.82607	10.09646
Skewness	0.730560	-0.142645	-0.395463	0.321475	0.496722	0.989421	1.703021	-1.192216
Kurtosis	2.126352	3.682634	1.805560	1.816227	3.338651	3.640444	4.547347	5.073133
Jarque-Bera	4.226446	0.798262	2.992865	2.646443	1.606523	6.308732	20.40997	14.55912
Probability	0.120848	0.670903	0.223928	0.266276	0.447866	0.042665	0.000037	0.000689
Sum	1453.100	104.6555	1721.636	1071.311	54.20226	340.5549	682.9792	89.14897
Sum Sq. Dev.	1261.510	5.913544	1424.033	5813.698	502.6657	432.6500	10804.13	3465.911
Observations	35	35	35	35	35	35	35	35

Correlation

	GINI	INST	KOFGI	GFCF	GDPPC	FSD	INF	INT
GINI	1	0.57023248...	-0.4417155...	0.43417299...	0.05916477...	-0.4228594...	0.14823051...	-0.1771054...
INST	0.57023248...	1	0.11558018...	-0.0604550...	-0.1262721...	-0.0323021...	-0.0546457...	0.03985348...
KOFGI	-0.4417155...	0.11558018...	1	-0.9516498...	0.08688056...	0.77429675...	-0.4261381...	0.40715049...
GFCF	0.43417299...	-0.0604550...	-0.9516498...	1	-0.1916355...	-0.7667155...	0.39972021...	-0.3699161...
GDPPC	0.05916477...	-0.1262721...	0.08688056...	-0.1916355...	1	0.08729782...	-0.3117583...	0.30891170...
FSD	-0.4228594...	-0.0323021...	0.77429675...	-0.7667155...	0.08729782...	1	-0.3701395...	0.45686645...
INF	0.14823051...	-0.0546457...	-0.4261381...	0.39972021...	-0.3117583...	-0.3701395...	1	-0.7827390...
INT	-0.1771054...	0.03985348...	0.40715049...	-0.3699161...	0.30891170...	0.45686645...	-0.7827390...	1

Unit root tests

Null Hypothesis: GINI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.104705	0.7026
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GINI)
Method: Least Squares
Date: 11/04/23 Time: 16:43
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GINI(-1)	-0.085528	0.077422	-1.104705	0.2775
C	3.461139	3.262049	1.061032	0.2966

R-squared	0.036736	Mean dependent var	-0.105882
Adjusted R-squared	0.006634	S.D. dependent var	2.712255
S.E. of regression	2.703244	Akaike info criterion	4.883805
Sum squared resid	233.8409	Schwarz criterion	4.973591
Log likelihood	-81.02468	Hannan-Quinn criter.	4.914424
F-statistic	1.220372	Durbin-Watson stat	1.895203
Prob(F-statistic)	0.277525		

Null Hypothesis: D(GINI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.535580	0.0001
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GINI,2)
Method: Least Squares
Date: 11/04/23 Time: 16:33
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GINI(-1))	-0.994203	0.179602	-5.535580	0.0000
C	-0.108458	0.487510	-0.222475	0.8254

R-squared	0.497101	Mean dependent var	0.000000
Adjusted R-squared	0.480879	S.D. dependent var	3.883780
S.E. of regression	2.798266	Akaike info criterion	4.954569
Sum squared resid	242.7391	Schwarz criterion	5.045266
Log likelihood	-79.75039	Hannan-Quinn criter.	4.985086
F-statistic	30.64264	Durbin-Watson stat	2.000023
Prob(F-statistic)	0.000005		

Null Hypothesis: GINI has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.141721	0.6876
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	6.877674
HAC corrected variance (Bartlett kernel)	7.234619

Phillips-Perron Test Equation
Dependent Variable: D(GINI)
Method: Least Squares
Date: 11/04/23 Time: 16:51
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GINI(-1)	-0.085528	0.077422	-1.104705	0.2775
C	3.461139	3.262049	1.061032	0.2966

R-squared	0.036736	Mean dependent var	-0.105882
Adjusted R-squared	0.006634	S.D. dependent var	2.712255
S.E. of regression	2.703244	Akaike info criterion	4.883805
Sum squared resid	233.8409	Schwarz criterion	4.973591
Log likelihood	-81.02468	Hannan-Quinn criter.	4.914424
F-statistic	1.220372	Durbin-Watson stat	1.895203
Prob(F-statistic)	0.277525		

Null Hypothesis: INST has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.870855	0.0594
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INST)
Method: Least Squares
Date: 11/04/23 Time: 16:55
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INST(-1)	-0.258212	0.089943	-2.870855	0.0072
C	0.805663	0.271226	2.970445	0.0056

R-squared	0.204807	Mean dependent var	0.034475
Adjusted R-squared	0.179957	S.D. dependent var	0.241230
S.E. of regression	0.218449	Akaike info criterion	-0.147509
Sum squared resid	1.527034	Schwarz criterion	-0.057723
Log likelihood	4.507652	Hannan-Quinn criter.	-0.116889
F-statistic	8.241809	Durbin-Watson stat	1.596744
Prob(F-statistic)	0.007202		

Null Hypothesis: D(INST) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.667661	0.0007
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INST,2)
Method: Least Squares
Date: 11/04/23 Time: 16:58
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INST(-1))	-0.819156	0.175496	-4.667661	0.0001
C	0.023647	0.042758	0.553027	0.5842

R-squared	0.412735	Mean dependent var	-0.004398
Adjusted R-squared	0.393791	S.D. dependent var	0.312347
S.E. of regression	0.243191	Akaike info criterion	0.068756
Sum squared resid	1.833404	Schwarz criterion	0.159454
Log likelihood	0.865524	Hannan-Quinn criter.	0.099273
F-statistic	21.78706	Durbin-Watson stat	2.047957
Prob(F-statistic)	0.000056		

Null Hypothesis: INST has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.880181	0.0582
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	0.044913
HAC corrected variance (Bartlett kernel)	0.050018

Phillips-Perron Test Equation
Dependent Variable: D(INST)
Method: Least Squares
Date: 11/04/23 Time: 17:00
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INST(-1)	-0.258212	0.089943	-2.870855	0.0072
C	0.805663	0.271226	2.970445	0.0056

R-squared	0.204807	Mean dependent var	0.034475
Adjusted R-squared	0.179957	S.D. dependent var	0.241230
S.E. of regression	0.218449	Akaike info criterion	-0.147509
Sum squared resid	1.527034	Schwarz criterion	-0.057723
Log likelihood	4.507652	Hannan-Quinn criter.	-0.116889
F-statistic	8.241809	Durbin-Watson stat	1.596744
Prob(F-statistic)	0.007202		

Null Hypothesis: D(INST) has a unit root
Exogenous: Constant
Bandwidth: 7 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.572256	0.0009
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	0.055558
HAC corrected variance (Bartlett kernel)	0.038679

Phillips-Perron Test Equation
Dependent Variable: D(INST,2)
Method: Least Squares
Date: 11/04/23 Time: 17:02
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INST(-1))	-0.819156	0.175496	-4.667661	0.0001
C	0.023647	0.042758	0.553027	0.5842

R-squared	0.412735	Mean dependent var	-0.004398
Adjusted R-squared	0.393791	S.D. dependent var	0.312347
S.E. of regression	0.243191	Akaike info criterion	0.068756
Sum squared resid	1.833404	Schwarz criterion	0.159454
Log likelihood	0.865524	Hannan-Quinn criter.	0.099273
F-statistic	21.78706	Durbin-Watson stat	2.047957
Prob(F-statistic)	0.000056		

Null Hypothesis: KOFGI has a unit root
Exogenous: Constant
Lag Length: 8 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.017332	0.2780
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(KOFGI)
Method: Least Squares
Date: 11/04/23 Time: 17:04
Sample (adjusted): 1995 2020
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOFGI(-1)	-0.057296	0.028402	-2.017332	0.0608
D(KOFGI(-1))	0.669829	0.142763	4.691909	0.0002
D(KOFGI(-2))	-0.123712	0.108565	-1.139517	0.2713
D(KOFGI(-3))	-0.072508	0.105305	-0.688546	0.5010
D(KOFGI(-4))	0.057197	0.105963	0.539787	0.5968
D(KOFGI(-5))	-0.167015	0.096312	-1.734102	0.1021
D(KOFGI(-6))	0.499065	0.101760	4.904345	0.0002
D(KOFGI(-7))	-0.238170	0.109049	-2.184060	0.0442
D(KOFGI(-8))	0.192908	0.108387	1.779801	0.0941
C	2.976179	1.552399	1.917148	0.0733

R-squared	0.816013	Mean dependent var	0.344502
Adjusted R-squared	0.712521	S.D. dependent var	1.179778
S.E. of regression	0.632562	Akaike info criterion	2.205647
Sum squared resid	6.402164	Schwarz criterion	2.689531
Log likelihood	-18.67342	Hannan-Quinn criter.	2.344988
F-statistic	7.884754	Durbin-Watson stat	2.288375
Prob(F-statistic)	0.000206		

Null Hypothesis: D(KOFGI,2) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 4 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.327042	0.0001
Test critical values:	1% level	-4.323979	
	5% level	-3.580623	
	10% level	-3.225334	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(KOFGI,3)
Method: Least Squares
Date: 11/04/23 Time: 17:06
Sample (adjusted): 1993 2020
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KOFGI(-1),2)	-3.888125	0.614525	-6.327042	0.0000
D(KOFGI(-1),3)	2.180307	0.512955	4.250484	0.0004
D(KOFGI(-2),3)	1.725986	0.414105	4.167989	0.0004
D(KOFGI(-3),3)	1.274537	0.290163	4.392482	0.0003
D(KOFGI(-4),3)	0.581769	0.162469	3.580810	0.0018
C	0.159545	0.719571	0.221723	0.8267
@TREND("1986")	-0.016562	0.032650	-0.507269	0.6173

R-squared	0.847223	Mean dependent var	0.023753
Adjusted R-squared	0.803572	S.D. dependent var	3.130872
S.E. of regression	1.387609	Akaike info criterion	3.705359
Sum squared resid	40.43462	Schwarz criterion	4.038410
Log likelihood	-44.87503	Hannan-Quinn criter.	3.807176
F-statistic	19.40915	Durbin-Watson stat	1.819340
Prob(F-statistic)	0.000000		

Null Hypothesis: KOFGI has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.871254	0.3413
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	1.854847
HAC corrected variance (Bartlett kernel)	0.977558

Phillips-Perron Test Equation
Dependent Variable: D(KOFGI)
Method: Least Squares
Date: 11/04/23 Time: 17:08
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOFGI(-1)	-0.062189	0.037642	-1.652097	0.1083
C	3.555822	1.860968	1.910738	0.0650

R-squared	0.078591	Mean dependent var	0.507161
Adjusted R-squared	0.049797	S.D. dependent var	1.440159
S.E. of regression	1.403843	Akaike info criterion	3.573327
Sum squared resid	63.06481	Schwarz criterion	3.663112
Log likelihood	-58.74655	Hannan-Quinn criter.	3.603946
F-statistic	2.729423	Durbin-Watson stat	1.822180
Prob(F-statistic)	0.108295		

Null Hypothesis: D(KOFGI) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.929334	0.0003
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	2.058048
HAC corrected variance (Bartlett kernel)	1.841914

Phillips-Perron Test Equation
Dependent Variable: D(KOFGI,2)
Method: Least Squares
Date: 11/04/23 Time: 17:10
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KOFGI(-1))	-0.910348	0.183136	-4.970893	0.0000
C	0.458672	0.277314	1.653983	0.1082

R-squared	0.443545	Mean dependent var	-0.051037
Adjusted R-squared	0.425595	S.D. dependent var	1.952966
S.E. of regression	1.480144	Akaike info criterion	3.680847
Sum squared resid	67.91558	Schwarz criterion	3.771545
Log likelihood	-58.73398	Hannan-Quinn criter.	3.711364
F-statistic	24.70977	Durbin-Watson stat	1.928937
Prob(F-statistic)	0.000023		

Null Hypothesis: GFCF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.966233	0.2996
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GFCF)
Method: Least Squares
Date: 11/04/23 Time: 17:12
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GFCF(-1)	-0.083958	0.042700	-1.966233	0.0580
C	1.749862	1.425439	1.227595	0.2286

R-squared	0.107792	Mean dependent var	-0.829531
Adjusted R-squared	0.079910	S.D. dependent var	3.389702
S.E. of regression	3.251446	Akaike info criterion	5.253099
Sum squared resid	338.3009	Schwarz criterion	5.342885
Log likelihood	-87.30269	Hannan-Quinn criter.	5.283719
F-statistic	3.866071	Durbin-Watson stat	1.725486
Prob(F-statistic)	0.057997		

Null Hypothesis: D(GFCF) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.929825	0.0003
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GFCF,2)
Method: Least Squares
Date: 11/04/23 Time: 17:13
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF(-1))	-0.867828	0.176036	-4.929825	0.0000
C	-0.584782	0.611406	-0.956456	0.3462

R-squared	0.439454	Mean dependent var	0.212647
Adjusted R-squared	0.421371	S.D. dependent var	4.452760
S.E. of regression	3.387110	Akaike info criterion	5.336523
Sum squared resid	355.6479	Schwarz criterion	5.427220
Log likelihood	-86.05263	Hannan-Quinn criter.	5.367040
F-statistic	24.30317	Durbin-Watson stat	1.958475
Prob(F-statistic)	0.000026		

Null Hypothesis: D(GFCF) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.929825	0.0003
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GFCF,2)
Method: Least Squares
Date: 11/04/23 Time: 17:13
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF(-1))	-0.867828	0.176036	-4.929825	0.0000
C	-0.584782	0.611406	-0.956456	0.3462

R-squared	0.439454	Mean dependent var	0.212647
Adjusted R-squared	0.421371	S.D. dependent var	4.452760
S.E. of regression	3.387110	Akaike info criterion	5.336523
Sum squared resid	355.6479	Schwarz criterion	5.427220
Log likelihood	-86.05263	Hannan-Quinn criter.	5.367040
F-statistic	24.30317	Durbin-Watson stat	1.958475
Prob(F-statistic)	0.000026		

Null Hypothesis: D(GFCF) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.888464	0.0004
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	10.77721
HAC corrected variance (Bartlett kernel)	9.120296

Phillips-Perron Test Equation
Dependent Variable: D(GFCF,2)
Method: Least Squares
Date: 11/04/23 Time: 17:16
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF(-1))	-0.867828	0.176036	-4.929825	0.0000
C	-0.584782	0.611406	-0.956456	0.3462

R-squared	0.439454	Mean dependent var	0.212647
Adjusted R-squared	0.421371	S.D. dependent var	4.452760
S.E. of regression	3.387110	Akaike info criterion	5.336523
Sum squared resid	355.6479	Schwarz criterion	5.427220
Log likelihood	-86.05263	Hannan-Quinn criter.	5.367040
F-statistic	24.30317	Durbin-Watson stat	1.958475
Prob(F-statistic)	0.000026		

Null Hypothesis: GDPPC has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.705466	0.0085
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDPPC)
Method: Least Squares
Date: 11/04/23 Time: 17:17
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC(-1)	-0.618926	0.167030	-3.705466	0.0008
C	1.012756	0.682975	1.482859	0.1479

R-squared	0.300248	Mean dependent var	-0.051475
Adjusted R-squared	0.278381	S.D. dependent var	4.253368
S.E. of regression	3.613158	Akaike info criterion	5.464064
Sum squared resid	417.7572	Schwarz criterion	5.553850
Log likelihood	-90.88909	Hannan-Quinn criter.	5.494684
F-statistic	13.73048	Durbin-Watson stat	2.188284
Prob(F-statistic)	0.000795		

Null Hypothesis: GDPPC has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.592407	0.0112
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	12.28698
HAC corrected variance (Bartlett kernel)	10.74028

Phillips-Perron Test Equation
Dependent Variable: D(GDPPC)
Method: Least Squares
Date: 11/04/23 Time: 17:19
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPPC(-1)	-0.618926	0.167030	-3.705466	0.0008
C	1.012756	0.682975	1.482859	0.1479

R-squared	0.300248	Mean dependent var	-0.051475
Adjusted R-squared	0.278381	S.D. dependent var	4.253368
S.E. of regression	3.613158	Akaike info criterion	5.464064
Sum squared resid	417.7572	Schwarz criterion	5.553850
Log likelihood	-90.88909	Hannan-Quinn criter.	5.494684
F-statistic	13.73048	Durbin-Watson stat	2.188284
Prob(F-statistic)	0.000795		

Null Hypothesis: FSD has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.329638	0.1691
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FSD)
Method: Least Squares
Date: 11/04/23 Time: 17:22
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FSD(-1)	-0.229621	0.098565	-2.329638	0.0267
D(FSD(-1))	0.344121	0.170202	2.021839	0.0522
C	2.362710	1.011341	2.336215	0.0264

R-squared	0.198576	Mean dependent var	0.167541
Adjusted R-squared	0.145148	S.D. dependent var	2.099627
S.E. of regression	1.941278	Akaike info criterion	4.251078
Sum squared resid	113.0568	Schwarz criterion	4.387124
Log likelihood	-67.14279	Hannan-Quinn criter.	4.296853
F-statistic	3.716688	Durbin-Watson stat	1.919329
Prob(F-statistic)	0.036135		

Null Hypothesis: D(FSD) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.378377	0.0001
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FSD,2)
Method: Least Squares
Date: 11/04/23 Time: 17:23
Sample (adjusted): 1990 2020
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FSD(-1))	-1.424464	0.264850	-5.378377	0.0000
D(FSD(-1),2)	0.592484	0.205948	2.876862	0.0078
D(FSD(-2),2)	0.461131	0.175962	2.620629	0.0142
C	0.293485	0.344349	0.852291	0.4015

R-squared	0.549380	Mean dependent var	0.062903
Adjusted R-squared	0.499311	S.D. dependent var	2.688520
S.E. of regression	1.902380	Akaike info criterion	4.244003
Sum squared resid	97.71434	Schwarz criterion	4.429033
Log likelihood	-61.78204	Hannan-Quinn criter.	4.304318
F-statistic	10.97247	Durbin-Watson stat	2.092437
Prob(F-statistic)	0.000069		

Null Hypothesis: FSD has a unit root
Exogenous: Constant
Bandwidth: 11 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.540608	0.5013
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	3.842759
HAC corrected variance (Bartlett kernel)	3.122577

Phillips-Perron Test Equation
Dependent Variable: D(FSD)
Method: Least Squares
Date: 11/04/23 Time: 17:24
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FSD(-1)	-0.165420	0.097818	-1.691104	0.1005
C	1.731903	1.006415	1.720865	0.0949

R-squared	0.082038	Mean dependent var	0.134025
Adjusted R-squared	0.053352	S.D. dependent var	2.076786
S.E. of regression	2.020626	Akaike info criterion	4.301715
Sum squared resid	130.6538	Schwarz criterion	4.391501
Log likelihood	-71.12915	Hannan-Quinn criter.	4.332334
F-statistic	2.859833	Durbin-Watson stat	1.418105
Prob(F-statistic)	0.100536		

Null Hypothesis: D(FSD) has a unit root
Exogenous: Constant
Bandwidth: 3 (Used-specified) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.268852	0.0020
Test critical values:	1% level	-3.646342	
	5% level	-2.954021	
	10% level	-2.615817	

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

Residual variance (no correction)	4.045745
HAC corrected variance (Bartlett kernel)	2.817791

Phillips-Perron Test Equation
Dependent Variable: D(FSD,2)
Method: Least Squares
Date: 11/04/23 Time: 17:28
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FSD(-1))	-0.768935	0.174397	-4.409100	0.0001
C	0.142456	0.361755	0.393793	0.6964

R-squared	0.385410	Mean dependent var	0.058979
Adjusted R-squared	0.365585	S.D. dependent var	2.605485
S.E. of regression	2.075274	Akaike info criterion	4.356755
Sum squared resid	133.5096	Schwarz criterion	4.447452
Log likelihood	-69.88646	Hannan-Quinn criter.	4.387272
F-statistic	19.44017	Durbin-Watson stat	1.882130
Prob(F-statistic)	0.000116		

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 7 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.539364	0.0013
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 11/04/23 Time: 17:29
Sample (adjusted): 1994 2020
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.472331	0.104052	-4.539364	0.0003
D(INF(-1))	-0.038122	0.141944	-0.268569	0.7913
D(INF(-2))	0.223175	0.134324	1.661467	0.1139
D(INF(-3))	0.216107	0.118984	1.816271	0.0860
D(INF(-4))	-0.053787	0.107681	-0.499508	0.6235
D(INF(-5))	-0.262407	0.107302	-2.445507	0.0250
D(INF(-6))	0.167974	0.087578	1.918003	0.0711
D(INF(-7))	0.194349	0.094616	2.054083	0.0548
C	6.195186	2.316110	2.674824	0.0155

R-squared	0.797571	Mean dependent var	-1.626638
Adjusted R-squared	0.707602	S.D. dependent var	10.64234
S.E. of regression	5.754720	Akaike info criterion	6.599119
Sum squared resid	596.1024	Schwarz criterion	7.031065
Log likelihood	-80.08811	Hannan-Quinn criter.	6.727559
F-statistic	8.864987	Durbin-Watson stat	1.979140
Prob(F-statistic)	0.000069		

Null Hypothesis: INF has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.852100	0.0618
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	189.4046
HAC corrected variance (Bartlett kernel)	209.1013

Phillips-Perron Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 11/04/23 Time: 17:31
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.377691	0.136735	-2.762219	0.0094
C	7.661217	3.629509	2.110814	0.0427

R-squared	0.192528	Mean dependent var	0.221437
Adjusted R-squared	0.167294	S.D. dependent var	15.54583
S.E. of regression	14.18599	Akaike info criterion	8.199410
Sum squared resid	6439.757	Schwarz criterion	8.289196
Log likelihood	-137.3900	Hannan-Quinn criter.	8.230029
F-statistic	7.629853	Durbin-Watson stat	1.584947
Prob(F-statistic)	0.009433		

Null Hypothesis: INT has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.534826	0.0129
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INT)
Method: Least Squares
Date: 11/04/23 Time: 17:33
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT(-1)	-0.562360	0.159091	-3.534826	0.0013
C	1.416888	1.651552	0.857913	0.3973

R-squared	0.280818	Mean dependent var	0.031206
Adjusted R-squared	0.258344	S.D. dependent var	10.86272
S.E. of regression	9.354913	Akaike info criterion	7.366703
Sum squared resid	2800.461	Schwarz criterion	7.456489
Log likelihood	-123.2339	Hannan-Quinn criter.	7.397322
F-statistic	12.49500	Durbin-Watson stat	1.943914
Prob(F-statistic)	0.001267		

Null Hypothesis: INT has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.556959	0.0123
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Residual variance (no correction)	82.36650
HAC corrected variance (Bartlett kernel)	84.49452

Phillips-Perron Test Equation
Dependent Variable: D(INT)
Method: Least Squares
Date: 11/04/23 Time: 17:34
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT(-1)	-0.562360	0.159091	-3.534826	0.0013
C	1.416888	1.651552	0.857913	0.3973

R-squared	0.280818	Mean dependent var	0.031206
Adjusted R-squared	0.258344	S.D. dependent var	10.86272
S.E. of regression	9.354913	Akaike info criterion	7.366703
Sum squared resid	2800.461	Schwarz criterion	7.456489
Log likelihood	-123.2339	Hannan-Quinn criter.	7.397322
F-statistic	12.49500	Durbin-Watson stat	1.943914
Prob(F-statistic)	0.001267		

ARDL

Dependent Variable: KOFGI
Method: ARDL
Date: 11/07/23 Time: 17:49
Sample (adjusted): 1988 2020
Included observations: 33 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): INST GDPPC GFCF FSD INT INF
Fixed regressors: C
Number of models evalulated: 1458
Selected Model: ARDL(1, 2, 2, 0, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
KOFGI(-1)	0.650584	0.119719	5.434275	0.0000
INST	-3.470497	1.123809	-3.088157	0.0063
INST(-1)	1.435994	1.195276	1.201391	0.2452
INST(-2)	1.081189	0.872904	1.238612	0.2314
GDPPC	-0.244564	0.073050	-3.347922	0.0036
GDPPC(-1)	0.007757	0.058316	0.133018	0.8957
GDPPC(-2)	0.132010	0.061421	2.149248	0.0455
GFCF	0.028070	0.057398	0.489034	0.6307
FSD	-0.155249	0.111602	-1.391092	0.1812
FSD(-1)	0.509233	0.128512	3.962524	0.0009
INT	-0.004362	0.037214	-0.117208	0.9080
INT(-1)	-0.166345	0.038473	-4.323673	0.0004
INF	-0.083887	0.030816	-2.722199	0.0140
INF(-1)	-0.073498	0.020983	-3.502702	0.0025
C	20.29030	8.123913	2.497601	0.0224

R-squared	0.985527	Mean dependent var	49.87695
Adjusted R-squared	0.974270	S.D. dependent var	5.997637
S.E. of regression	0.962048	Akaike info criterion	3.063450
Sum squared resid	16.65965	Schwarz criterion	3.743681
Log likelihood	-35.54693	Hannan-Quinn criter.	3.292327
F-statistic	87.55024	Durbin-Watson stat	1.779298
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

ARDL Long Run Form and Bounds Test
Dependent Variable: D(KOFGI)
Selected Model: ARDL(1, 2, 2, 0, 1, 1, 1)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 17:50
Sample: 1986 2020
Included observations: 33

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.29030	8.123913	2.497601	0.0224
KOFGI(-1)*	-0.349416	0.119719	-2.918645	0.0092
INST(-1)	-0.953314	0.777712	-1.225793	0.2361
GDPPC(-1)	-0.104797	0.088992	-1.177600	0.2543
GFCF**	0.028070	0.057398	0.489034	0.6307
FSD(-1)	0.353984	0.114989	3.078416	0.0065
INT(-1)	-0.170707	0.058495	-2.918311	0.0092
INF(-1)	-0.157385	0.039100	-4.025243	0.0008
D(INST)	-3.470497	1.123809	-3.088157	0.0063
D(INST(-1))	-1.081189	0.872904	-1.238612	0.2314
D(GDPPC)	-0.244564	0.073050	-3.347922	0.0036
D(GDPPC(-1))	-0.132010	0.061421	-2.149248	0.0455
D(FSD)	-0.155249	0.111602	-1.391092	0.1812
D(INT)	-0.004362	0.037214	-0.117208	0.9080
D(INF)	-0.083887	0.030816	-2.722199	0.0140

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

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INST	-2.728306	2.160398	-1.262872	0.2228
GDPPC	-0.299921	0.223425	-1.342376	0.1962
GFCF	0.080333	0.185543	0.432960	0.6702
FSD	1.013072	0.385782	2.626024	0.0171
INT	-0.488550	0.218365	-2.237304	0.0382
INF	-0.450424	0.168776	-2.668760	0.0157
C	58.06915	7.606031	7.634619	0.0000

EC = KOFGI - (-2.7283*INST -0.2999*GDPPC + 0.0803*GFCF + 1.0131
*FSD -0.4885*INT -0.4504*INF + 58.0691)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	5.628197	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
Actual Sample Size	33		Finite Sample: n=35	
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326
			Finite Sample: n=30	
		10%	2.334	3.515
		5%	2.794	4.148
		1%	3.976	5.691

ARDL Error Correction Regression
Dependent Variable: D(KOFGI)
Selected Model: ARDL(1, 2, 2, 0, 1, 1, 1)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 18:01
Sample: 1986 2020
Included observations: 33

ECM Regression
Case 2: Restricted Constant and No Trend

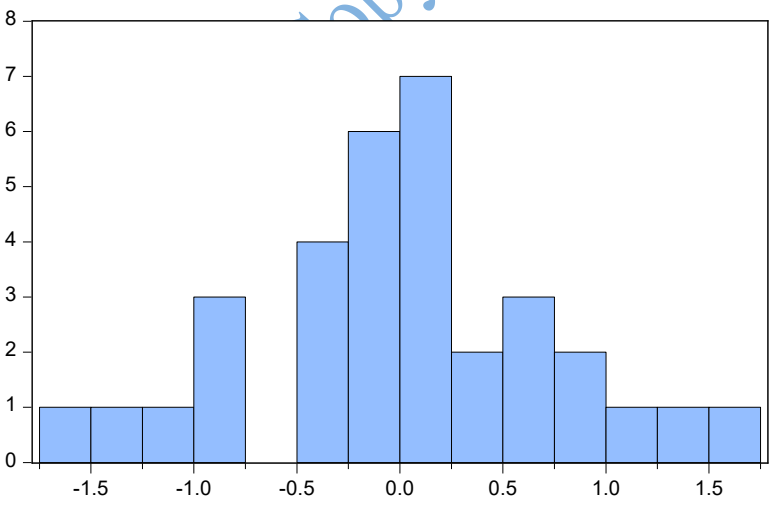
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INST)	-3.470497	0.679135	-5.110173	0.0001
D(INST(-1))	-1.081189	0.703926	-1.535942	0.1419
D(GDPPC)	-0.244564	0.049586	-4.932083	0.0001
D(GDPPC(-1))	-0.132010	0.048567	-2.718069	0.0141
D(FSD)	-0.155249	0.079543	-1.951755	0.0667
D(INT)	-0.004362	0.021538	-0.202521	0.8418
D(INF)	-0.083887	0.017656	-4.751166	0.0002
CointEq(-1)*	-0.349416	0.044185	-7.907940	0.0000

R-squared	0.756582	Mean dependent var	0.508869
Adjusted R-squared	0.688425	S.D. dependent var	1.462453
S.E. of regression	0.816325	Akaike info criterion	2.639208
Sum squared resid	16.65965	Schwarz criterion	3.001998
Log likelihood	-35.54693	Hannan-Quinn criter.	2.761276
Durbin-Watson stat	1.779298		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.628197	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99



Series: Residuals
Sample 1988 2020
Observations 33

Mean	1.61e-15
Median	0.012553
Maximum	1.534838
Minimum	-1.501120
Std. Dev.	0.721536
Skewness	-0.166783
Kurtosis	2.855031
Jarque-Bera	0.181888
Probability	0.913069

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.907575	Prob. F(14,18)	0.0039
Obs*R-squared	24.83012	Prob. Chi-Square(14)	0.0363
Scaled explained SS	6.851996	Prob. Chi-Square(14)	0.9403

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 11/07/23 Time: 18:18
Sample: 1988 2020
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.254261	3.911721	-2.365777	0.0294
KOFGI(-1)	0.171326	0.057645	2.972063	0.0082
INST	-1.552684	0.541122	-2.869381	0.0102
INST(-1)	1.495725	0.575534	2.598849	0.0181
INST(-2)	-0.630251	0.420309	-1.499494	0.1511
GDPPC	-0.080404	0.035174	-2.285914	0.0346
GDPPC(-1)	0.025069	0.028079	0.892791	0.3837
GDPPC(-2)	-0.017945	0.029575	-0.606765	0.5516
GFCF	0.127987	0.027637	4.630903	0.0002
FSD	-0.028067	0.053737	-0.522292	0.6078
FSD(-1)	0.068290	0.061880	1.103601	0.2843
INT	0.004855	0.017919	0.270965	0.7895
INT(-1)	-0.031990	0.018525	-1.726873	0.1013
INF	-0.014391	0.014838	-0.969889	0.3450
INF(-1)	-0.012778	0.010104	-1.264683	0.2221

R-squared	0.752428	Mean dependent var	0.504838
Adjusted R-squared	0.559872	S.D. dependent var	0.698248
S.E. of regression	0.463233	Akaike info criterion	1.601781
Sum squared resid	3.862524	Schwarz criterion	2.282012
Log likelihood	-11.42939	Hannan-Quinn criter.	1.830658
F-statistic	3.907575	Durbin-Watson stat	2.436837
Prob(F-statistic)	0.003905		

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.115452	Prob. F(2,16)	0.8917
Obs*R-squared	0.469464	Prob. Chi-Square(2)	0.7908

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 11/07/23 Time: 18:36
Sample: 1988 2020
Included observations: 33
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOFGI(-1)	0.005020	0.166323	0.030183	0.9763
INST	0.140558	1.245235	0.112877	0.9115
INST(-1)	-0.016003	1.270946	-0.012591	0.9901
INST(-2)	-0.005833	0.957839	-0.006090	0.9952
GDPPC	-0.000621	0.077637	-0.007995	0.9937
GDPPC(-1)	-0.004568	0.062796	-0.072745	0.9429
GDPPC(-2)	0.009803	0.068726	0.142646	0.8884
GFCF	-0.002700	0.074508	-0.036240	0.9715
FSD	-0.000493	0.123495	-0.003994	0.9969
FSD(-1)	0.000633	0.136823	0.004623	0.9964
INT	0.007684	0.042865	0.179255	0.8600
INT(-1)	-0.004232	0.043311	-0.097706	0.9234
INF	0.007654	0.038265	0.200013	0.8440
INF(-1)	-0.000492	0.023366	-0.021045	0.9835
C	-0.697785	11.35232	-0.061466	0.9517
RESID(-1)	0.067855	0.438731	0.154663	0.8790
RESID(-2)	-0.195007	0.513259	-0.379939	0.7090

R-squared	0.014226	Mean dependent var	1.61E-15
Adjusted R-squared	-0.971548	S.D. dependent var	0.721536
S.E. of regression	1.013122	Akaike info criterion	3.170334
Sum squared resid	16.42265	Schwarz criterion	3.941262
Log likelihood	-35.31051	Hannan-Quinn criter.	3.429728
F-statistic	0.014431	Durbin-Watson stat	1.942005
Prob(F-statistic)	1.000000		

Ramsey RESET Test
Equation: UNTITLED
Specification: KOFGI KOFGI(-1) INST INST(-1) INST(-2) GDPPC GDPPC(-1) GDPPC(-2) GFCF FSD FSD(-1) INT INT(-1) INF INF(-1) C
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.111768	17	0.9123
F-statistic	0.012492	(1, 17)	0.9123

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.012233	1	0.012233
Restricted SSR	16.65965	18	0.925536
Unrestricted SSR	16.64742	17	0.979260

Unrestricted Test Equation:
Dependent Variable: KOFGI
Method: ARDL
Date: 11/07/23 Time: 18:37
Sample: 1988 2020
Included observations: 33
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic):
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
KOFGI(-1)	0.732371	0.742048	0.986959	0.3375
INST	-3.867657	3.736734	-1.035037	0.3152
INST(-1)	1.603851	1.940912	0.826339	0.4201
INST(-2)	1.146436	1.070971	1.070464	0.2994
GDPPC	-0.273733	0.271579	-1.007932	0.3276
GDPPC(-1)	0.006895	0.060478	0.114010	0.9106
GDPPC(-2)	0.147637	0.153431	0.962239	0.3494
GFCF	0.032934	0.073351	0.448998	0.6591
FSD	-0.176535	0.222369	-0.793882	0.4382
FSD(-1)	0.572419	0.580585	0.985934	0.3380
INT	-0.003213	0.039636	-0.081058	0.9363
INT(-1)	-0.185925	0.179598	-1.035231	0.3151
INF	-0.093350	0.090401	-1.032619	0.3162
INF(-1)	-0.082351	0.082096	-1.003103	0.3299
C	19.76167	9.602013	2.058076	0.0553
FITTED^2	-0.001233	0.011031	-0.111768	0.9123

R-squared	0.985538	Mean dependent var	49.87695
Adjusted R-squared	0.972777	S.D. dependent var	5.997637
S.E. of regression	0.989576	Akaike info criterion	3.123322
Sum squared resid	16.64742	Schwarz criterion	3.848901
Log likelihood	-35.53481	Hannan-Quinn criter.	3.367457
F-statistic	77.23145	Durbin-Watson stat	1.765407
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

ARDL Long Run Form and Bounds Test
Dependent Variable: D(GINI)
Selected Model: ARDL(3, 1, 3, 2, 3, 1, 1)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 19:01
Sample: 1985 2020
Included observations: 33

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.42240	5.301115	2.343357	0.0372
GINI(-1)*	-0.794300	0.093599	-8.486239	0.0000
INST(-1)	9.134516	1.652171	5.528795	0.0001
GDPPC(-1)	-0.412732	0.150085	-2.749993	0.0176
GFCF(-1)	-0.014806	0.060508	-0.244700	0.8108
FSD(-1)	-0.892453	0.240036	-3.717993	0.0029
INT(-1)	0.187267	0.083559	2.241124	0.0447
INF(-1)	0.080235	0.054616	1.469091	0.1675
D(GINI(-1))	-0.343447	0.099780	-3.442035	0.0049
D(GINI(-2))	-0.306259	0.111162	-2.755072	0.0174
D(INST)	1.938517	1.582873	1.224683	0.2442
D(GDPPC)	0.097395	0.120994	0.804959	0.4365
D(GDPPC(-1))	0.482953	0.115862	4.168340	0.0013
D(GDPPC(-2))	0.312462	0.115872	2.696606	0.0194
D(GFCF)	-0.353334	0.107745	-3.279340	0.0066
D(GFCF(-1))	-0.450441	0.096467	-4.669354	0.0005
D(FSD)	-0.191504	0.195347	-0.980330	0.3463
D(FSD(-1))	0.716462	0.180780	3.963166	0.0019
D(FSD(-2))	0.482021	0.172771	2.789948	0.0163
D(INT)	0.111987	0.051298	2.183049	0.0496
D(INF)	0.006289	0.044455	0.141477	0.8898

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INST	11.50009	1.485209	7.743076	0.0000
GDPPC	-0.519618	0.208900	-2.487400	0.0286
GFCF	-0.018641	0.075464	-0.247014	0.8091
FSD	-1.123571	0.251214	-4.472563	0.0008
INT	0.235764	0.103023	2.288454	0.0410
INF	0.101014	0.065916	1.532455	0.1513
C	15.63944	6.263652	2.496856	0.0281

EC = GINI - (11.5001*INST -0.5196*GDPPC -0.0186*GFCF -1.1236*FSD
+ 0.2358*INT + 0.1010*INF + 15.6394)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	13.64836	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
Actual Sample Size	33	Finite Sample: n=35		
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326
		Finite Sample: n=30		
		10%	2.334	3.515
		5%	2.794	4.148
		1%	3.976	5.691

ARDL Error Correction Regression
Dependent Variable: D(GINI)
Selected Model: ARDL(3, 1, 3, 2, 3, 1, 1)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 19:05
Sample: 1985 2020
Included observations: 33

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GINI(-1))	-0.343447	0.070137	-4.896777	0.0004
D(GINI(-2))	-0.306259	0.078616	-3.895631	0.0021
D(INST)	1.938517	0.800634	2.421226	0.0322
D(GDPPC)	0.097395	0.059008	1.650530	0.1247
D(GDPPC(-1))	0.482953	0.077360	6.242916	0.0000
D(GDPPC(-2))	0.312462	0.073325	4.261345	0.0011
D(GFCF)	-0.353334	0.064463	-5.481208	0.0001
D(GFCF(-1))	-0.450441	0.059877	-7.522735	0.0000
D(FSD)	-0.191504	0.116169	-1.648504	0.1252
D(FSD(-1))	0.716462	0.109389	6.549665	0.0000
D(FSD(-2))	0.482021	0.108438	4.445123	0.0008
D(INT)	0.111987	0.029894	3.746117	0.0028
D(INF)	0.006289	0.017851	0.352339	0.7307
CointEq(-1)*	-0.794300	0.060411	-13.14835	0.0000

R-squared	0.928625	Mean dependent var	-0.109091
Adjusted R-squared	0.879789	S.D. dependent var	2.754243
S.E. of regression	0.954936	Akaike info criterion	3.042072
Sum squared resid	17.32617	Schwarz criterion	3.676954
Log likelihood	-36.19419	Hannan-Quinn criter.	3.255691
Durbin-Watson stat	2.686709		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	13.64836	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

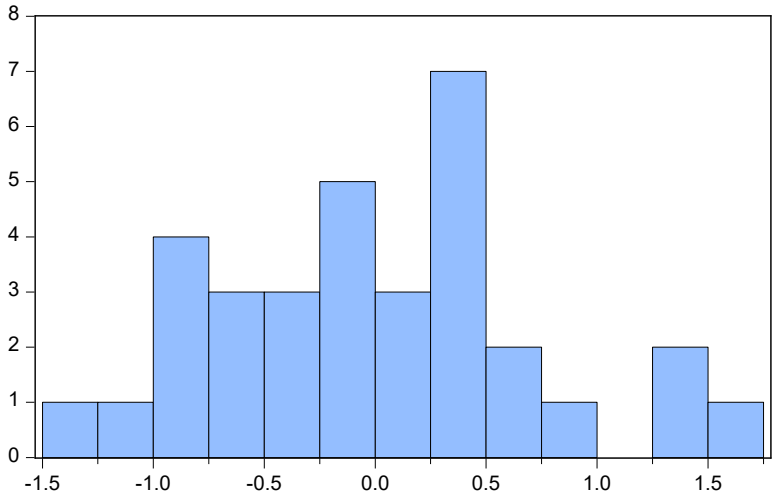
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	7.192543	Prob. F(2,10)	0.0116
Obs*R-squared	19.46714	Prob. Chi-Square(2)	0.0001

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 11/07/23 Time: 19:10
Sample: 1988 2020
Included observations: 33
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GINI(-1)	0.073065	0.121268	0.602509	0.5602
GINI(-2)	0.241121	0.135866	1.774705	0.1063
GINI(-3)	-0.218181	0.099680	-2.188819	0.0534
INST	0.926764	1.331854	0.695845	0.5024
INST(-1)	-2.431189	1.317709	-1.845012	0.0948
GDPPC	0.051134	0.095463	0.535639	0.6039
GDPPC(-1)	-0.088612	0.075826	-1.168621	0.2697
GDPPC(-2)	-0.077084	0.074547	-1.034032	0.3255
GDPPC(-3)	0.141672	0.095010	1.491137	0.1668
GFCF	0.029664	0.082596	0.359145	0.7270
GFCF(-1)	-0.110008	0.112800	-0.975247	0.3524
GFCF(-2)	0.115998	0.081589	1.421735	0.1855
FSD	0.222546	0.153926	1.445801	0.1788
FSD(-1)	-0.167531	0.204080	-0.820909	0.4308
FSD(-2)	0.014266	0.141703	0.100677	0.9218
FSD(-3)	0.166384	0.128895	1.290853	0.2258
INT	-0.048687	0.038467	-1.265682	0.2343
INT(-1)	0.022214	0.044261	0.501880	0.6266
INF	-0.053617	0.034692	-1.545504	0.1533
INF(-1)	0.018402	0.021750	0.846074	0.4173
C	-2.181248	3.958642	-0.551009	0.5937
RESID(-1)	-0.831830	0.275565	-3.018629	0.0129
RESID(-2)	-1.150267	0.383149	-3.002140	0.0133

R-squared	0.589913	Mean dependent var	-9.00E-15
Adjusted R-squared	-0.312278	S.D. dependent var	0.735828
S.E. of regression	0.842925	Akaike info criterion	2.696140
Sum squared resid	7.105231	Schwarz criterion	3.739161
Log likelihood	-21.48631	Hannan-Quinn criter.	3.047085
F-statistic	0.653868	Durbin-Watson stat	2.415091
Prob(F-statistic)	0.805375		



Series: Residuals	
Sample 1988 2020	
Observations 33	
Mean	-9.00e-15
Median	-0.001830
Maximum	1.692139
Minimum	-1.470184
Std. Dev.	0.735828
Skewness	0.230328
Kurtosis	2.682600
Jarque-Bera	0.430301
Probability	0.806420

ARDL Long Run Form and Bounds Test
Dependent Variable: D(GINI)
Selected Model: ARDL(2, 2, 1, 2, 0, 0, 2)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 19:31
Sample: 1985 2020
Included observations: 34

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-31.66300	19.09220	-1.658426	0.1146
GINI(-1)*	-0.320017	0.071693	-4.463724	0.0003
KOFGI(-1)	0.678438	0.306368	2.214452	0.0399
GDPPC(-1)	-0.607750	0.143544	-4.233893	0.0005
GFCF(-1)	0.505536	0.167821	3.012346	0.0075
FSD**	0.009240	0.167573	0.055137	0.9566
INF**	-0.144730	0.042248	-3.425687	0.0030
INT(-1)	-0.099937	0.080773	-1.237252	0.2319
D(GINI(-1))	-0.247671	0.138696	-1.785716	0.0910
D(KOFGI)	0.443636	0.324610	1.366673	0.1886
D(KOFGI(-1))	-0.972409	0.385617	-2.521696	0.0213
D(GDPPC)	-0.138983	0.112116	-1.239638	0.2310
D(GFCF)	0.047339	0.142324	0.332616	0.7433
D(GFCF(-1))	-0.812666	0.171772	-4.731078	0.0002
D(INT)	-0.027823	0.067105	-0.414610	0.6833
D(INT(-1))	0.151793	0.043148	3.517947	0.0025

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

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOFGI	2.120004	0.957327	2.214505	0.0399
GDPPC	-1.899117	0.606318	-3.132210	0.0058
GFCF	1.579716	0.532842	2.964697	0.0083
FSD	0.028872	0.524607	0.055035	0.9567
INF	-0.452256	0.145817	-3.101530	0.0062
INT	-0.312287	0.262119	-1.191394	0.2490
C	-98.94159	61.49422	-1.608958	0.1250

EC = GINI - (2.1200*KOFGI -1.8991*GDPPC + 1.5797*GFCF + 0.0289 *FSD -0.4523*INF -0.3123*INT -98.9416)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	6.069122	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
Actual Sample Size	34	Finite Sample: n=35		
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326
		Finite Sample: n=30		
		10%	2.334	3.515
		5%	2.794	4.148
		1%	3.976	5.691

ARDL Error Correction Regression
Dependent Variable: D(GINI)
Selected Model: ARDL(2, 2, 1, 2, 0, 0, 2)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 19:44
Sample: 1985 2020
Included observations: 34

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GINI(-1))	-0.247671	0.107121	-2.312069	0.0328
D(KOFGI)	0.443636	0.220503	2.011933	0.0594
D(KOFGI(-1))	-0.972409	0.244514	-3.976905	0.0009
D(GDPPC)	-0.138983	0.077462	-1.794225	0.0896
D(GFCF)	0.047339	0.095044	0.498078	0.6245
D(GFCF(-1))	-0.812666	0.120950	-6.719027	0.0000
D(INT)	-0.027823	0.034600	-0.804114	0.4318
D(INT(-1))	0.151793	0.031111	4.879109	0.0001
CointEq(-1)*	-0.320017	0.038970	-8.211863	0.0000

R-squared	0.748724	Mean dependent var	-0.105882
Adjusted R-squared	0.668316	S.D. dependent var	2.712255
S.E. of regression	1.562043	Akaike info criterion	3.951794
Sum squared resid	60.99947	Schwarz criterion	4.355830
Log likelihood	-58.18049	Hannan-Quinn criter.	4.089582
Durbin-Watson stat	2.453102		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	6.069122	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

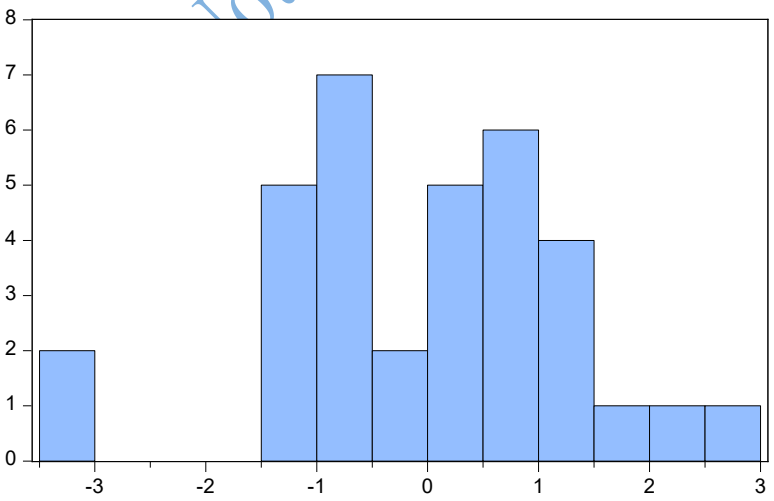
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.005411	Prob. F(2,16)	0.1670
Obs*R-squared	6.814710	Prob. Chi-Square(2)	0.0331

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 11/07/23 Time: 19:49
Sample: 1987 2020
Included observations: 34
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GINI(-1)	0.144310	0.209679	0.688240	0.5012
GINI(-2)	-0.098918	0.196471	-0.503471	0.6215
KOFGI	0.096350	0.315669	0.305226	0.7641
KOFGI(-1)	-0.155681	0.467318	-0.333137	0.7434
KOFGI(-2)	-0.015527	0.387986	-0.040020	0.9686
GDPPC	-0.066186	0.122470	-0.540424	0.5963
GDPPC(-1)	0.019889	0.116685	0.170447	0.8668
GFCF	-0.068034	0.141824	-0.479710	0.6379
GFCF(-1)	0.045920	0.164305	0.279481	0.7835
GFCF(-2)	-0.040020	0.169183	-0.236548	0.8160
FSD	0.017099	0.162564	0.105181	0.9175
INF	-0.015593	0.040860	-0.381630	0.7078
INT	-0.037565	0.074928	-0.501342	0.6230
INT(-1)	-0.016409	0.057940	-0.283209	0.7806
INT(-2)	0.007067	0.041082	0.172023	0.8656
C	3.968526	18.45228	0.215070	0.8324
RESID(-1)	-0.579251	0.340907	-1.699146	0.1086
RESID(-2)	-0.350067	0.326375	-1.072592	0.2994

R-squared	0.200433	Mean dependent var	2.10E-15
Adjusted R-squared	-0.649108	S.D. dependent var	1.359584
S.E. of regression	1.745945	Akaike info criterion	4.257521
Sum squared resid	48.77319	Schwarz criterion	5.065594
Log likelihood	-54.37785	Hannan-Quinn criter.	4.533097
F-statistic	0.235931	Durbin-Watson stat	2.096298
Prob(F-statistic)	0.997446		



Series: Residuals
Sample 1987 2020
Observations 34

Mean	2.10e-15
Median	0.194565
Maximum	2.924679
Minimum	-3.417283
Std. Dev.	1.359584
Skewness	-0.307978
Kurtosis	3.327565
Jarque-Bera	0.689492
Probability	0.708400

ARDL Error Correction Regression
Dependent Variable: D(GINI)
Selected Model: ARDL(1, 2, 2, 2, 2, 2, 0, 0, 2)
Case 2: Restricted Constant and No Trend
Date: 11/08/23 Time: 05:18
Sample: 1985 2020
Included observations: 34

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KOFGI)	-4.302280	0.666290	-6.457069	0.0000
D(KOFGI(-1))	-3.139094	0.833856	-3.764551	0.0027
D(INST)	-57.25819	8.971408	-6.382297	0.0000
D(INST(-1))	-42.09445	12.17714	-3.456842	0.0047
D(INST KOFGI)	1.171255	0.189125	6.193012	0.0000
D(INST KOFGI(-1))	0.881115	0.244634	3.601771	0.0036
D(GDPPC)	0.285250	0.071379	3.996295	0.0018
D(GDPPC(-1))	0.207483	0.076458	2.713694	0.0188
D(GFCF)	-0.259095	0.071755	-3.610845	0.0036
D(GFCF(-1))	-0.694169	0.107685	-6.446314	0.0000
D(INT)	0.062497	0.026094	2.395071	0.0338
D(INT(-1))	0.119339	0.027679	4.311591	0.0010
CointEq(-1)*	-0.878600	0.087577	-10.03236	0.0000

R-squared	0.903161	Mean dependent var	-0.105882
Adjusted R-squared	0.847824	S.D. dependent var	2.712255
S.E. of regression	1.058042	Akaike info criterion	3.233585
Sum squared resid	23.50851	Schwarz criterion	3.817193
Log likelihood	-41.97095	Hannan-Quinn criter.	3.432612
Durbin-Watson stat	2.772501		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.751331	10%	1.85	2.85
k	8	5%	2.11	3.15
		2.5%	2.33	3.42
		1%	2.62	3.77