

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Globalization is a dynamic and multi-faceted process that has undeniably impacted the economic performance of many developing countries, with evidence from the Asian-Tiger economies. The advantages of globalization are as follows: skilled labour force, economic growth and others but to mention a few. Nonetheless, global capital such as multinational cooperation continues to look for cheap labour to sell in order to maximize income as well as at the detriment of the host country.

The history of globalization goes back to the second half of the twentieth century, the development of transport and communication technology led to situation where national borders appeared to be too limiting for economic activity (Economic Globalization in Developing Countries, 2002). For thousands of years there has been interaction between people in different parts of the world. A very good example of this relationship is a Silk Road connecting Asia, Africa, and Europe. As nations exchanged products and ideas, philosophy, religion, language, the arts, and other aspects of culture spread and mixed. Organizations like the European Union and other free-trade mechanisms promoted by the US were accountable for most of the rise in foreign trade in the postwar years following World War II. The cyber world is the frontier of globalization. In its infancy during the third wave of globalization, the global economy is becoming a force to be reckoned with via e-commerce, digital services, 3D printing. Artificial intelligence further facilitates it, but it is challenged by cross-border hacking and cyber-attacks. At the same moment, through the worldwide effect of climate change, a detrimental globalization is growing again. Pollution is triggering extreme weather events in one part of the world on another. So, clearing trees in the few “green lungs” left by the planet, like the Amazon rainforest, has another devastating effect not only on the ecology of the earth, but also on the ability to cope with harmful greenhouse gas emissions. Globalization drives countries to greater access to international trade, capital transfers and foreign direct investment.

Globalization as a whole covers the areas of economic, social and political globalization all these areas can have a positive or negative impact on a nation. However, Globalization is much more than openness to trade and capital flows. It also involves people of different countries engaging with each other and sharing ideas and knowledge, or bringing governments together to tackle global political problems. Globalization in Nigeria dates back to the 1986 implementation of the Structural Adjustment Programme (SAP) during the administration of Ibrahim Babangida. Globalization is synonymous to trade liberalization where there is openness of the economy, Foreign Direct

Investment (FDI) or Foreign Private Investment (FPI), which is an investment that a foreign investor has in developing countries where resources are available, where the parent (or headquarters) is based in developed countries.

Today we have two major viewpoints on globalization offered by anti-globalists and globalization proponents or literally globalizers. The anti-globalists see globalization as an evil and unlawful marriage between the developed and developing countries. Not everybody agrees however that globalization is evil. Globalization is the only real way to tackle inequality according to globalists, we say that foreign direct investment would help developing countries industrialize, create jobs and gain production skills. As we believe that globalization brings economic development, it is important to explain what economic development implies. With other words such as production, modernization, westernization and industrialization, used in economic development. In other words, it is a transition from a simple, low-income economy to a high-income, modern one. The focus encompasses the mechanism and policies by which a country develops the people's economic, political, and social well-being. Although it is also calculated by the rate of gross domestic product improvement, it is generally understood in terms of per capita income increase and living standards equal to those of industrialized countries.

However, Adesoye, Ajike and Maku (2015) they have strongly argued that many highly globalized developing countries have struggled to benefit from globalization and are still facing the same difficulties they have faced for many decades. The Nigerian economy has not felt the impact of globalization. This is because Nigeria actually exports crude oil and imports refined products because of the failure of local refineries to satisfy domestic demand given the huge amount of money expended on the four local refineries' Turn Around maintenance (TAM). The exports from Nigeria thus have very high import content. This has made the Nigeria economy to be industrially underdeveloped. Many developing countries, including Nigeria, have criticized the Western world's tough trade policies for failing to achieve the perceived benefit of globalization. Poor economic policies and misconduct by both the public and private sectors have made the situation worse. Nigeria has been facing poor economic-development results for decades. Consequently, there is no change in poverty reduction. In the globalization dispensation, several developed nations conclude that market transparency is the only way to solve the underdeveloped issue.

This research, however, adopts the revised version of the KOF Globalization Index, which differentiates between de facto globalization and de jure globalization. De facto globalization measures actual international flows and activities; de jure globalization measures policies and circumstances that foster, facilitate and encourage flows and activities in theory. Quinn et al. (2011). Both de facto and de jure globalization stimulates economic growth in a number of ways. This

research will therefore use the de facto KOF globalization index. Globalization has helped improve the rates of illiteracy and life expectancy in developing countries. World Bank Accords (2004). Centered on the inconclusiveness of the effect of globalization on economic growth, to what degree has Nigeria been affected by globalization?

## **1.2 Statement of the Problem**

Globalization essentially, is a marriage among unequal partners (Ishmael Ogboru). This implies a partnership between developed and developing countries, in which the former is a better participant, at the cost of the latter being poorer.

The Nigerian economy has problems in its various sectors based on the impact of globalization. The challenges could be economic problems centered on volatility levels, regulatory obstacles to capital flows, inadequate economic policies and political instability. Yet most developing countries are still far from reaping globalization benefit. Therefore, this research work will focus on the above problems.

## **1.3 Objectives of the study**

The board objective of this study is to analyze the impact of globalization on economic growth in Nigeria. In specific, the following objectives are as follows:

- (i) Impact of economic globalization on economic growth in Nigeria
- (ii) Impact of political globalization on economic growth in Nigeria
- (iii) Impact of social globalization on economic growth in Nigeria
- (iv) The causal relationship among economic growth, economic, political and social globalization in Nigeria

## **1.4 Research Questions**

To achieve the objectives of the study the following questions seek to provide answers to the statement of the problem

- (i) What is the impact of economic globalization on economic growth in Nigeria?
- (ii) How does political globalization affect economic growth in Nigeria?
- (iii) In what way has social globalization affect economic growth in Nigeria?
- (iv) What is the causal relationship between economic growth, political and social globalization in Nigeria?

## **1.5 Research Hypotheses**

Following the research objectives and research questions, the research hypotheses for this study are as follows:

### **Hypothesis One**

**H<sub>0</sub>:** Economic globalization has no impact on economic growth in Nigeria

**H<sub>1</sub>:** Economic globalization has impact on economic growth in Nigeria

### **Hypothesis Two**

**H<sub>0</sub>:** Political globalization has no impact on economic growth in Nigeria

**H<sub>1</sub>:** Political globalization has impact on economic growth in Nigeria

### **Hypothesis Three**

**H<sub>0</sub>:** Social globalization has no impact economic growth in Nigeria

**H<sub>1</sub>:** Social globalization has impact economic growth in Nigeria

### **Hypothesis Four:**

**H<sub>0</sub>:** There is no causal relationship among economic growth, economic globalization, political Globalization and social globalization in Nigeria

**H<sub>1</sub>:** There is a causal relationship among economic growth, economic globalization, political Globalization and social globalization in Nigeria

## **1.6 Significance of the Study**

The strategic value of studying the impact of globalization on the economic development of Nigeria does not need to be overemphasized. The rapid change in the Nigerian economy has been brought about by globalization, which seeks to expand its share of direct financial and foreign investment in the international market. There is no doubt that, through access to capital flows from both domestic and international markets, globalization has increased incentives. However, consumers can now adapt their portfolio risk to their needs.

The study is of paramount importance to academic institutions, all economic urban- households, business and government. In addition, the outline of the study shall be useful for present and future policies in the country.

## **1.7 Scope and Limitation of the Study**

The scope of the study covers the impact of globalization on economic growth in Nigeria between 1986 and 2019. The reason for this time-frame choice is because the Structural Adjustment Program (SAP) was instituted in 1986 at this time and this led to improvement and growth in several economic sectors. The data employed in this study is secondary data. In the course of writing this research report, a number of factors acted as constraints such as financial resources, time frame and so on. In

spite of all, the researcher never allowed them to deter her from carrying out the research to justifiable conclusion.

## **1.8 Definition of Terms**

### **Foreign Direct Investment**

Foreign direct investment (FDI) is expenditure from a group in one nation into a company or organization.

### **Globalization**

"Globalization is a process of interaction and integration among the people, companies, and governments of different nations, a process driven by international trade and investment and aided by information technology". (Suny Levin Institute, 2017).

### **Economic growth**

Economic growth is an improvement in the economy's ability to manufacture products and services from one age to the next. Traditionally, aggregate economic growth is expressed in terms of the gross national product (GNP) or the gross domestic product (GDP), while different metrics are sometimes used. (Nobel Prize winner Paul Romer, from the Concise Encyclopedia of Economics.)

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter describes the concepts and terminologies relevant to globalization and economic growth in Nigeria and also discusses relevant literature under the following subheadings-conceptual analysis, theoretical review, and empirical literature.

#### 2.2 Conceptual Review

##### 2.2.1 Concepts of Globalization

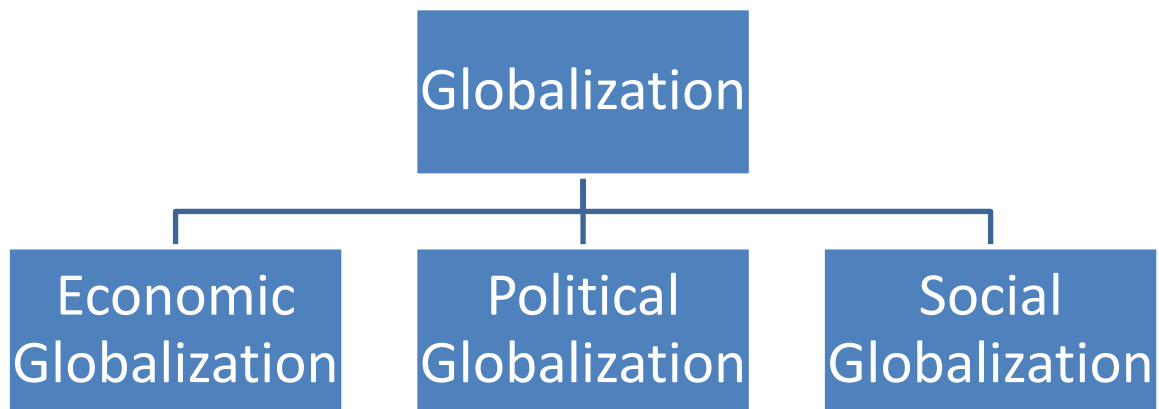
The term globalization has various definitions depending on how it is perceived by the author.

Giddens (1990) defines globalization as the 'intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring miles away and vice versa'.

Oguyomi, Jenrola, and Daisi (2013) "defines globalization has a multidimensional phenomenon which covers all aspect of life including increasing interdependencies among economies through international trade, international migration, and foreign direct Investment and other capital flows".

The various dimensions of globalization index propounded by Dreher (2006) and Dreher (2008) are

- **Economic globalization Index:** This index contains two sub-indexes which are real flows and restrictions. Real flows are estimated on the basis of trade openness, i.e. exports plus imports over GDP, and capital flow, i.e. FDI, FPI. Restrictions are measured with secret import barriers; average tariff rate, current income percentages of taxes on foreign trade and capital account restrictions. The immensity of both current and restricted flows in the economic globalization index is 50%
- **Social Globalization Index:** This index contains three sub-indexes, personal interaction, knowledge flows and cultural proximity. Personal interaction is measured on the basis of telephone traffic, GDP percentage of transfers, international tourism, the total population of the foreign population and international letters per capita. Knowledge flows are measured using the Internet for 1,000 people, television for 1,000 people, and GDP for newspaper trades. Cultural proximity is determined by the number of McDonald's restaurants per capita, the number of Ikea restaurants per capita and the percentage of GDP book trades. Percentages of personal interaction, knowledge flows and cultural proximity are 33%, 35% and 32%
- **Political Globalization Index:** This index is calculated with four sub-indexes, including the number of embassies in the region, membership in international organizations, involvement in the UN Security Council mission and international treaties.



**Source: Researcher's Chart, 2020**

**Figure 2.1: Dimensions of Globalization Index**

The latest update by Dreher (2008) "shows that according to the order of the economic, social and political globalizations in the general globalization index of 2014, the percentage of globalizations is 36, 38 and 26 per cent. (CunetyKilic called in KOF Index of Globalization, 2014)". Economic globalization concerns the international movement of goods and services, technology and information that will enhance the economic interdependence of nations and independent states. Political globalization is the involvement of government and international NGOs in political issues that are likely to affect the global economy. The establishment of the United Nations can illustrate a common example of political globalization.

Globalization's cultural dimension is related to the transmission of social ideas and values across various nations of the world. The perception is related to the practice of internet-disseminated cultures and international exploration which will foster other aspects of integration.

Yashin, (2000 in Igudia, 2003)" defines globalization as an economic revolution of the new millennium in which the world is shrinking into a global village in part by advances in information and technology (ICT)". To him, capital globalization has been responsible to merging regional development and finance structures whose increased versatility means that lenders such as governments and private companies negotiate with each other on the foreign rather than national market for money. Todaro and Smith (2011), "views globalization as a process by which the economies of the world become more integrated, leading to global economy and increasingly, global economic policymaking".

## 2.2.2 Concepts of Economic Growth

Economic growth is attributed to a quantitatively sustainable rise in per capita production or profits in the countries followed by expansion of their labor force, demand, resources, and trade value. It often involves not only more output from higher inputs, but also higher performance, i.e. an improvement in production per input unit. Todaro, Smith (2004), defines economic growth in terms of three components. These are: (a) capital accumulation, including all new investments in land, physical equipment, and human resources through improvements in health, education and job skills. (b) Growth in population and hence eventual growth in the labour force. (c) Technological progress. According to Professor Kuznets, "Economic growth is fundamentally a quantitative term, and if substantial progress is to be made in the empiric and theoretical study of the growth process, the quantitative dimension must be taken as a basic consideration". Economic growth can also be characterized as an outward shift in the Product Possibility Curve (PPC). This is determined by the increase in gross production and the real Gross Domestic Product (GDP) or Gross National Product (GNP) of a country. GDP can be determined by the amount of what is generated or bought in the economy.

### 2.2.2.1 Factors Affecting Economic Growth

- **Natural resources:** The discovery of more natural resources such as oil or mineral deposits can boost economic growth as this shift or increases the country's production potential curve. Certain resources include land, water, forest and natural gas. In fact, it is difficult, if not impossible, to increase the number of natural resources in a country. Countries must take care to manage supply and demand for limited natural resources so as not to deplete them. Improved land management will increase the quality of land and lead to economic growth.
- **Physical capital or infrastructure:** Increased investment in physical capital, such as warehouses, equipment and bridges, would reduce the cost of economic operation. Better factories and machines are more productive than manual labor. This higher productivity is expected to increase production. For example, providing a reliable highway network will eliminate inefficiencies in transporting raw materials or goods around the nation, which would increase GDP.
- **Population or labour:** Increasing population means an increase in the number of jobs or staff, which means a higher workforce. The downside to a growing population is that it could lead to high unemployment.



- **Human capital:** Increasing investment in human capital will boost the productivity of the workforce. This rise in productivity would lead to a change in expertise, skills and preparation. Skilled labor has a major impact on production, as skilled workers are more efficient.
- **Technology:** Another important aspect is the advancement of technology. Technology may increase productivity at the same level of labor and thereby stimulate growth and development. This rise ensures that factories will be more productive at reduced prices. Technology is more likely to contribute to sustainable long-term development.
- **Law:** An administrative structure that governs economic activity, such as laws and regulations. There is no particular group of institutions that support development.

#### 2.2.2.2 FACTORS LIMITING ECONOMIC GROWTH

- **Poor health and low level of education:** People who do not have access to healthcare or schooling have poorer productivity rates. This lack of exposure ensures that the workplace is not as efficient as it should have been. As a consequence, the economy does not achieve the efficiency it might otherwise have gained.
- **Lack of necessary infrastructure:** Developing nations still suffers from poor infrastructures such as bridges, schools, and hospitals. This lack of infrastructure makes transportation more costly and slows the overall productivity of the economy.
- **Capital flight:** When the country fails to produce the anticipated returns from investors, the investors will withdraw their capital. Capital also moves out of the country to reach higher rates of return.
- **Political instability:** Similarly, political uncertainty in the country frightens investors and hinders investment. Zimbabwe, for example, has long been afflicted by political instability and legislation protecting indigenous land rights. This instability has scared many investors who seek smaller but more stable returns elsewhere.
- **Institutional framework:** Local regulations also do not safeguard rights properly. The lack of an institutional structure may have a significant effect on development and investment.
- **The world trade Organization:** Some analysts argue that the World Trade Organization (WTO) and other trade mechanisms are biased towards developing countries. Most developed nations have embraced protectionist policies that do not aim to liberalize trade.

### **2.2.2.3 Costs of Economic Growth**

**Environmental cost:** Pollution and other negative externalities are often associated with increased production or increased economic growth. Economists usually associate rapid growth in developing economies with detrimental environmental effects.

**Rising income inequality:** Growth also leads to a rise in income inequality. Others not active or connected to the growth-generating sector of the economy are left behind. The rural population typically loses the most.

## **2.3 Theoretical Review**

### **2.3.1 Theories on globalization**

#### **2.3.1.1 Marxism Theory**

Along with Karl Marx, who projected the value and promise of globalism in terms of moving resources across regional borders that would conquer the world for its growth, Marxism's philosophy identifies itself with the modes of development, the transition of civilization into the ascendancy of capitalism. The Marxist did not embrace the other two most predominant philosophies of globalization which, because of the exploitive nature of political realism, contain liberalist and political realist concepts, while the modern ideology emphasizes freedom and authority which still contributes to the bourgeois oppression of the working class. The Marxists believed that globalization is the result of trans-world interaction which increases incentives for profit making and surplus growth.

#### **2.3.1.2 Theory of Constructivism:**

The development of the social universe of specific ideas, ideas, and knowledge that originate from individual forms of consciousness. The mode of production and style of society administration are second-order structures that emerge from deeper socio-psychological and cultural influences. Constructivists concentrate on how social agents construct their environment through contextual interaction and mind development. The development of ideas of the world has been motivated by abstract experiences and communication, whereas these principles are further defined by the rules of social interaction. Religious, class and national identities respond to material circumstances, but they also function in terms of inter-subjective building and shared self-understanding. However, the claim ignores the socioeconomic differences and the nature of social relations.

#### **2.3.1.3 Theory of Political Realism**

Approach to political realism purports that states are essentially self-sustaining and self-serving, and the subsequent heading to competition for power. To certain scholars, the conventional condition is

characterized by the balance of power in which the desire to control the planet can be overcome by the determined resistance of other nations. In contemporary international relations, the ideologist has described globalization along the lines of practice followed by the fight for power between many major states. Control theories ignore the importance and role of other actors in driving globalization. Such other actors are sub-state, macro-regional, international and private sector companies.

#### **2.3.1.4 Theory of Liberalism:**

Liberalism views the globalization process as a market-led continuation of modernization. In the most fundamental point, it is the product of human 'natural' aspirations for economic well-being and political equality. As such, transplanetary contact is born from human drives to optimize material well-being and to exercise fundamental freedoms. They are fruitful in the form of:

- Technological developments, in particular in the fields of travel, communications and information management, and
- Suitable legal and institutional structures to enable markets and liberal democracy to expand around the globe.

Yet its proponents ignore the social factors behind the development of technological and structural underpinnings. This is not sufficient to attribute these changes to 'ordinary' human forces for economic growth and political independence.

### **2.3.2 Economic Growth Theories**

#### **2.3.2.1 Classical Theory**

This was propounded by Adam Smith, David Ricardo and Robert Malthus in the eighteenth and nineteenth centuries. The idea is that any economy has a steady state of GDP, and any divergence from that steady state is transient and must gradually revert to its steady state. This model presumed that technical progress was continuous and that increasing inputs could contribute to lower returns. It added to the grim projections of Malthus that the population would rise faster than the world's capacity to feed itself. As a result, the rise in population has a negative impact on GDP due to increased competition for scarce services from a wider population. GDP would finally slip back to a stable state. As GDP deviates from the steady state, the population declines and thus the need for services declines. In turn, the GDP will rise back to its steady state.

#### **2.3.2.2 Neoclassical Theory**

This has been proposed by T.W. Swan and Robert Solow have made significant contributions to the theory of economic growth through the development of what is known as the Solow-Swan growth model. The theory focuses on three aspects that have an effect on economic growth, namely labour,

capital and technical innovation. This analysis indicates that a rise in capital or labor contributes to a reduction in returns. As a result, growing capital has only a transient and minimal effect on rising economic development. While capital rises, the economy continues a constant rate of economic growth, further growth does not take place until technical advancements are made and such advancements are achieved by chance. This also implies that once all countries have access to the same infrastructure, the standard of life would also be equal.

### **2.3.2.3 Endogenous Theory**

This has been created by Paul Romer and Robert Lucas. Emphasis was focused on human resources, i.e. on how workers with higher education, soft skills, experience, and training may help increase the pace of technical innovation, improve both resources and labor productivity, and also on the premise that raising labor productivity may not decrease returns, but can raise returns. They argue that rising capital does not automatically contribute to declining returns, as Solow expects. They say it's more complicated; it depends on the amount of investment in capital. Increasing the value of spillover gains from a knowledge-based economy Focus is imposed on open trade, the elimination in taxation and subsidies. The point is that we must keep markets open to the forces of transition.

## **2.4 Empirical Literature**

Dreher (2006) studied the relationship between globalization and economic development using panel data analysis using evidence from 123 countries from 1970 to 2000. He finds that globalization has a positive impact on economic development. Chang and Lee (2010 ) examined, with the aid of cointegration research, the relationship between the general globalization index and its components, which are economic , social and political globalization indexes, and the economic growth of 23 OECD countries collecting data between 1970 and 2006.

Their result shows that there is a weak connection between variants and causality in short terms but in long terms there is a one-way connection from general, economic and social globalization to economic growth.

The research by Alimi and Atanda (2011) focused on globalization, the market cycle and economic growth in Nigeria. The research covered the period 1970 to 2010. Using an auto-regressive paradigm, the analysis found that globalization has a strong and important effect on economic development in Nigeria.

Rasaki, Hakeem and Emmanuel (2013) have studied the connection between globalization and economic growth in Nigeria. Descriptive statistics and OLS were introduced in the study. The result shows that, while the exchange rate had a major and negative influence on FDI, the separation had a substantial and positive effect on FDI.

Umaru (2013) examined the impact of globalization on the economic performance of Nigeria between 1962 and 2009 by using the Annual Average Growth Rate (AAGR) methodology.

Umaru (2013) discovered that globalization has a negative impact on the petroleum, manufacturing and solid mineral industries, but has a positive impact on the agriculture, transport and communication sectors.

Using the Completely Updated Ordinary Least Squares (FMOLS) methodology, Ying (2014) studied the correlation between social and political globalization and economic growth in ASEAN countries between 1970 and 2008.

Ying (2014) found that economic globalization had a positive effect on economic development, but that social and political globalization had a negative influence on economic growth.

Nwakama and Ibe (2014) have researched globalization and economic growth in Nigeria. The research covered the period 1981-2012. The co-integration method has been introduced. The findings revealed a positive and negligible relationship between financial integration, human resource growth and trade openness, while Gross fixed capital investment had a negative and negligible effect on market openness.

An analysis made by Kilic (2015) which includes 74 developing countries, Kilic discovers that economic growth positively affects economic and political globalization whereas social globalization affects it negatively. He also revealed two types of causality relationships: (1) one-way causality relationship between economic growth and globalization and (2) two-way causality relationship between political and social globalization and economic growth.

Konyeaso (2016) suggested that the aim of his research was to analyze the effect of globalization on the Nigerian economy by using a quantitative approach for evaluating time series data covering the period 1986 to 2013. The analysis defined a multiple regression model to explain the dependency of economic growth on globalization and to include the variables used for proxy globalization; Import value, export value and exchange rate with interest rate and inflation have been introduced as explanatory variables. The traditional ordinary least square was used, and the results of the study showed that inflation had a negative impact on globalization, whereas foreign direct investment would increase the gross domestic product.

Agbarha and Peter (2017) described an analytical evaluation of the relationship between major globalization indices and economic development in Nigeria, and the research covered the period between 1980 and 2015. The analytical approach used was the Johansen co-integration and Error correcting mechanism, while the factors evaluated included the balance of payments, International

direct investment, openness of Nigeria's economy and gross domestic product. The findings of the study showed that all factors had a favorable and important effect on Nigeria's gross domestic product. The research also showed that the rise in the exchange rate, the transparency of the market, the balance of payments by globalization had a positive effect on the overall level of economic development.

## **2.5 Overview of Globalization and Economic Growth in Nigeria**

Nigeria has not been spared the impact of globalization. While the negative effects have not been confirmed, the fact remains that Nigeria has been increasingly more incorporated into the world economic system. (Ogunyomi, Jenrola. and Daisi, 2013). In this regard, Nigeria's position on the globalization agenda deserves some in-depth research. Nigeria is economically weak, initially, due to the lack of domestic economic potential and social infrastructure required to improve production, development and competitiveness. Second, the economy is undermined by monoculture dependency and adverse terms of exchange in its export markets, as well as by the unsustainable cost of debt and debt servicing. And thirdly, by 1986, economic systems had been controlled and the country had adopted expansionary fiscal and monetary policies in its growth efforts. Around 1981 and 1985, Nigeria's economy suffered a severe downturn caused by the deficit in the world oil market, and, with the fall in foreign exchange earnings, the import of raw materials and other inputs to the industrial sector had to be limited. The balance of payments and the foreign reserves of the country have come under tremendous scrutiny. As a result, investment options became blurred, weakening the confidence of international investors in particular. Despite the wave of globalization, Nigeria has been liberalizing its exposure to a sharp fall in Nigeria's oil export earnings, (Ejiawoko, 1990).

Yet the primary priority of government policies was on the goal of economic stability. Nigeria has also implemented different growth approaches over time. Throughout this time, macro-economic policies, in particular trade policies, were structured to make the nation inward-looking. Many domestic strategies have also been structured to align themselves with, and thus promote, this industrialization policy. The advent of macroeconomic disruptions in the mid-1980s led to a reconsideration of the efficacy of import-substitution industrialization as a mechanism to foster growth and development in Nigeria.

This was against the backdrop of the aforementioned that the Structural Adjustment Program (SAP) was implemented in Nigeria in 1986. The SAP policy package specifically acknowledged the outward-looking approach as a more successful strategy to improve Nigeria's development. Therefore, the SAP reform plan comprises trade liberalization, market-oriented exchange rate system, privatization and commercialization. Emphasis was imposed on the diversification of the economic and export base of the economy from oil to non-oil goods. Various opportunities were also given to

promote non-oil export production, in particular infrastructure activities. Some agencies have been set up to encourage exports and investment. It should be remembered that the macro-economic goal of the SAP in Nigeria has not been accomplished. Thus, both the domestic and export base of the economy have not been diversified, as oil remains the driver of production, while the composition of output remains dominated by primary products.

Despite the devaluation of the domestic currency, the international situation persisted in disarray. SAP appears to have stepped up investment and trading practices rather than development. The growth of commercial banks, the lowering of interest rates, the restructuring of the economy and the latest industrial policies have not contributed to the need for foreign direct investment.

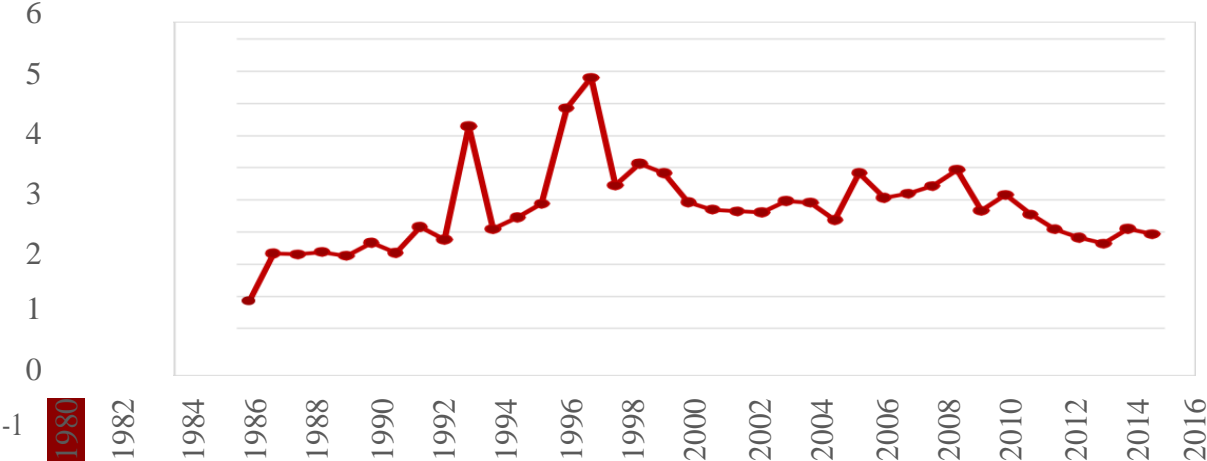
As a monoculture exporter, over 80 per cent of Nigeria's exports are crude oil. Yet volatility in the world oil market also negatively affects oil exports, contributing to a decrease in foreign exchange earnings.

Yet foreign borrowing exposes Nigeria to debt, which hit \$29.8 billion in 2002. Compensation of this debt has squandered the national treasury by \$1.2 billion out of 10.7 billion dollars in foreign exchange received that year. (Central Bank of Nigeria, 2002). The ratio of debt to gross domestic product (GDP) and export earnings is much more troubling. The total debt balance in 1985 amounted to 710 billion naira, equivalent to 1% and 6% of GDP and export earnings respectively. In 2001, the country's external debt rose to 3.2 trillion naira, 56% of GDP and 633 per cent of export earnings. (Jelilov, 2015).

FDI inflows to Nigeria accumulated to \$588 million in 1990. This amounted to \$1,079 million in 1995, which declined to \$930 million in 2000. (UNCTAD, 2002b). Worldwide FDI in 2001 amounted to 823.8 billion dollars, while Nigeria obtained just 1.1 billion dollars, or 0.13 per cent. Although the global FDI declined to \$651.2 billion in 2002, Nigeria raised its share to 0.19 per cent of those investments by raising \$1.3 billion of FDI that year (UNCTAD, 2003b).

The degree and nature of FDI has changed considerably over time, and this has an effect on how FDI affects economic development, and countries with increased FDI inflows have a great opportunity to further gain development. Before 1980, the number for FDI was negative and it stayed close to zero until 1987. Nigeria's first maximum was achieved in 1989 and since then there has been no negative trend, but near to zero inflows have been reported as in 1988, 2014, 2015 and 2017. The downturn in 2017 was the result of the recession that happened in 2016. Economic growth has also been found to be poor this year as gross production has declined. FDI was at its peak in 1994, and has not been able to hit the level since then. The graph below shows the graphical pattern in FDI inflows through 1980.

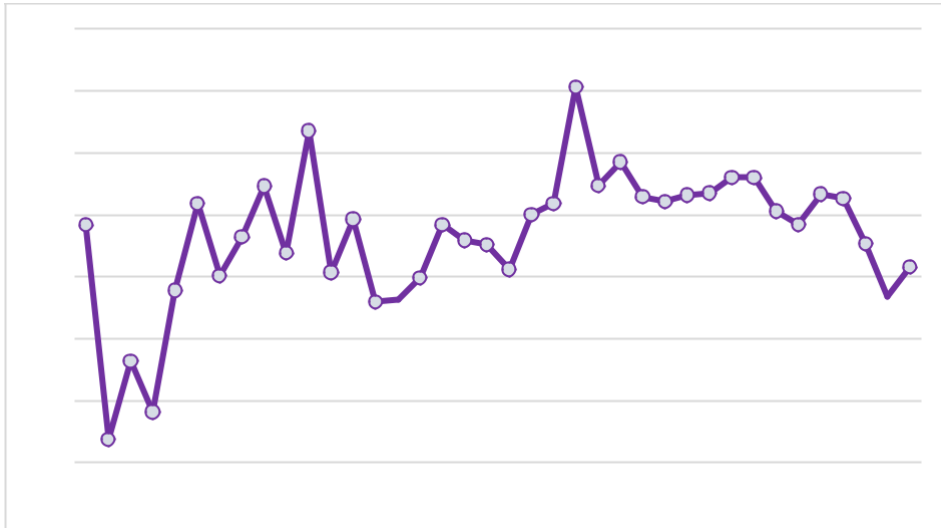
It is quite clear that the inward FDI, measured as a percentage of GDP, has fluctuated over the 20th century. Once again, FDI is projected to play a major role in economic development. Over the years, there has been a concentration of FDI inflows and outflows across continents, but the number of top recipients has changed. Earlier in 1913, the amount of FDI to emerging countries amounts to two-thirds of the world's FDI, which has now taken a different turn, and most FDI flows to advanced countries, and just one quarter to developing countries.



**Figure2.2: Trend of FDI Inflows (1980-2018)**

Nigeria's economic growth was high as it was in 1980, but plummeted to a low level. The downward pattern continued until 1996, when the first positive result had been reached since the crash. The pattern has stayed optimistic until the year 2002. Before and after that, the rate in economic growth fluctuated. Nonetheless, there was no negative statistic until 2016 due to the recession that year.





*Source: Researcher's Chart, 2020*

**Figure 2.3: Trend for Economic Growth (1980-2018)**

The table below displays the quantitative study of FDI patterns and economic growth from 1980 to 2018. The estimates in the tables and the graphic depiction of FDI and economic development. As noted in these analyses, it is apparent that there is an erratic pattern in these variables in Nigeria. The highest FDI record in Nigeria was in 1994 and that of economic growth was in 2002. Since then, the nation has not maintained a better record of FDI inflows or economic growth.

**Table 2.1: Trend of FDI and Economic Growth (1980-2017)**

<b>YEAR</b>	<b>FDI</b>	<b>ECO. GROWTH</b>
<b>1980</b>	-1.15086	4.204831
<b>1981</b>	0.329732	-13.1279
<b>1982</b>	0.301613	-6.80339
<b>1983</b>	0.375338	-10.9241
<b>1984</b>	0.257422	-1.11562
<b>1985</b>	0.658453	5.913027
<b>1986</b>	0.352544	0.060945
<b>1987</b>	1.15907	3.200125
<b>1988</b>	0.762696	7.334025
<b>1989</b>	4.282088	1.919381
<b>1990</b>	1.087951	11.77689
<b>1991</b>	1.450318	0.358353
<b>1992</b>	1.876018	4.631193
<b>1993</b>	4.84779	-2.03512

Source: CBN Statistical, 2020

It is apparent from the above that the Nigerian economy was incorporated into the global market before independence. Unfortunately, though, the advantages of globalization do not stem from the Nigerian economy as indicated by its supporters (Utuk, 2015)

At present, Nigeria's role in the global economy is to export raw materials, in particular crude oil, and to import finished products from the West. Nigeria does not have the technology and capital needed to produce manufactured goods that could be exported abroad. It is only oil trading that advantages Nigeria, where more industrialized countries have earned more benefits as their economies will cripple without crude.

The unsustainable debt that weighs down the country economically also needs to be resolved more urgently and more thoroughly by developing nations, while increased development cooperation with them will boost the competitive base of the Nigerian economy. As a result, globalization will lead to raising the quality of living of Nigerians as the country joins the League of Nations and enjoys the rewards of the process.

## CHAPTER THREE

### THEORETICAL FRAMEWORK AND METHODOLOGY

#### 3.1 Introduction

This chapter reveals the theoretical framework of the study to delineate the relationship between globalization and economic growth in Nigeria and the methodological approach employed to establish the empirical impact of globalization on economic growth. Also, explained here are the model specified, a priori specification, and technique of estimation, data sources and description as well as other methodological issues.

#### 3.2 Sources of Data

This study used secondary data. The secondary data are obtained from the Central Bank of Nigeria and the KOF Globalization Index from 1986 to 2019.

#### 3.3 Definition and Measurement of Variables

The variables used in this study were informed from the theoretical framework and the existing empirical studies. The definition and measurement of these variables are classified into dependent variable and independent variables. Where GDP is the dependent variable, it is measured by output over population. Independent variables include Economic globalization de facto which is measured by Social globalization de facto is measured by internet usage, telephone tariff. Political globalization de facto is measured by embassies in a country, membership in international bodies. It also consists of Control Variables which are Inflation Rate which is measured by the actual worth of a naira, Exchange Rate measured by the worth of a naira to other currencies, Capital Expenditure measured by government budget, Human Capital measured by expenditure on education.

#### 3.4 Theoretical Framework

In search of the determinants of economic growth and the reasons behind the differences in growth across countries, several growth models have been developed which includes the Harold-Domar (HD) model, the AK-model and the linear growth model as put forward by R. Rostow. However, the model that best capture the main objective of this study is the Solow – Swan growth model which is a type of an exogenous growth model.

In its two arguments, capital and labor, the Neoclassical growth model developed by Solow (1956) is based on output function with constant returns to scale (CRS, hereafter). The economic growth model of Solow postulates a continuous production mechanism that ties output to the replaceable inputs of capital and labor. Solow's basic assumptions are: one composite commodity is produced; output is regarded as net output after making allowance for the depreciation of capital; constant returns to scale;



economic growth,  $\mu_i$  is unobserved error term. In his study however, the time series methodology is opted thus, rendering the unobserved country-specific effect term ( $\mu_i$ ) irrelevant.

**The model specified for objective One (1) is given as**

$$GDP_t = \alpha + \beta_1 ECODf_t + \beta_2 CV_t + U_t \dots \dots \dots 3.2$$

Where GDP is the logarithm of real GDP per capita, ECODf is economic globalization, CV is a vector of other control variables that affect economic growth, and V is the usual error term.  $CV_t$  represents the endogenous factors introduced,  $INF_t$  is the inflation rate,  $CAP_t$  is the capital expenditure and  $HCI_t$  is the Human Capital Index.

**The model specified for objective Two (2) is given as**

$$GDP_t = \alpha + \beta_1 POLdf_t + \beta_2 CV_t + U_t \dots \dots \dots 3.3$$

Where GDP is the logarithm of real GDP per capita, POL is Political globalization, CV is a vector of other control variables that affect economic growth, and V is the usual error term.  $CV_t$  represents the endogenous factors introduced,  $INF_t$  is the inflation rate,  $CAP_t$  is the capital expenditure and  $HCI_t$  is the Human Capital Index.

**The model specified for objective Three (3) is given as**

$$GDP_t = \alpha GDP_{t-1} + \beta_1 SOCdf_t + \beta_2 CV_t + V_t \dots \dots \dots 3.4$$

Where GDP is the logarithm of real GDP per capita, SOC is Social globalization, CV is a vector of other control variables that affect economic growth, and V is the usual error term.

$CV_t$  represents the endogenous factors introduced,  $INF_t$  is the inflation rate,  $CAP_t$  is the capital expenditure and  $HCI_t$  is the Human Capital Index.

**The model specified for objective Four (4) is given as**

$$y_t = \alpha_1 + \dots + e_t \dots \dots \dots 3.5$$

$$x_t = \alpha_1 + \dots + e_t \dots \dots \dots 3.6$$

The granger causality test for the case of two stationary variables  $y_t$  and  $x_t$ , involves as a first step the estimation of VAR model

It is also assumed that both  $\epsilon_{yt}$  and  $\epsilon_{xt}$  are uncorrelated white-noise terms.

**3.5.2 A priori Specification**

This subsection reveals the a priori specification of the expected relationship between each independent variable and the dependent variable

**Table 3.1: A priori Expectation**

<b>Coefficient</b>	<b>Variable</b>	<b>A priori expected sign</b>
$\beta_0$	Intercept	Positive
$\beta_1$	ECOfd	Positive
$\beta_2$	POLdf	Negative
$\beta_3$	SOCdf	Negative
$\beta_4$	INF	Negative
$\beta_5$	EXR	Negative
$\beta_6$	CAP	Positive
$\beta_7$	HCI	Positive

*Source: Author's computation using MS Word*

### 3.5.3 Estimation Technique

The techniques employed in this study include the Augmented Dickey Fuller unit root test. Then, Engle and Granger cointegration test was conducted in order to identify the long-run relationship among the variables. If there is evidence of residual of the static regression is at integrated order of zero,  $I(0)$ , then a long-run model is estimated. Pairwise Granger causality was used to examine the direction of causality among globalization indicators and economic growth in Nigeria.

### 3.6 Description of Variables and Data Sources

**Table 3.2: Description and Sources of Data**

<b>Identifier</b>	<b>Variable</b>	<b>Description</b>	<b>Sources of Data</b>
GDP	Real Gross Domestic Product	Monetary value of goods and services produced in the economy over a period of time, irrespective of the nationalities of the persons producing the goods and services.	CBN Statistical Bulletin
ECO	Economic Globalization	The interdependence of economies determined by the rise in trade and exchange among the economies and technological growth.	World Development Indicators
POL	Political Globalization	This is the development and advancement of the global political system.	National Bureau of Statistics

SOC	Social Globalization	This refer to the social dimension of interrelationship among economies and the indices of social globalization affects way of life.	National Bureau of Statistics
INF	Inflation rate	This represent an economic situation, where there is a constant general increase in the prices of goods and services. As calculated by an index such as the consumer price index (CPI) or by implicit price deflator for Gross National Product (GNP). It could be characterized as a continuous price increase. Its also the condition where too much money purchases too few goods.	Central Bank of Nigeria
EXR	Exchange rate	This is expressed as the price of one currency to another, generally expressed as the domestic price of foreign currency	IMF
CAP	Capital expenditure	This refers to asset spending. It is the buying of goods that can last and be used in the provision of goods or services time and time again. For example, the construction of a new hospital, the procurement of a new computer equipment, the construction of new roads.	CBN (2019)
HCI	Human Capital	This refers to the skills, expertise, abilities and characteristics embodied in people that promote the development of personal, social and economic well-being.	OECD (2001)

*Source: Researcher's computation*



## CHAPTER FOUR

### DATA ANALYSIS AND DISCUSSION

#### 4.1 Introduction

This section presents the data analysis and interpretation of the secondary data gathered from the Central Bank Statistical Bulletin and the World Bank World development indicators Data for the period 1986to2019. The data extracted are presented using tables for easy data presentation and understanding. Four hypotheses are tested to achieve the four objectives of this study.

#### 4.2 Data Presentation

**Table 4.1** Data presentation for the study

YEAR	KOFECGI <sub>df</sub>	KOFSOGI <sub>df</sub>	KOFPOGI <sub>df</sub>	INF	EXR	CAP	HCI	RGDP	Rgdpg
1986	24.4	8.9	63.3	5.72	4.02	8.53	1.092	206	
1987	31.7	8.6	63.5	11.29	4.54	6.37	0.649	204.8	-0.00583
1988	30.5	8.4	78.9	54.51	7.39	8.34	1.081	219.9	0.07373
1989	36	8.3	79.5	50.47	8.04	15.03	1.942	236.7	0.076398
1990	37.3	8.1	79.2	7.36	9.91	24.05	2.292	267.5	0.130123
1991	42.8	8.5	78.4	13.01	17.3	28.34	1.559	265.4	-0.00785
1992	38.7	8.5	82.5	44.59	22.05	15.98	2.064	271.4	0.022607
1993	63.5	8.5	82.6	57.17	21.89	18.6	8	274.8	0.012528
1994	53.9	8.4	82.4	57.03	21.89	31	10.285	275.5	0.002547
1995	36.8	8.3	81.3	72.84	21.89	44.56	12.727	281.4	0.021416
1996	36.3	8.4	79.7	29.27	21.89	48	15.355	293.7	0.04371
1997	37.2	8.3	79.4	8.53	21.89	115.9	15.948	302	0.02826
1998	33.8	8	79.3	10	102.11	185.38	26.72	310.9	0.02947
1999	43.4	9.4	79.8	6.62	111.94	136.98	31.57	312.2	0.004181

2000	41.9	10	84.2	6.93	120.97	311.61	67.57	329.2	0.054452
2001	41.8	10.8	84.4	18.87	129.36	438.7	59.74	357	0.084447
2002	39.9	12.1	84	12.88	133.5	321.38	109.46	433.2	0.213445
2003	41	12.4	83.7	14.03	132.15	241.69	79.44	477.5	0.102262
2004	36.2	14	83.7	15	128.65	393.58	93.77	527.6	0.104921
2005	32.1	17.1	84.1	17.86	125.83	706.88	120.03	561.9	0.065011
2006	34.3	18.2	83.8	8.24	118.57	552.39	165.21	595.8	0.060331
2007	38.9	21.4	83.8	5.38	148.9	759.3	150.78	634.3	0.064619
2008	41.3	26.3	84.7	11.58	150.3	960.9	212.78	672.2	0.059751
2009	40.6	35.9	84.9	11.54	150.3	1152.8	180.52	718.9	0.069473
2010	36.4	37.7	85	13.72	155.5	883.9	258.7	54612.26	74.96642
2011	39	37.8	85.3	10.84	158.2	918.5	371.2	57511.04	0.053079
2012	36.3	37.1	86	12.22	157.2	874.87	348.4	59929.89	0.042059
2013	33.9	37.6	85.7	8.48	157.31	1108.39	390.42	67152.79	0.120522
2014	31.8	39.1	85.5	8.06	158.6	783.12	393.45	67153	3.13E-06
2015	29.9	37.8	86.8	9.01	192.4	818.35	348.75	69024	0.027862
2016	30.4	35.8	85.8	15.68	253.5	653.61	278.95	67931	-0.01584
2017	34.5	36.6	85.4	16.52	305.8	1242.3	542.19	68491	0.008244
2018	32.5	36.2	85.6	12.09	306.1	1682.1	753.49	69800	0.019112
2019	33.5	36.4	85.5	11.04	306.9	2289	994.19	70002	0.002894

**Source: CBN Statistical Bulletin, 2019**

### 4.3 Descriptive Result for the study

**Table 4.2 Descriptive statistics for each variables in the study (1986-2019)**

	RGDPG	KOFECGI DF	KOFPOGI DF	KOFSOGI DF	INF	HCI	EXR	CAP
Mean	2.319223	37.82121	82.55758	20.00000	20.0806 1	183.3101	117.6597	538.5424
Median	0.043710	36.40000	83.80000	12.40000	12.2200 0	93.77000	128.6500	393.5800
Maximum	74.96642	63.50000	86.80000	39.10000	72.8400 0	994.1900	306.9000	2289.000
Minimum	-0.015835	29.90000	63.50000	8.000000	5.38000 0	0.649000	4.540000	6.370000
Std. Dev.	13.04154	6.703579	4.246839	12.93795	18.1880 8	234.1262	89.52600	550.1226
Skewness	5.479958	2.026176	-2.840039	0.477776	1.62425 7	1.794368	0.523606	1.198231
Kurtosis	31.03040	8.293167	13.28482	1.400309	4.24522 0	6.154765	2.699165	4.389512
Jarque-Bera	1245.507	61.10386	189.8062	4.774125	16.6422 1	31.39341	1.632339	10.55144
Probability	0.000000	0.000000	0.000000	0.091899	0.00024 3	0.000000	0.442122	0.005114
Sum	76.53437	1248.100	2724.400	660.0000	662.660 0	6049.232	3882.770	17771.90

Sum Sq.					10585.8				
Dev.	5442.615	1438.015	577.1406	5356.500	0	1754082.	256477.0	9684317.	
Observations	33	33	33	33	33	33	33	33	33

**Source: Researcher’s computation using Eviews 7 (2020)**

Table 4.2 above shows the descriptive statistics of this study. IN this table, there are eight variables which consist of real gdp growth rate, economic globalization, political globalization, social globalization, inflation rate, human capital, exchange rate, and capital expenditure for the study period 1986 to 2019. Each of the descriptive results is discussed below:

**Mean:** The mean is used to measure the average value of a distribution or what you expect to happen the next time you conduct a similar statistical experiment. Here, we have 33 observations i.e.thedataspanfrom1986-2019.Theaveragevaluesofreal gdp growth rate, economic globalization, political globalization , social globalization, inflation rate, human capital, exchange rate, and capital expenditure are 2.32, 37.87, 82.56, 20.00, 20.08, 183.31, 117.66, and 538.54 respectively.

**Standard deviation:** Standard deviation measures the dispersion of the data set from the mean. It can be thought of as a measure of variability. The larger values of standard deviation imply greater variability in the data. The standard deviation as revealed in table 4.1 shows the highest and lowest variability variables are capital expenditure and political globalization of 550.12 and 4.25respectively.

**Skewness:** Skewness is the measure of asymmetry in a distribution. When the distribution is mound-shaped symmetrical, the values for the mean, median and mode are the same or almost the same. In table 4.2, it revealed that all the included variables are not normally distributed, hence, asymmetrical distributions exhibited. In specific, all the variables are positively skewed distribution, except the political globalization that exhibited a negatively skewed distribution in this study.

**Kurtosis:** This measures heaviness or lightness in the tails of the data distribution of the variables. The standard normal distribution has a kurtosis of 3. A positive value tells you that you have heavy- tails (a lot of data in your tails), while a negative value means that you

have light-tails (i.e. little data in your tails). Specifically, table 4.1 shows that all the variables exhibited kurtosis distribution, implying their outliers in their distributions because their kurtosis values are higher than 3.0 but social globalization and exchange rate kurtosis values are lower than 3.0, implying a lower outliers distribution in this study. In specific, all the included variables are leptokurtic, except social globalization and exchange rate that are platykurtic distribution.

**Table 4.3 Correlations Matrix**

	RGDPG	DF	DF	F	INF	HCI	EXR	CAP
							0.07555	
RGDPG	1.000000	-0.038171	0.103883	0.245070	-0.063322	0.057094	5	0.112372
KOFECGID							-	
F	-0.038171	1.000000	0.025521	-0.375931	0.367332	-0.357114	0.348771	-0.329267
KOFPOGID							0.63600	
F	0.103883	0.025521	1.000000	0.601569	-0.143474	0.505626	0	0.568451
KOFSOGID							0.80407	
F	0.245070	-0.375931	0.601569	1.000000	-0.430133	0.811760	3	0.844809
INF	-0.063322	0.367332	-0.143474	-0.430133	1.000000	-0.358747	0.511068	-0.441295
HCI	0.057094	-0.357114	0.505626	0.811760	-0.358747	1.000000	2	0.945452
EXR	0.075555	-0.348771	0.636000	0.804073	-0.511068	0.868072	0	0.884862
CAP	0.112372	-0.329267	0.568451	0.844809	-0.441295	0.945452	2	1.000000

**Source: Researcher's computation using EViews 7 (2020)**

Table 4.3 shows the result of the correlation matrix among the included variables. In specific, the results revealed that degrees of positive and negative association existed between real GDP growth and other variables in this study. All the variables have a low positive degree of

association between real gdp growth and other included variables , except economic globalization and inflation rate that exhibited a negative degree of association within the study period 1986-2019 in this study. Further, the table 4.3 found that the strongest degree of association was between real gdp growth and social globalization while the weakest degree of association was between real gdp growth and economic globalization within the study period of 1986 to 2019 in Nigeria.

**4.4 Times Series Econometrics Result**

To avoid spurious regression, the time series econometrics results are tested using unit root test and the cointegration test to ascertain individual stationary level and the long-run co-movement of the included non-stationary variables respectively. These estimation techniques are performed using Eviews 7.0 econometric software in this study.

**4.5 Objective One Result**

**4.5.1 Pre-Tests Estimations**

**4.5.1.1 Unit Root Test Result**

**Table 4.4: Unit Root Test using Augmented Dickey-Fuller**

Variable	Unit root test at Level			Unit root test at first difference		
	ADF value	Crit. Value ( $\alpha = 0.05$ )	Order of integration	ADF Value	Critical Value ( $\alpha = 0.05$ )	Order of integratio n
RGDPG	-5.65	-3.58	I(0)	-9.33	-2.96	I(1)
KOFECGIDF	-3.63	-3.56	I(0)	-6.59	-2.96	I(1)
INF	-3.26	-3.60	-	-3.51	-3.73	I(1)
EXR	-2.46	-3.58	-	-4.16	-2.96	I(1)
HCI	-2.70	-3.60	-	-4.82	-2.99	I(1)
CAP	-2.48	-3.57	-	-6.56	-2.97	I(1)

*Source: Author’s computation using EViews (2020)*

The unit root test result shown above is generated using Augmented Dickey-Fuller unit root test statistic. A variable is said to be integrated of order  $d$ ,  $I(d)$  if it is stationary after differencing the times (Engle and Granger, 1987). In specific, table 4.4 result found that all the variables are not stationary at level except real gdp growth and economic globalization as shown in the first part of this stable. Further, it revealed that all the included variables were stationary after first differencing this study, implying that the included variables are stationary at integrated order of one,  $I(1)$ . This implied that the variables now stationary are now fit to be used for the policy inference and forecasting in this study.

#### 4.5.1.2 Cointegration Test Result

**Table 4.5 Cointegration Test- using Engle-Granger Cointegration**

Variable	ADF value	Critical value @5% level of significance	Order of intergration
Residual	-6.22	-2.96	$I(0)$

Source: Author's computation using EViews (2020)

Table 4.5 shows the Engle-Granger cointegration test to determine the long run relationship among the included variables in this study. The result found that residual ADF value is lesser than the critical value, hence, the null hypothesis of no cointegration is rejected and otherwise, the alternative hypothesis is accepted implying that a cointegration existed among the included variables in this study. In addition, the residual variable is stationary at integrated order of zero,  $I(0)$  in this study.

#### 4.5.2 Ordinary Least Square Regression Result

**Table 4.6 OLS Regression Estimated: Long run OLS Result**

Dependent Variable: RGDPG

Method: Least Squares

Date: 11/04/20 Time: 07:52

Sample (adjusted): 1987 2019

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.403825	16.59421	0.144859	0.8859
KOFECGIDF	-0.065390	0.412710	-0.158440	0.8753
INF	0.015263	0.171138	0.089186	0.9296
HCI	-0.026636	0.035108	-0.758673	0.4546
EXR	-0.005497	0.064306	-0.085489	0.9325
CAP	0.014133	0.015402	0.917635	0.3669
R-squared	0.036777	Mean dependent var		2.319223
Adjusted R-squared	-0.141598	S.D. dependent var		13.04154
S.E. of regression	13.93431	Akaike info criterion		8.269551
Sum squared resid	5242.455	Schwarz criterion		8.541643
Log likelihood	-130.4476	Hannan-Quinn criter.		8.361102
F-statistic	0.206176	Durbin-Watson stat		2.251914
Prob(F-statistic)	0.957020			

Source: Researcher's

Table 4.6 presents the static ordinary least square (OLS) result of this model that investigated the impact of economic globalization on economic growth between the study periods of 1986 to 2019 in Nigeria. Specifically, the table 4.6 long run OLS results are presented in two dimensions: the parameter estimates and the diagnostic results for inference and forecasting decisions.

First, the regression coefficients in table 4.6 revealed that all the included variables have no statistically significant impact on real economic growth performance in the long run period of this study in Nigeria. Nonetheless, only exchange rate (EXR) and capital expenditure (CAP) variables conformed to Apriori expectations while other included variables are contrary to the theoretical underpinning relationship to the dependent variable, real economic growth over the study periods



1986 to 2019 in Nigeria. Further, the constant value of 2.40 suggested that other explanatory variables not included in this model have a positive impact on real economic growth of Nigeria in the long run.

On the diagnostic results in table 4.6, R squared, Durbin-Watson (DW) and F-statistic values are used to determine the reliability and prediction of this model. In specific, the R-squared value of 3.7% indicated a very low degree of determination, implying that the change in the real economic growth is explained by only 3.7% change in explanatory variables in the long run and thus, suggested that other unobserved explanatory variables accounted for about 96.3 % changes in the real economic growth of Nigeria in the long run. Further, the Durbin-Watson value of 2.25 indicated no serial autocorrelation in the long run model, which is fulfillment of the OLS assumptions. Lastly, the F-statistics value of 0.20 at  $P > 0.10$  indicated that the overall model is not statistically significant at 10 level of significance, hence, the long run model estimated is not reliable to achieve the real economic growth for Nigeria in the long run.

**Table 4.7 OLS Regression Estimated: Short-run Parsimonious ECM Result**

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:34

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.181117	2.617018	0.069207	0.9455
D(RGDPG(-2))	0.170264	0.136990	1.242889	0.2276
D(KOFECGIDF(-2))	0.116704	0.365863	0.318982	0.7529
D(INF(-2))	0.099625	0.147906	0.673573	0.5079
D(HCI(-1))	-0.094091	0.057694	-1.630872	0.1178
D(HCI(-2))	0.030526	0.048786	0.625701	0.5383
D(CAP(-1))	0.022348	0.020757	1.076617	0.2939
D(CAP(-2))	0.013405	0.017085	0.784638	0.4414
ECM(-1)	-0.972356	0.240429	-4.044259	0.0006

R-squared	0.684290	Mean dependent var	-0.002450
Adjusted R-squared	0.564019	S.D. dependent var	19.67113
S.E. of regression	12.98861	Akaike info criterion	8.209348
Sum squared resid	3542.786	Schwarz criterion	8.629708
Log likelihood	-114.1402	Hannan-Quinn criter.	8.343825
F-statistic	5.689592	Durbin-Watson stat	2.123762
Prob(F-statistic)	0.000647		

Source: Researcher's computation from EViews7 (2020)

Table 4.7 displayed the OLS parsimonious error correction model (ECM) result from the over-parameterized OLS which represents the short-run regression model in this study. Unlike the static regression model, the short-run model overall model is statistically significant with the F-statistic value 5.69 at  $P < 0.01$ , therefore the short-run model is reliable and predictive path to achieve steady real economic growth in the long run. Importantly, the error correction value of 97.2% indicated the disequilibrium in real economic growth can be corrected by 97.2% within the short run to achieve a steady real economic growth for Nigeria, although, the ECT is high implying a longer recovery periods in this study.

Although the included variables all conformed to the Apriori expectations, except the human capital of lagged one but none is statistically significant or reliable within the study periods 1986 to 2019. Further the result revealed that two years past changes in real economic growth and economic globalization have a higher positive impact on current change in real economic growth over the study periods 1986 to 2019 in Nigeria. While the two years changes in infrastructure (capital expenditure) has the lowest impact on current change in real economic growth over the study period 1986 to 2019 in Nigeria. Like static model, the short run model also devoid of serial correlation problem, and thus upholds the OLS assumptions.

## **4.6 Objective Two Result**

### **4.6.1 Pre-Tests Estimations**

#### **4.6.1.1 Unit Root Test Result**

**Table 4.8: Unit Root Test using Augmented Dickey-Fuller**

Variable	Unit root test at Level			Unit root test at first difference		
	ADF value	Crit. Value ( $\alpha = 0.05$ )	Order of integration	ADF Value	Critical Value ( $\alpha = 0.05$ )	Order of integration
RGDPG	-5.65	-3.58	I(0)	-9.33	-2.96	I(1)
KOFPOGIDF	-4.37	-2.96	I(0)	-6.50	-2.96	I(1)
INF	-3.26	-3.60	-	-3.51	-3.73	I(1)
EXR	-2.46	-3.58	-	-4.16	-2.96	I(1)
HCI	-2.70	-3.60	-	-4.82	-2.99	I(1)
CAP	-2.48	-3.57	-	-6.56	-2.97	I(1)

*Source: Author's computation using EViews (2020)*

The unit root test result shown above is generated using Augmented Dickey-Fuller unit root test statistic. A variable is said to be integrated of order  $d$ ,  $I(d)$  if it is stationary after differencing  $d$  times (Engle and Granger, 1987). In specific, table 4.4 result found that all the variables are not stationary at level except real gdp growth and economic globalization as shown in the first part of this stable. Further, it revealed that all the included variables were stationary after first differencing this study, implying that the included variables are stationary at integrated order of one,  $I(1)$ . This implied that the variables now stationary are now fit to be used for the policy inference and forecasting in this study.

#### 4.6.1.2 Cointegration Test Result

**Table 4.9 Cointegration Test- using Engle-Granger Cointegration**

Variable	ADF value	Critical value @5% level of significance	Order of integration
Residual	-6.25	-2.96	I(0)

Source: Author's computation using EViews 7 (2020)

Table 4.9 shows the Engle-Granger cointegration test to determine the long run relationship among the included variables in this study. The result found that residual ADF value is lesser than the critical value, hence, the null hypothesis of no cointegration is rejected and otherwise, the alternative hypothesis is accepted implying that a cointegration existed among the included variables in this study. In addition, the residual variable is stationary at integrated order of zero, I(0) in this study.

#### 4.6.2 Ordinary Least Square Regression Result

**Table 4.10 OLS Regression Estimated: Long run OLS Result**

Dependent Variable: RGDPG

Method: Least Squares

Date: 11/04/20 Time: 21:05

Sample (adjusted): 1987 2019

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.66802	62.75054	-0.217815	0.8292
KOFPOGIDF	0.180578	0.820805	0.220001	0.8275
INF	-0.006035	0.175229	-0.034441	0.9728
HCI	-0.023059	0.036092	-0.638886	0.5283
EXR	-0.013213	0.073206	-0.180489	0.8581
CAP	0.012964	0.015767	0.822258	0.4181
R-squared	0.037606	Mean dependent var		2.319223
Adjusted R-squared	-0.140615	S.D. dependent var		13.04154
S.E. of regression	13.92831	Akaike info criterion		8.268689
Sum squared resid	5237.939	Schwarz criterion		8.540782
Log likelihood	-130.4334	Hannan-Quinn criter.		8.360240
F-statistic	0.211009	Durbin-Watson stat		2.260262
Prob(F-statistic)	0.954890			

Source: Author’s computation using EViews 7 (2020)

Table 4.10 presents the static ordinary least square (OLS) result of this model that investigated the impact of economic globalization on economic growth between the study periods of 1986 to 2019 in Nigeria. Specifically, the table 4.10 long run OLS results are presented in two dimensions: the parameter estimates and the diagnostic results for inference and forecasting decisions.

First, the regression coefficients in table 4.10 revealed that all the included variables have no statistically significant impact on real economic growth performance in the long run period of this study in Nigeria. Nonetheless, only exchange rate (EXR) and capital expenditure (CAP) variables conformed to Apriori expectations while other included variables are contrary to the theoretical underpinning relationship with the dependent variable, real economic growth over the study periods 1986 to 2019 in Nigeria. Further, the constant value of 2.40 suggested that other explanatory variables not included in this model have a positive impact on real economic growth of Nigeria in the long run. On the diagnostic results in table 4.10, R squared, Durbin-Watson (DW) and F-statistic values are used to determine the reliability and prediction of this model. In specific, the R-squared value of 3.7% indicated a very low degree of determination, implying that the change in the real economic growth is explained by only 3.7% change in explanatory variables in the long run and thus, suggested that other unobserved explanatory variables accounted for about 96.3 % changes in the real economic growth of Nigeria in the long run. Further, the Durbin-Waston value of 2.25 indicated no serial autocorrelation in the long run model, which is fulfillment of the OLS assumptions. Lastly, the F-statistics value of 0.20 at  $P > 0.10$  indicated that the overall model is not statistically significant at 10 level of significance, hence, the long run model estimated is not reliable to achieve the real economic growth for Nigeria in the long run.

**Table 4.11 OLS Regression Estimated: Short-run Parsimonious ECM Result**

Dependent Variable: D(RGDPG)  
 Method: Least Squares  
 Date: 11/04/20 Time: 08:59  
 Sample (adjusted): 1989 2019  
 Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	0.561925	2.557581	0.219709	0.8280
D(RGDPG(-1))	-0.260984	0.191979	-1.359442	0.1872
D(KOFPOGIDF(-2))	-0.664397	0.986569	-0.673442	0.5074
D(INF(-2))	0.173630	0.180393	0.962512	0.3458
D(HCI(-1))	-0.121093	0.063297	-1.913089	0.0683
D(CAP(-1))	0.034450	0.021689	1.588332	0.1259
D(CAP(-2))	0.025778	0.016634	1.549749	0.1349
ECM(-1)	-0.658870	0.336884	-1.955776	0.0627
R-squared	0.682617	Mean dependent var		-0.002285
Adjusted R-squared	0.586023	S.D. dependent var		19.34050
S.E. of regression	12.44388	Akaike info criterion		8.097971
Sum squared resid	3561.554	Schwarz criterion		8.468032
Log likelihood	-117.5186	Hannan-Quinn criter.		8.218602
F-statistic	7.066823	Durbin-Watson stat		2.180264
Prob(F-statistic)	0.000150			

Source: Researcher's computation from EViews7 (2020)

Table 4.11 displayed the OLS parsimonious error correction model (ECM) result from the over-parameterized OLS which represents the short-run regression model in this study. Unlike the static regression model, the short-run model overall model is statistically significant with the F-statistic value 5.69 at  $P < 0.01$ , therefore the short-run model is reliable and predictive path to achieve steady real economic growth in the long run. Importantly, the error correction value of 97.2% indicated the disequilibrium in real economic growth can be corrected by 97.2% within the short run to achieve a steady real economic growth for Nigeria, although, the ECT is high implying a longer recovery periods in this study.

Although the included variables all conformed to the Apriori expectations, except the human capital of lagged one but none is statistically significant or reliable within the study periods 1986 to 2019. Further the result revealed that two years past changes in real economic growth and economic globalization have a higher positive impact on current change in real

economic growth over the study periods 1986 to 2019 in Nigeria. While the two years changes in infrastructure (capital expenditure) has the lowest impact on current change in real economic growth over the study period 1986 to 2019 in Nigeria. Like static model, the short run model also devoid of serial correlation problem, and thus conform to the OLS assumptions.

#### 4.7 Objective Three Result

##### 4.7.1 Pre-Tests Estimations

##### 4.7.1.1 Unit Root Test Result

**Table 4.12: Unit Root Test using Augmented Dickey-Fuller**

Variable	Unit root test at Level			Unit root test at first difference		
	ADF value	Crit. Value ( $\alpha = 0.05$ )	Order of integration	ADF Value	Critical Value ( $\alpha = 0.05$ )	Order of integration
RGDPG	-5.65	-3.58	I(0)	-9.33	-2.96	I(1)
KOFSOGIDF	-0.63	-2.96	-	-3.08	-2.96	I(1)
INF	-3.26	-3.60	-	-3.51	-3.73	I(1)
EXR	-2.46	-3.58	-	-4.16	-2.96	I(1)
HCI	-2.70	-3.60	-	-4.82	-2.99	I(1)
CAP	-2.48	-3.57	-	-6.56	-2.97	I(1)

*Source: Author's computation using EViews (2020)*

The unit root test result shown above is generated using Augmented Dickey-Fuller unit root test statistic. A variable is said to be integrated of order d, (I(d)) if it is stationary after differencing d times (Engle and Granger, 1987). In specific, table 4.12 result found that all the variables are not stationary at level except real gdp growth and economic globalization as shown in the first part of this stable. Further, it revealed that all the included variables were stationary after first difference in this study, implying that the included variables are stationary at integrated order of one, I(1). This implied that the variables now stationary are now fit to be used for the policy inference and forecasting in this study.

#### 4.7.1.2 Cointegration Test Result

**Table 4.13 Cointegration Test- using Engle-Granger Cointegration**

Variable	ADF value	Critical value @5% level of significance	Order of integration
Residual	-6.71	-2.96	I(0)

Source: Researcher's computation using EViews 7 (2020)

Table 4.13 shows the Engle-Granger cointegration test to determine the long run relationship among the included variables in this study. The result found that residual ADF value is lesser than the critical value, hence, the null hypothesis of no cointegration is rejected and otherwise, the alternative hypothesis is accepted implying that a cointegration existed among the included variables in this study. In addition, the residual variable is stationary at integrated order of zero, I(0) in this study.

#### 4.7.2 Ordinary Least Square Regression Result

**Table 4.14 OLS Regression Estimated: Long run OLS Result**

Dependent Variable: RGDPG

Method: Least Squares

Date: 11/04/20 Time: 09:03

Sample (adjusted): 1987 2019

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.295974	7.623358	-0.694704	0.4932
KOFSOGIDF	0.592885	0.348323	1.702114	0.1002
INF	0.025822	0.156353	0.165153	0.8701
HCI	-0.028118	0.032708	-0.859668	0.3975
EXR	-0.024768	0.062178	-0.398343	0.6935
CAP	0.006141	0.015212	0.403723	0.6896



R-squared	0.129309	Mean dependent var	2.319223
Adjusted R-squared	-0.031930	S.D. dependent var	13.04154
S.E. of regression	13.24811	Akaike info criterion	8.168553
Sum squared resid	4738.836	Schwarz criterion	8.440645
Log likelihood	-128.7811	Hannan-Quinn criter.	8.260103
F-statistic	0.801971	Durbin-Watson stat	2.397842
Prob(F-statistic)	0.558131		

Source: Researcher's computation using EViews 7 (2020)

Table 4.14 presents the static ordinary least square (OLS) result of this model that investigated the impact of economic globalization on economic growth between the study periods of 1986 to 2019 in Nigeria. Specifically, the table 4.14 long run OLS results are presented in two dimensions: the parameter estimates and the diagnostic results for inference and forecasting decisions.

First, the regression coefficients in table 4.6 revealed that all the included variables have no statistically significant impact on real economic growth performance in the long run period of this study in Nigeria. Nonetheless, only exchange rate (EXR) and capital expenditure (CAP) variables conformed to Apriori expectations while other included variables are contrary to the theoretical underpinning relationship with the dependent variable, real economic growth over the study periods 1986 to 2019 in Nigeria. Further, the constant value of 2.40 suggested that other explanatory variables not included in this model have a positive impact on real economic growth of Nigeria in the long run. On the diagnostic results in table 4.14, R squared, Durbin-Watson (DW) and F-statistic values are used to determine the reliability and prediction of this model. In specific, the R-squared value of 3.7% indicated a very low degree of determination, implying that the change in the real economic growth is explained by only 3.7% change in explanatory variables in the long run and thus, suggested that other unobserved explanatory variables accounted for about 96.3 % changes in the real economic growth of Nigeria in the long run. Further, the Durbin-Watson value of 2.25 indicated no serial autocorrelation in the long run model, which is fulfillment of the OLS assumptions. Lastly, the F-statistics value of 0.20 at  $P > 0.10$  indicated that the overall model is not statistically significant at 10 level of significance, hence, the long run model estimated is not reliable to achieve the real economic growth for Nigeria in the long run.

**Table 4.15 OLS Regression Estimated: Short-run Parsimonious ECM Result**

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 09:17

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.107414	2.497140	-1.644847	0.1156
D(RGDPG(-2))	0.043469	0.095216	0.456534	0.6529
D(KOFSOGIDF(-1))	5.230039	1.284767	4.070806	0.0006
D(KOFSOGIDF(-2))	-1.993428	1.791515	-1.112705	0.2790
D(INF(-1))	-0.068109	0.120860	-0.563533	0.5793
D(INF(-2))	0.076337	0.106859	0.714372	0.4833
D(HCI(-1))	-0.046690	0.029974	-1.557647	0.1350
D(HCI(-2))	0.061415	0.036203	1.696397	0.1053
D(EXR(-1))	0.096035	0.093586	1.026167	0.3171
ECM2(-1)	-0.852218	0.266262	-3.200677	0.0045
R-squared	0.851117	Mean dependent var		-0.002450
Adjusted R-squared	0.784120	S.D. dependent var		19.67113
S.E. of regression	9.139771	Akaike info criterion		7.524349
Sum squared resid	1670.708	Schwarz criterion		7.991415
Log likelihood	-102.8652	Hannan-Quinn criter.		7.673768
F-statistic	12.70378	Durbin-Watson stat		2.006342
Prob(F-statistic)	0.000002			

Source: Researcher's computation from EViews7 (2020)

Table 4.15 displayed the OLS parsimonious error correction model (ECM) result from the over-parameterized OLS which represents the short-run regression model in this study. Unlike the static regression model, the short-run model overall model is statistically significant with the F-statistic value 5.69 at  $P < 0.01$ , therefore the short-run model is reliable and predictive path to achieve steady real economic growth in the long run. Importantly, the error correction value of 97.2% indicated the disequilibrium in real economic growth can be corrected by 97.2% within the short run to achieve a steady real economic growth for Nigeria, although, the ECT is high implying a longer recovery periods in this study.

Although the included variables all conformed to the Apriori expectations, except the human capital of lagged one but none is statistically significant or reliable within the study periods 1986 to 2019. Further the result revealed that two years past changes in real economic growth and economic globalization have a higher positive impact on current change in real economic growth over the study periods 1986 to 2019 in Nigeria. While the two years changes in infrastructure (capital expenditure) has the lowest impact on current change in real economic growth over the study period 1986 to 2019 in Nigeria. Like static model, the short run model also devoid of serial correlation problem, and thus upholds the OLS assumptions.

#### 4.8 Objective Four Result

**Table 4.16 Pairwise Granger Causality Test between Real Economic growths, Economic globalization,**

#### **Political Globalization and Social Globalization in Nigeria**

Pairwise Granger Causality Tests

Date: 11/04/20 Time: 20:36

Sample: 1986 2019

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
KOFECDIDF does not Granger Cause RGDPG	31	0.10844	0.8976
RGDPG does not Granger Cause KOFECDIDF		0.15017	0.8613

KOFPOGIDF does not Granger Cause RGDPG	31	0.28415	0.7550
RGDPG does not Granger Cause KOFPOGIDF		0.29108	0.7499
<hr/>			
KOFSOGIDF does not Granger Cause RGDPG	31	20.5615	4.E-06
RGDPG does not Granger Cause KOFSOGIDF		0.29221	0.7490
<hr/>			
KOFPOGIDF does not Granger Cause			
KOFECGIDF	32	1.03988	0.3672
KOFECGIDF does not Granger Cause KOFPOGIDF		2.83680	0.0762
<hr/>			
KOFSOGIDF does not Granger Cause			
KOFECGIDF	32	1.50791	0.2394
KOFECGIDF does not Granger Cause KOFSOGIDF		0.03457	0.9661
<hr/>			
KOFSOGIDF does not Granger Cause			
KOFPOGIDF	32	10.6106	0.0004
KOFPOGIDF does not Granger Cause KOFSOGIDF		0.39094	0.6802

Source: Researcher's computation from EViews 7, 2020

Table 4.10 shows the pairwise granger causality test between real economic growth, economic globalization, political globalization and social globalization within the study periods 1986 to 2019. Specifically, the result revealed that all the four pairs variables do not cause each other within the study periods. Further, table 4.10 found that social globalization caused real economic growth of 20.58 at  $P < 0.01$  as well as social globalization caused political globalization of 10.61 at  $P < 0.01$  and lastly, economic globalization caused political globalization of 2.84 at  $P < .10$  respectively. Importantly, the Pairwise Granger causality found that a univariate causality existed between real economic growth, economic globalization, political globalization, and social globalization within the study periods 1986 to 2019.

#### **4.9 Discussion of Findings**

The findings from the four hypotheses are discussed below as follows.

First, the hypothesis one revealed that economic globalization has a negative and positive impact on real economic growth in the long run and short run respectively in Nigeria over the study periods

1986 to 2019. Though the overall long run model was not statistically significant at 1% or 5% level but this model was statistically significant at the short run model of this study.

Second, the hypothesis two of this study like the first hypothesis the political globalization also has a negative and positive impact on real economic growth in the long run and short run models respectively in Nigeria. In same vein, the long run was not statistically significant while the short run model was statistically significant in this study over the study period 1986 to 2019 in Nigeria.

Third, the hypothesis three of this study is different from the first two hypotheses in this study. Specifically, the result found that social globalization has a high positive impact on real economic growth in the long run and short run respectively. Like other hypotheses, the overall model was not statistically significant in the long run while the short run was statistically significant in this study over the study periods Of 1986 to 2019 in Nigeria.

Fourth and the last hypothesis of this study found that a univariate causal relationship existed between real economic growth, economic globalization, political globalization, and social globalization over the study periods 1986 to 2019 in Nigeria. In specific, social globalization caused real economic growth of 20.58 at  $P < 0.01$  as well as social globalization caused political globalization of 10.61 at  $P < 0.01$  and lastly, economic globalization caused political globalization of 2.84 at  $P < .10$  respectively

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of the Findings

The results of this study are summarized in four hypotheses as follows:

Hypothesis one investigated the impact of economic globalization on economic growth in Nigeria from 1986-2019. It employed both descriptive statistics and econometric methodology. The descriptive statistics result reviewed that all variables are not normally distributed. On the other hand, the econometric time series methodology employed unit root test, cointegration test, long run Ordinary Least Square, and OLS error correction model respectively. The results found that economic globalization has a negative and positive impact on real economic growth in the long run and short run respectively in Nigeria over the study periods 1986 to 2019. Though the overall long run model was not statistically significant at 1% or 5% level but this model was statistically significant at the short run model of this study.

Hypothesis two investigated the impact of political globalization on economic growth in Nigeria using descriptive and econometric methodology. Like hypothesis one, It employed both descriptive statistics and econometric methodology. The descriptive statistics result reviewed that all variables are not normally distributed. On the other hand, the econometric time series methodology employed unit root test, cointegration test, long run Ordinary Least Square, and OLS error correction model respectively. The political globalization also has a negative and positive impact on real economic growth in the long run and short run models respectively in Nigeria. In same vein, the long run was not statistically significant while the short run model was statistically significant in this study over the study period 1986 to 2019 in Nigeria.

Hypothesis three tested the impact of social globalization on economic growth in Nigeria over the study periods, 1986 to 2019. Similarly, the study employed both descriptive statistics and econometric methodology. The descriptive statistics result reviewed that all variables are not normally distributed. On the other hand, the econometric time series methodology employed unit root test, cointegration test, long run Ordinary Least Square, and OLS error correction model respectively. Has a direct impact on Economic growth in Nigeria using descriptive and econometric methodology. All methods were designed to achieve the objective three of this study and thus, the outcome found that that social globalization has a high positive impact on real economic growth in the long run and short run respectively. Like other hypotheses, the overall model was not statistically significant in the long run while the short run was statistically significant in this study over the study periods Of 1986 to 2019 in Nigeria.

Finally, the summary of the fourth hypothesis tested the causal relationship between real economic growth, economic globalization, political globalization, and social globalization in Nigeria. The study employed Pairwise Granger causality. The result revealed that a univariate causal relationship existed between economic globalization, political globalization, social globalization and economic growth within the study periods 1986 to 2019 in Nigeria.

## **5.2 Conclusion of the Study**

Based on the empirical results from the four hypotheses and research objectives, in general, the study concluded that globalization has impact on economic growth within the study periods 1986 to 2019 in Nigeria. In specific objectives, the study concluded that political and social globalization has a positive but insignificant impact on real economic growth on Nigeria in the long run. While economic globalization has a negative and also insignificant impact on real economic growth in the long run over the study period in Nigeria. Further, the study concluded that only social globalization has a high positive and significant impact on real economic growth in Nigeria over the study period 1986-2019 in the short run. Lastly, the study concluded that a univariate causal relationship existed between real economic growth, economic globalization, political globalization, and social globalization within the study period 1986 to 2019 in Nigeria.

## **5.3 Recommendation of the Study**

Based on the conclusion, the study recommended the following as follows:

- i. The government should place more emphasis on social globalization than political and economic globalization, for it has a stimulus recovery to steady real economic growth of Nigeria within the study period of 1986 to 2019
- ii. Government should provide friendly macroeconomic environment and indicators to boost the strands of globalization in actualizing steady real economic growth within the study period.
- iii. Finally, the government should also consider other macroeconomic drivers and policies, especially domestic policies to accelerate and sustain real economic growth of Nigeria both in the short and long run.

## **5.4 Recommendations for Further Studies**

This study can be further extended considering other measures of globalization such as de jure as well as mixture of de facto and de jure. In addition, the scope of the study can be expanded from a country study to cross-sectional study. Lastly, the study methodology can be improved from time series econometrics to a panel econometrics method.

## **5.5 Limitation of the Study**

This study was constrained due to the following factors:

- i. Scope of the study
- ii. Use of a single country study
- iii. Use of time series econometrics
- iv. Use of OLS and Pairwise Granger causality
- v. Financial and Time constraints of the project completion.



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## APPENDIX

### EVIEWS RESULTS

#### Data presentation

obs	KOFECGIF	KOFSOGIDF	KOFPOGIDF	INF	EXR	CAP	HCI	RGDP
1986	24.40000	8.900000	63.30000	5.720000	4.020000	8.530000	1.092000	206.0000
1987	31.70000	8.600000	63.50000	11.29000	4.540000	6.370000	0.649000	204.8000
1988	30.50000	8.400000	78.90000	54.51000	7.390000	8.340000	1.081000	219.9000
1989	36.00000	8.300000	79.50000	50.47000	8.040000	15.03000	1.942000	236.7000
1990	37.30000	8.100000	79.20000	7.360000	9.910000	24.05000	2.292000	267.5000
1991	42.80000	8.500000	78.40000	13.01000	17.30000	28.34000	1.559000	265.4000
1992	38.70000	8.500000	82.50000	44.59000	22.05000	15.98000	2.064000	271.4000
1993	63.50000	8.500000	82.60000	57.17000	21.89000	18.60000	8.000000	274.8000
1994	53.90000	8.400000	82.40000	57.03000	21.89000	31.00000	10.28500	275.5000
1995	36.80000	8.300000	81.30000	72.84000	21.89000	44.56000	12.72700	281.4000
1996	36.30000	8.400000	79.70000	29.27000	21.89000	48.00000	15.35500	293.7000
1997	37.20000	8.300000	79.40000	8.530000	21.89000	115.9000	15.94800	302.0000
1998	33.80000	8.000000	79.30000	10.00000	102.1100	185.3800	26.72000	310.9000
1999	43.40000	9.400000	79.80000	6.620000	111.9400	136.9800	31.57000	312.2000
2000	41.90000	10.00000	84.20000	6.930000	120.9700	311.6100	67.57000	329.2000
2001	41.80000	10.80000	84.40000	18.87000	129.3600	438.7000	59.74000	357.0000
2002	39.90000	12.10000	84.00000	12.88000	133.5000	321.3800	109.4600	433.2000
2003	41.00000	12.40000	83.70000	14.03000	132.1500	241.6900	79.44000	477.5000
2004	36.20000	14.00000	83.70000	15.00000	128.6500	393.5800	93.77000	527.6000
2005	32.10000	17.10000	84.10000	17.86000	125.8300	706.8800	120.0300	561.9000
2006	34.30000	18.20000	83.80000	8.240000	118.5700	552.3900	165.2100	595.8000
2007	38.90000	21.40000	83.80000	5.380000	148.9000	759.3000	150.7800	634.3000
2008	41.30000	26.30000	84.70000	11.58000	150.3000	960.9000	212.7800	672.2000
2009	40.60000	35.90000	84.90000	11.54000	150.3000	1152.800	180.5200	718.9000
2010	36.40000	37.70000	85.00000	13.72000	155.5000	883.9000	258.7000	54612.26
2011	39.00000	37.80000	85.30000	10.84000	158.2000	918.5000	371.2000	57511.04
2012	36.30000	37.10000	86.00000	12.22000	157.2000	874.8700	348.4000	59929.89
2013	33.90000	37.60000	85.70000	8.480000	157.3100	1108.390	390.4200	67152.79

2014	31.80000	39.10000	85.50000	8.060000	158.6000	783.1200	393.4500	67153.00
2015	29.90000	37.80000	86.80000	9.010000	192.4000	818.3500	348.7500	69024.00
2016	30.40000	35.80000	85.80000	15.68000	253.5000	653.6100	278.9500	67931.00
2017	34.50000	36.60000	85.40000	16.52000	305.8000	1242.300	542.1900	68491.00
2018	32.50000	36.20000	85.60000	12.09000	306.1000	1682.100	753.4900	69800.00
2019	33.50000	36.40000	85.50000	11.04000	306.9000	2289.000	994.1900	70002.00

Source: CBN Statistical Bulletin, 2019

## MODEL 1

### DESCRIPTIVE STATISTICS FOR MODEL 1

	RGDPG	KOFECGIDF	INF	EXR	HCI	CAP
Mean	2.319223	37.82121	20.08061	117.6597	183.3101	538.5424
Median	0.043710	36.40000	12.22000	128.6500	93.77000	393.5800
Maximum	74.96642	63.50000	72.84000	306.9000	994.1900	2289.000
Minimum	-0.015835	29.90000	5.380000	4.540000	0.649000	6.370000
Std. Dev.	13.04154	6.703579	18.18808	89.52600	234.1262	550.1226
Skewness	5.479958	2.026176	1.624257	0.523606	1.794368	1.198231
Kurtosis	31.03040	8.293167	4.245220	2.699165	6.154765	4.389512
Jarque-Bera	1245.507	61.10386	16.64221	1.632339	31.39341	10.55144
Probability	0.000000	0.000000	0.000243	0.442122	0.000000	0.005114
Sum	76.53437	1248.100	662.6600	3882.770	6049.232	17771.90
Sum Sq. Dev.	5442.615	1438.015	10585.80	256477.0	1754082.	9684317.
Observations	33	33	33	33	33	33

## PRE-TEST ESTIMATIONS RESULT

### UNIT ROOT TEST RESULT FOR EACH VARIABLE

#### UNIT ROOT TEST FOR RGDPG @ LEVEL

Null Hypothesis: RGDPG has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.653916	0.0003
Test critical values: 1% level	-4.273277	
5% level	-3.557759	
10% level	-3.212361	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 03:10

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPG(-1)	-1.051411	0.185962	-5.653916	0.0000
C	-0.781248	5.143991	-0.151876	0.8803
@TREND(1986)	0.188348	0.262533	0.717425	0.4789
R-squared	0.524422	Mean dependent var		0.000272
Adjusted R-squared	0.491624	S.D. dependent var		19.02600
S.E. of regression	13.56564	Akaike info criterion		8.142017
Sum squared resid	5336.769	Schwarz criterion		8.279430
Log likelihood	-127.2723	Hannan-Quinn criter.		8.187565
F-statistic	15.98922	Durbin-Watson stat		2.000400
Prob(F-statistic)	0.000021			

## UNIT ROOT TEST FOR ECOGLO @ LEVEL

Null Hypothesis: KOFECDGIDF has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 3 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.632959	0.0437
Test critical values: 1% level	-4.296729	
5% level	-3.568379	
10% level	-3.218382	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KOFECDGIDF)

Method: Least Squares

Date: 11/04/20 Time: 03:12

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOFECDGIDF(-1)	-0.921527	0.253657	-3.632959	0.0013
D(KOFECDGIDF(-1))	0.279045	0.213995	1.303978	0.2046
D(KOFECDGIDF(-2))	0.140656	0.193817	0.725712	0.4750
D(KOFECDGIDF(-3))	0.119790	0.171873	0.696965	0.4925
C	41.79747	11.29336	3.701067	0.0011
@TREND(1986)	-0.353381	0.142335	-2.482739	0.0204
R-squared	0.413344	Mean dependent var	-0.083333	

Adjusted R-squared	0.291124	S.D. dependent var	6.694418
S.E. of regression	5.636349	Akaike info criterion	6.473207
Sum squared resid	762.4423	Schwarz criterion	6.753446
Log likelihood	-91.09810	Hannan-Quinn criter.	6.562858
F-statistic	3.381970	Durbin-Watson stat	2.112710
Prob(F-statistic)	0.018767		

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#### UNIT ROOT TEST FOR INFLATION @LEVEL

Null Hypothesis: INF has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 7 (Automatic - based on SIC, maxlag=8)

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	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.258040	0.0956
Test critical values: 1% level	-4.356068	
5% level	-3.595026	
10% level	-3.233456	

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

#### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(INF)

Method: Least Squares

Date: 11/04/20 Time: 03:13

Sample (adjusted): 1994 2019

Included observations: 26 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.686464	0.210698	-3.258040	0.0049
D(INF(-1))	0.102823	0.194415	0.528884	0.6041
D(INF(-2))	0.381350	0.186243	2.047592	0.0574

D(INF(-3))	0.339525	0.158326	2.144472	0.0477
D(INF(-4))	0.045864	0.142330	0.322240	0.7514
D(INF(-5))	-0.172367	0.131627	-1.309516	0.2089
D(INF(-6))	0.193564	0.091406	2.117613	0.0502
D(INF(-7))	0.244992	0.100999	2.425679	0.0275
C	18.09918	10.42658	1.735870	0.1018
@TREND(1986)	-0.378571	0.314611	-1.203298	0.2464
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R-squared	0.820968	Mean dependent var	-1.774231	
Adjusted R-squared	0.720262	S.D. dependent var	10.83383	
S.E. of regression	5.730038	Akaike info criterion	6.613044	
Sum squared resid	525.3333	Schwarz criterion	7.096927	
Log likelihood	-75.96957	Hannan-Quinn criter.	6.752385	
F-statistic	8.152159	Durbin-Watson stat	1.920144	
Prob(F-statistic)	0.000168			

#### UNIT ROOT TEST FOR INFLATION @ 1<sup>ST</sup> DIFFERENCE

Null Hypothesis: D(INF) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 8 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.100020	0.0002
Test critical values: 1% level	-4.394309	
5% level	-3.612199	
10% level	-3.243079	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(INF,2)

Method: Least Squares

Date: 11/04/20 Time: 03:14



Sample (adjusted): 1996 2019

Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-3.690252	0.604957	-6.100020	0.0000
D(INF(-1),2)	2.338141	0.506003	4.620807	0.0005
D(INF(-2),2)	1.975641	0.384855	5.133463	0.0002
D(INF(-3),2)	1.631607	0.329821	4.946950	0.0003
D(INF(-4),2)	1.159084	0.279297	4.150002	0.0011
D(INF(-5),2)	0.704482	0.222914	3.160330	0.0075
D(INF(-6),2)	0.561401	0.150715	3.724921	0.0025
D(INF(-7),2)	0.330979	0.100362	3.297872	0.0058
D(INF(-8),2)	0.149582	0.085183	1.756012	0.1026
C	-21.00767	5.047983	-4.161596	0.0011
@TREND(1986)	0.747421	0.202096	3.698349	0.0027
R-squared	0.947610	Mean dependent var	-0.702500	
Adjusted R-squared	0.907310	S.D. dependent var	15.59440	
S.E. of regression	4.747721	Akaike info criterion	6.256769	
Sum squared resid	293.0311	Schwarz criterion	6.796710	
Log likelihood	-64.08122	Hannan-Quinn criter.	6.400015	
F-statistic	23.51390	Durbin-Watson stat	1.709429	
Prob(F-statistic)	0.000001			

#### UNIT ROOT TEST FOR HCI @ LEVEL

Null Hypothesis: HCI has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 8 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	2.701897	1.0000
Test critical values: 1% level	-4.374307	
5% level	-3.603202	

10% level

-3.238054

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

## Augmented Dickey-Fuller Test Equation

Dependent Variable: D(HCI)

Method: Least Squares

Date: 11/04/20 Time: 03:14

Sample (adjusted): 1995 2019

Included observations: 25 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HCI(-1)	0.829027	0.306831	2.701897	0.0172
D(HCI(-1))	-1.449451	0.430213	-3.369147	0.0046
D(HCI(-2))	-1.643977	0.466886	-3.521149	0.0034
D(HCI(-3))	-2.183605	0.470276	-4.643242	0.0004
D(HCI(-4))	-2.888086	0.541804	-5.330497	0.0001
D(HCI(-5))	-3.455739	0.683043	-5.059326	0.0002
D(HCI(-6))	-2.509859	0.858951	-2.922006	0.0111
D(HCI(-7))	-1.675118	0.788939	-2.123254	0.0520
D(HCI(-8))	-1.311638	0.596301	-2.199623	0.0451
C	-118.8659	62.77167	-1.893624	0.0791
@TREND(1986)	12.86151	4.995004	2.574875	0.0220
R-squared	0.856969	Mean dependent var	39.35620	
Adjusted R-squared	0.754804	S.D. dependent var	85.14751	
S.E. of regression	42.16271	Akaike info criterion	10.62113	
Sum squared resid	24887.72	Schwarz criterion	11.15744	
Log likelihood	-121.7641	Hannan-Quinn criter.	10.76988	
F-statistic	8.388094	Durbin-Watson stat	2.086765	
Prob(F-statistic)	0.000237			

UNIT ROOT TEST FOR HCI @ 1<sup>ST</sup> DIFF

Null Hypothesis: D(HCI) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 5 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.796981	0.0035
Test critical values: 1% level	-4.339330	
5% level	-3.587527	
10% level	-3.229230	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(HCI,2)

Method: Least Squares

Date: 11/04/20 Time: 03:15

Sample (adjusted): 1993 2019

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HCI(-1))	-7.580390	1.580242	-4.796981	0.0001
D(HCI(-1),2)	6.162015	1.401928	4.395385	0.0003
D(HCI(-2),2)	5.632352	1.293354	4.354842	0.0003
D(HCI(-3),2)	4.392171	1.146969	3.829374	0.0011
D(HCI(-4),2)	2.651916	0.870439	3.046643	0.0066
D(HCI(-5),2)	0.646242	0.476022	1.357588	0.1905
C	-126.4567	34.73480	-3.640635	0.0017
@TREND(1986)	12.95373	2.681099	4.831500	0.0001

R-squared	0.767339	Mean dependent var	8.896111
Adjusted R-squared	0.681622	S.D. dependent var	84.61373
S.E. of regression	47.74328	Akaike info criterion	10.81075
Sum squared resid	43309.00	Schwarz criterion	11.19470
Log likelihood	-137.9451	Hannan-Quinn criter.	10.92492

F-statistic            8.951993   Durbin-Watson stat    1.988376  
 Prob(F-statistic)    0.000068

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UNIT ROOT TEST FOR ECH @LEVEL

Null Hypothesis: EXR has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on SIC, maxlag=8)

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	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.464586	0.3421
Test critical values: 1% level	-4.273277	
5% level	-3.557759	
10% level	-3.212361	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXR)

Method: Least Squares

Date: 11/04/20 Time: 03:16

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR(-1)	-0.300935	0.122104	-2.464586	0.0201
D(EXR(-1))	0.430442	0.187999	2.289599	0.0298
C	-8.953964	8.120817	-1.102594	0.2796
@TREND(1986)	2.741008	1.042469	2.629343	0.0137

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R-squared	0.255547	Mean dependent var	9.448750
Adjusted R-squared	0.175784	S.D. dependent var	20.14347

S.E. of regression	18.28752	Akaike info criterion	8.766784
Sum squared resid	9364.138	Schwarz criterion	8.950001
Log likelihood	-136.2685	Hannan-Quinn criter.	8.827515
F-statistic	3.203833	Durbin-Watson stat	2.127818
Prob(F-statistic)	0.038348		

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#### UNIT ROOT TEST FOR EXCH @ 1<sup>ST</sup> DIFF

Null Hypothesis: D(EXR) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

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	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.220137	0.0113
Test critical values: 1% level	-4.273277	
5% level	-3.557759	
10% level	-3.212361	

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

#### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXR,2)

Method: Least Squares

Date: 11/04/20 Time: 03:16

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXR(-1))	-0.772822	0.183127	-4.220137	0.0002
C	1.487127	7.509917	0.198022	0.8444
@TREND(1986)	0.332404	0.393306	0.845152	0.4049

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R-squared	0.381442	Mean dependent var	0.008750
Adjusted R-squared	0.338783	S.D. dependent var	24.37792
S.E. of regression	19.82296	Akaike info criterion	8.900619

Sum squared resid	11395.55	Schwarz criterion	9.038032
Log likelihood	-139.4099	Hannan-Quinn criter.	8.946168
F-statistic	8.941634	Durbin-Watson stat	1.926127
Prob(F-statistic)	0.000944		

#### UNIT ROOT TEST FOR CAPEXP @ LEVEL

Null Hypothesis: CAP 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	-2.480698	0.3344
Test critical values: 1% level	-4.309824	
5% level	-3.574244	
10% level	-3.221728	

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

#### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CAP)

Method: Least Squares

Date: 11/04/20 Time: 03:17

Sample (adjusted): 1991 2019

Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAP(-1)	-0.740383	0.298458	-2.480698	0.0212
D(CAP(-1))	0.795527	0.290801	2.735641	0.0121
D(CAP(-2))	0.541769	0.262342	2.065128	0.0509
D(CAP(-3))	-0.157063	0.280341	-0.560257	0.5810
D(CAP(-4))	0.700983	0.270176	2.594541	0.0165
C	-347.0008	139.7529	-2.482959	0.0211

@TREND(1986) 38.67242 13.69165 2.824526 0.0099

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R-squared	0.535020	Mean dependent var	78.10172
Adjusted R-squared	0.408207	S.D. dependent var	218.7608
S.E. of regression	168.2885	Akaike info criterion	13.29574
Sum squared resid	623062.4	Schwarz criterion	13.62578
Log likelihood	-185.7883	Hannan-Quinn criter.	13.39911
F-statistic	4.218973	Durbin-Watson stat	1.575666
Prob(F-statistic)	0.005663		

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#### UNIT ROOT TEST FOR CAPEXP @1<sup>ST</sup> DIFF

Null Hypothesis: D(CAP) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 4 (Automatic - based on SIC, maxlag=8)

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	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.390519	0.3761
Test critical values: 1% level	-4.323979	
5% level	-3.580623	
10% level	-3.225334	

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

#### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CAP,2)

Method: Least Squares

Date: 11/04/20 Time: 03:19

Sample (adjusted): 1992 2019

Included observations: 28 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CAP(-1))	-1.747807	0.731141	-2.390519	0.0263
D(CAP(-1),2)	1.165202	0.690830	1.686670	0.1065

D(CAP(-2),2)	0.958176	0.551523	1.737328	0.0970
D(CAP(-3),2)	0.344947	0.416480	0.828244	0.4168
D(CAP(-4),2)	0.775482	0.281661	2.753248	0.0119
C	-33.38228	84.80726	-0.393625	0.6978
@TREND(1986)	6.234747	4.045443	1.541178	0.1382
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R-squared	0.712648	Mean dependent var	21.52179	
Adjusted R-squared	0.630547	S.D. dependent var	274.5707	
S.E. of regression	166.8913	Akaike info criterion	13.28488	
Sum squared resid	584906.5	Schwarz criterion	13.61793	
Log likelihood	-178.9883	Hannan-Quinn criter.	13.38670	
F-statistic	8.680180	Durbin-Watson stat	2.095090	
Prob(F-statistic)	0.000081			

#### UNIT ROOT TEST FOR CAPEXP @ 2ND<sup>T</sup> DIFF

Null Hypothesis: D(CAP,2) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.771133	0.0000
Test critical values: 1% level	-4.309824	
5% level	-3.574244	
10% level	-3.221728	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CAP,3)

Method: Least Squares

Date: 11/04/20 Time: 03:18

Sample (adjusted): 1991 2019

Included observations: 29 after adjustments



Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CAP(-1),2)	-2.791962	0.412333	-6.771133	0.0000
D(CAP(-1),3)	1.167324	0.333495	3.500273	0.0018
D(CAP(-2),3)	0.742170	0.192028	3.864915	0.0007
C	-68.63805	86.29929	-0.795349	0.4342
@TREND(1986)	5.422331	4.213782	1.286809	0.2104
R-squared	0.869640	Mean dependent var	5.681724	
Adjusted R-squared	0.847913	S.D. dependent var	475.5886	
S.E. of regression	185.4716	Akaike info criterion	13.43927	
Sum squared resid	825593.5	Schwarz criterion	13.67501	
Log likelihood	-189.8694	Hannan-Quinn criter.	13.51310	
F-statistic	40.02628	Durbin-Watson stat	1.613598	
Prob(F-statistic)	0.000000			

#### Unit root tests

Rgdp unit root test @ 1<sup>st</sup> diff

Null Hypothesis: D(RGDPG) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.325653	0.0000
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(RGDPG,2)

Method: Least Squares

Date: 11/04/20 Time: 06:43

Sample (adjusted): 1989 2019

Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RGDPG(-1))	-1.499861	0.160832	-9.325653	0.0000
C	-0.001883	3.059985	-0.000615	0.9995
R-squared	0.749931	Mean dependent var	-0.003089	
Adjusted R-squared	0.741308	S.D. dependent var	33.49718	
S.E. of regression	17.03727	Akaike info criterion	8.571025	
Sum squared resid	8417.792	Schwarz criterion	8.663540	
Log likelihood	-130.8509	Hannan-Quinn criter.	8.601183	
F-statistic	86.96781	Durbin-Watson stat	2.333918	
Prob(F-statistic)	0.000000			

ecoglo unit root test @ 1<sup>st</sup> diff

Null Hypothesis: D(KOFECGIDF) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.590120	0.0000
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KOFECGIDF,2)

Method: Least Squares

Date: 11/04/20 Time: 06:44

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KOFECGIDF(-1))	-1.164386	0.176687	-6.590120	0.0000
C	0.097860	1.161904	0.084224	0.9334
R-squared	0.591446	Mean dependent var	-0.196875	
Adjusted R-squared	0.577827	S.D. dependent var	10.10830	
S.E. of regression	6.567849	Akaike info criterion	6.662711	
Sum squared resid	1294.099	Schwarz criterion	6.754320	
Log likelihood	-104.6034	Hannan-Quinn criter.	6.693077	
F-statistic	43.42968	Durbin-Watson stat	2.059919	
Prob(F-statistic)	0.000000			

inf unit root test @ 1<sup>st</sup> diff

Null Hypothesis: D(INF) has a unit root

Exogenous: Constant

Lag Length: 8 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.518001	0.0164
Test critical values: 1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(INF,2)

Method: Least Squares

Date: 11/04/20 Time: 06:45

Sample (adjusted): 1996 2019

Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-2.401721	0.682695	-3.518001	0.0034
D(INF(-1),2)	1.305218	0.582455	2.240889	0.0418
D(INF(-2),2)	1.367029	0.480244	2.846529	0.0129
D(INF(-3),2)	1.218605	0.428400	2.844551	0.0130
D(INF(-4),2)	0.778799	0.358468	2.172578	0.0475
D(INF(-5),2)	0.404133	0.286567	1.410258	0.1803
D(INF(-6),2)	0.480044	0.205821	2.332330	0.0351
D(INF(-7),2)	0.411225	0.135264	3.040158	0.0088
D(INF(-8),2)	0.167862	0.117389	1.429961	0.1747
C	-2.829234	1.587252	-1.782473	0.0964

R-squared	0.892489	Mean dependent var	-0.702500
Adjusted R-squared	0.823374	S.D. dependent var	15.59440
S.E. of regression	6.553843	Akaike info criterion	6.892317
Sum squared resid	601.3400	Schwarz criterion	7.383173
Log likelihood	-72.70781	Hannan-Quinn criter.	7.022541
F-statistic	12.91319	Durbin-Watson stat	1.463007
Prob(F-statistic)	0.000024		

hci unit root test @ 2<sup>nd</sup> diff

Null Hypothesis: D(HCI,2) has a unit root

Exogenous: Constant

Lag Length: 7 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.823105	0.0008
Test critical values: 1% level	-3.737853	
5% level	-2.991878	

10% level

-2.635542

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(HCI,3)

Method: Least Squares

Date: 11/04/20 Time: 06:46

Sample (adjusted): 1996 2019

Included observations: 24 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HCI(-1),2)	-22.19653	4.602124	-4.823105	0.0002
D(HCI(-1),3)	20.02344	4.438092	4.511724	0.0004
D(HCI(-2),3)	18.43713	4.081714	4.517007	0.0004
D(HCI(-3),3)	15.93289	3.564051	4.470444	0.0004
D(HCI(-4),3)	12.47018	2.968687	4.200569	0.0008
D(HCI(-5),3)	8.110331	2.263148	3.583650	0.0027
D(HCI(-6),3)	4.275332	1.382742	3.091923	0.0074
D(HCI(-7),3)	1.544875	0.526919	2.931900	0.0103
C	35.16194	11.88253	2.959128	0.0098

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R-squared	0.925299	Mean dependent var	1.218458
Adjusted R-squared	0.885459	S.D. dependent var	150.0403
S.E. of regression	50.77947	Akaike info criterion	10.97286
Sum squared resid	38678.32	Schwarz criterion	11.41463
Log likelihood	-122.6743	Hannan-Quinn criter.	11.09006
F-statistic	23.22521	Durbin-Watson stat	1.864399
Prob(F-statistic)	0.000000		

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exr unit root test @1<sup>st</sup> diff

Null Hypothesis: D(EXR) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.163421	0.0027
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXR,2)

Method: Least Squares

Date: 11/04/20 Time: 06:47

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXR(-1))	-0.732219	0.175869	-4.163421	0.0002
C	6.920895	3.862515	1.791810	0.0833
R-squared	0.366207	Mean dependent var		0.008750
Adjusted R-squared	0.345081	S.D. dependent var		24.37792
S.E. of regression	19.72834	Akaike info criterion		8.862451
Sum squared resid	11676.23	Schwarz criterion		8.954060
Log likelihood	-139.7992	Hannan-Quinn criter.		8.892817
F-statistic	17.33407	Durbin-Watson stat		1.950565
Prob(F-statistic)	0.000243			

cap unit root test @2<sup>nd</sup> diff

Null Hypothesis: D(CAP,2) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.564987	0.0000
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

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

### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(CAP,3)

Method: Least Squares

Date: 11/04/20 Time: 06:48

Sample (adjusted): 1991 2019

Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CAP(-1),2)	-2.706081	0.412199	-6.564987	0.0000
D(CAP(-1),3)	1.117986	0.335601	3.331293	0.0027
D(CAP(-2),3)	0.736841	0.194485	3.788676	0.0009
C	32.98000	35.25960	0.935348	0.3586
R-squared	0.860645	Mean dependent var	5.681724	
Adjusted R-squared	0.843923	S.D. dependent var	475.5886	
S.E. of regression	187.8888	Akaike info criterion	13.43702	
Sum squared resid	882555.2	Schwarz criterion	13.62561	
Log likelihood	-190.8368	Hannan-Quinn criter.	13.49608	
F-statistic	51.46619	Durbin-Watson stat	1.593077	
Prob(F-statistic)	0.000000			

### ENGLE-GRANGER COINTEGRATION TEST

Null Hypothesis: EGC has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.220011	0.0000
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

#### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EGC)

Method: Least Squares

Date: 11/04/20 Time: 07:53

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EGC(-1)	-1.128513	0.181433	-6.220011	0.0000
C	0.035725	2.317629	0.015414	0.9878

R-squared	0.563246	Mean dependent var	-0.125165
Adjusted R-squared	0.548687	S.D. dependent var	19.51431
S.E. of regression	13.10967	Akaike info criterion	8.045039
Sum squared resid	5155.907	Schwarz criterion	8.136648
Log likelihood	-126.7206	Hannan-Quinn criter.	8.075405
F-statistic	38.68854	Durbin-Watson stat	2.022379
Prob(F-statistic)	0.000001		

#### STATIC OLS (LONG RUN ESTIMATE)

Dependent Variable: RGDPG

Method: Least Squares

Date: 11/04/20 Time: 07:52



Sample (adjusted): 1987 2019

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.403825	16.59421	0.144859	0.8859
KOFECGIDF	-0.065390	0.412710	-0.158440	0.8753
INF	0.015263	0.171138	0.089186	0.9296
HCI	-0.026636	0.035108	-0.758673	0.4546
EXR	-0.005497	0.064306	-0.085489	0.9325
CAP	0.014133	0.015402	0.917635	0.3669
R-squared	0.036777	Mean dependent var	2.319223	
Adjusted R-squared	-0.141598	S.D. dependent var	13.04154	
S.E. of regression	13.93431	Akaike info criterion	8.269551	
Sum squared resid	5242.455	Schwarz criterion	8.541643	
Log likelihood	-130.4476	Hannan-Quinn criter.	8.361102	
F-statistic	0.206176	Durbin-Watson stat	2.251914	
Prob(F-statistic)	0.957020			

Short-run model 1

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:07

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.125972	3.482323	0.036175	0.9716
D(RGDPG(-1))	-0.082981	0.397453	-0.208781	0.8373
D(RGDPG(-2))	0.134658	0.232837	0.578334	0.5711
D(KOFECGIDF(-1))	0.029847	0.447338	0.066721	0.9476

D(KOFECGIDF(-				
2))	0.135415	0.430050	0.314881	0.7569
D(INF(-1))	-0.030106	0.200968	-0.149807	0.8828
D(INF(-2))	0.099341	0.177747	0.558891	0.5840
D(HCI(-1))	-0.104306	0.082124	-1.270103	0.2222
D(HCI(-2))	0.020015	0.074608	0.268263	0.7919
D(EXR(-1))	-0.003131	0.156786	-0.019972	0.9843
D(EXR(-2))	0.008222	0.176492	0.046586	0.9634
D(CAP(-1))	0.026069	0.028628	0.910590	0.3760
D(CAP(-2))	0.017642	0.028690	0.614900	0.5473
ECM(-1)	-0.870482	0.535681	-1.625001	0.1237

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R-squared	0.685691	Mean dependent var	-0.002450
Adjusted R-squared	0.430314	S.D. dependent var	19.67113
S.E. of regression	14.84728	Akaike info criterion	8.538235
Sum squared resid	3527.068	Schwarz criterion	9.192127
Log likelihood	-114.0735	Hannan-Quinn criter.	8.747421
F-statistic	2.685020	Durbin-Watson stat	2.149412
Prob(F-statistic)	0.032042		

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redundant test

#### Redundant Variables Test

Equation: UNTITLED

Specification: D(RGDPG) C D(RGDPG(-1)) D(RGDPG(-2))

D(KOFECGIDF(

-1)) D(KOFECGIDF(-2)) D(INF(-1)) D(INF(-2)) D(HCI(-1))

D(HCI(-2))

D(EXR(-1)) D(EXR(-2)) D(CAP(-1)) D(CAP(-2)) ECM(-1)

Redundant Variables: D(RGDPG(-1)) D(KOFECGIDF(-1))

D(EXR(-1))

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	Value	df	Probability
F-statistic	0.016426	(3, 16)	0.9970
Likelihood ratio	0.092254	3	0.9928

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F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	10.86288	3	3.620961
Restricted SSR	3537.931	19	186.2069
Unrestricted SSR	3527.068	16	220.4418
Unrestricted SSR	3527.068	16	220.4418

LR test summary:

	Value	df
Restricted LogL	-114.1197	19
Unrestricted LogL	-114.0735	16

Restricted Test Equation:

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:25

Sample: 1990 2019

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.093173	2.911621	0.032000	0.9748
D(RGDPG(-2))	0.171274	0.144743	1.183297	0.2513
D(KOFECGIDF(-2))	0.128716	0.391774	0.328547	0.7461
D(INF(-1))	-0.028528	0.182186	-0.156588	0.8772
D(INF(-2))	0.101409	0.156008	0.650026	0.5235
D(HCI(-1))	-0.096395	0.066452	-1.450588	0.1632
D(HCI(-2))	0.030511	0.051518	0.592238	0.5607
D(EXR(-2))	0.008704	0.147403	0.059050	0.9535
D(CAP(-1))	0.022653	0.021897	1.034531	0.3139
D(CAP(-2))	0.013371	0.018046	0.740948	0.4678
ECM(-1)	-0.966735	0.258326	-3.742312	0.0014

R-squared	0.684723	Mean dependent var	-0.002450
Adjusted R-squared	0.518787	S.D. dependent var	19.67113
S.E. of regression	13.64576	Akaike info criterion	8.341310
Sum squared resid	3537.931	Schwarz criterion	8.855083
Log likelihood	-114.1197	Hannan-Quinn criter.	8.505671
F-statistic	4.126439	Durbin-Watson stat	2.122457
Prob(F-statistic)	0.003864		

redundant test 2

Redundant Variables Test

Equation: UNTITLED

Specification: D(RGDPG) C D(RGDPG(-2)) D(KOFECGIDF(-2))

D(INF(-1))

D(INF(-2)) D(HCI(-1)) D(HCI(-2)) D(EXR(-2)) D(CAP(-1))

D(CAP(-2))

ECM(-1)

Redundant Variables: D(INF(-1)) D(EXR(-2))

	Value	df	Probability
F-statistic	0.013036	(2, 19)	0.9871
Likelihood ratio	0.041139	2	0.9796

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	4.854840	2	2.427420
Restricted SSR	3542.786	21	168.7041
Unrestricted SSR	3537.931	19	186.2069
Unrestricted SSR	3537.931	19	186.2069

LR test summary:

	Value	df
Restricted LogL	-114.1402	21

Unrestricted LogL -114.1197 19

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Restricted Test Equation:

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:30

Sample: 1990 2019

Included observations: 30

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.181117	2.617018	0.069207	0.9455
D(RGDPG(-2))	0.170264	0.136990	1.242889	0.2276
D(KOFECGIDF(-2))	0.116704	0.365863	0.318982	0.7529
D(INF(-2))	0.099625	0.147906	0.673573	0.5079
D(HCI(-1))	-0.094091	0.057694	-1.630872	0.1178
D(HCI(-2))	0.030526	0.048786	0.625701	0.5383
D(CAP(-1))	0.022348	0.020757	1.076617	0.2939
D(CAP(-2))	0.013405	0.017085	0.784638	0.4414
ECM(-1)	-0.972356	0.240429	-4.044259	0.0006

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R-squared	0.684290	Mean dependent var	-0.002450
Adjusted R-squared	0.564019	S.D. dependent var	19.67113
S.E. of regression	12.98861	Akaike info criterion	8.209348
Sum squared resid	3542.786	Schwarz criterion	8.629708
Log likelihood	-114.1402	Hannan-Quinn criter.	8.343825
F-statistic	5.689592	Durbin-Watson stat	2.123762
Prob(F-statistic)	0.000647		

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short run (Parismonious ECM result)

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:34

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.181117	2.617018	0.069207	0.9455
D(RGDPG(-2))	0.170264	0.136990	1.242889	0.2276
D(KOFECGIDF(-2))	0.116704	0.365863	0.318982	0.7529
D(INF(-2))	0.099625	0.147906	0.673573	0.5079
D(HCI(-1))	-0.094091	0.057694	-1.630872	0.1178
D(HCI(-2))	0.030526	0.048786	0.625701	0.5383
D(CAP(-1))	0.022348	0.020757	1.076617	0.2939
D(CAP(-2))	0.013405	0.017085	0.784638	0.4414
ECM(-1)	-0.972356	0.240429	-4.044259	0.0006
R-squared	0.684290	Mean dependent var	-0.002450	
Adjusted R-squared	0.564019	S.D. dependent var	19.67113	
S.E. of regression	12.98861	Akaike info criterion	8.209348	
Sum squared resid	3542.786	Schwarz criterion	8.629708	
Log likelihood	-114.1402	Hannan-Quinn criter.	8.343825	
F-statistic	5.689592	Durbin-Watson stat	2.123762	
Prob(F-statistic)	0.000647			

## Model 2

### Descriptive statistics

	RGDPG	KOFPOGIDF	INF	HCI	EXR	CAP
Mean	2.319223	82.55758	20.08061	183.3101	117.6597	538.5424
Median	0.043710	83.80000	12.22000	93.77000	128.6500	393.5800
Maximum	74.96642	86.80000	72.84000	994.1900	306.9000	2289.000
Minimum	-0.015835	63.50000	5.380000	0.649000	4.540000	6.370000
Std. Dev.	13.04154	4.246839	18.18808	234.1262	89.52600	550.1226
Skewness	5.479958	-2.840039	1.624257	1.794368	0.523606	1.198231
Kurtosis	31.03040	13.28482	4.245220	6.154765	2.699165	4.389512

Jarque-Bera	1245.507	189.8062	16.64221	31.39341	1.632339	10.55144
Probability	0.000000	0.000000	0.000243	0.000000	0.442122	0.005114
Sum	76.53437	2724.400	662.6600	6049.232	3882.770	17771.90
Sum Sq. Dev.	5442.615	577.1406	10585.80	1754082.	256477.0	9684317.
Observations	33	33	33	33	33	33

Unit root test

Kof pol unit root test @ 1<sup>st</sup> diff

Null Hypothesis: D(KOFPOGIDF) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.501361	0.0001
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KOFPOGIDF,2)

Method: Least Squares

Date: 11/04/20 Time: 08:42

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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D(KOFPOGIDF(-

1))	-1.005115	0.182703	-5.501361	0.0000
C	0.691064	0.543935	1.270492	0.2137

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R-squared	0.502198	Mean dependent var	-0.009375
Adjusted R-squared	0.485605	S.D. dependent var	4.170972
S.E. of regression	2.991477	Akaike info criterion	5.089873
Sum squared resid	268.4680	Schwarz criterion	5.181481
Log likelihood	-79.43797	Hannan-Quinn criter.	5.120238
F-statistic	30.26497	Durbin-Watson stat	1.138831
Prob(F-statistic)	0.000006		

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static OLS

Dependent Variable: RGDPG

Method: Least Squares

Date: 11/04/20 Time: 21:05

Sample (adjusted): 1987 2019

Included observations: 33 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.66802	62.75054	-0.217815	0.8292
KOFPOGIDF	0.180578	0.820805	0.220001	0.8275
INF	-0.006035	0.175229	-0.034441	0.9728
HCI	-0.023059	0.036092	-0.638886	0.5283
EXR	-0.013213	0.073206	-0.180489	0.8581
CAP	0.012964	0.015767	0.822258	0.4181

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R-squared	0.037606	Mean dependent var	2.319223
Adjusted R-squared	-0.140615	S.D. dependent var	13.04154
S.E. of regression	13.92831	Akaike info criterion	8.268689
Sum squared resid	5237.939	Schwarz criterion	8.540782
Log likelihood	-130.4334	Hannan-Quinn criter.	8.360240
F-statistic	0.211009	Durbin-Watson stat	2.260262



Prob(F-statistic) 0.954890

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Engle –GrnagerCointegration test using residual based test

Null Hypothesis: RESID01 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

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	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.251792	0.0000
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID01)

Method: Least Squares

Date: 11/04/20 Time: 08:44

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01(-1)	-1.132910	0.181214	-6.251792	0.0000
C	-0.052235	2.314157	-0.022572	0.9821

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R-squared	0.565752	Mean dependent var	-0.207922
Adjusted R-squared	0.551277	S.D. dependent var	19.54130
S.E. of regression	13.09009	Akaike info criterion	8.042050
Sum squared resid	5140.515	Schwarz criterion	8.133658
Log likelihood	-126.6728	Hannan-Quinn criter.	8.072415
F-statistic	39.08490	Durbin-Watson stat	2.026313

Prob(F-statistic) 0.000001

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Redundant test

Redundant Variables Test

Equation: UNTITLED

Specification: D(RGDPG) C D(RGDPG(-1)) D(RGDPG(-2))

D(KOFPOGIDF(

-1)) D(KOFPOGIDF(-2)) D(INF(-2)) D(HCI(-1)) D(CAP(-1))

D(CAP(-2))

ECM(-1)

Redundant Variables: D(RGDPG(-2)) D(KOFPOGIDF(-1))

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	Value	df	Probability
F-statistic	0.190581	(2, 20)	0.8280
Likelihood ratio	0.566364	2	0.7534

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F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	66.57842	2	33.28921
Restricted SSR	3560.016	22	161.8189
Unrestricted SSR	3493.437	20	174.6719
Unrestricted SSR	3493.437	20	174.6719

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LR test summary:

	Value	df
Restricted LogL	-114.2130	22
Unrestricted LogL	-113.9298	20

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Restricted Test Equation:

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:58

Sample: 1990 2019

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.618372	2.677846	0.230921	0.8195
D(RGDPG(-1))	-0.261079	0.196254	-1.330313	0.1970
D(KOFPOGIDF(-2))	-0.674439	1.013771	-0.665278	0.5128
D(INF(-2))	0.175669	0.185589	0.946547	0.3542
D(HCI(-1))	-0.121426	0.064796	-1.873979	0.0743
D(CAP(-1))	0.034455	0.022172	1.553964	0.1345
D(CAP(-2))	0.025750	0.017006	1.514122	0.1442
ECM(-1)	-0.658484	0.344404	-1.911955	0.0690
R-squared	0.682755	Mean dependent var	-0.002450	
Adjusted R-squared	0.581813	S.D. dependent var	19.67113	
S.E. of regression	12.72081	Akaike info criterion	8.147533	
Sum squared resid	3560.016	Schwarz criterion	8.521186	
Log likelihood	-114.2130	Hannan-Quinn criter.	8.267068	
F-statistic	6.763848	Durbin-Watson stat	2.178134	
Prob(F-statistic)	0.000242			

parsimonious result model 2

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 08:59

Sample (adjusted): 1989 2019

Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.561925	2.557581	0.219709	0.8280
D(RGDPG(-1))	-0.260984	0.191979	-1.359442	0.1872
D(KOFPOGIDF(-2))	-0.664397	0.986569	-0.673442	0.5074
D(INF(-2))	0.173630	0.180393	0.962512	0.3458

D(HCI(-1))	-0.121093	0.063297	-1.913089	0.0683
D(CAP(-1))	0.034450	0.021689	1.588332	0.1259
D(CAP(-2))	0.025778	0.016634	1.549749	0.1349
ECM(-1)	-0.658870	0.336884	-1.955776	0.0627

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R-squared	0.682617	Mean dependent var	-0.002285
Adjusted R-squared	0.586023	S.D. dependent var	19.34050
S.E. of regression	12.44388	Akaike info criterion	8.097971
Sum squared resid	3561.554	Schwarz criterion	8.468032
Log likelihood	-117.5186	Hannan-Quinn criter.	8.218602
F-statistic	7.066823	Durbin-Watson stat	2.180264
Prob(F-statistic)	0.000150		

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### Model 3

	RGDPG	KOFSOGIDF	INF	HCI	EXR	CAP
Mean	2.319223	20.00000	20.08061	183.3101	117.6597	538.5424
Median	0.043710	12.40000	12.22000	93.77000	128.6500	393.5800
Maximum	74.96642	39.10000	72.84000	994.1900	306.9000	2289.000
Minimum	-0.015835	8.000000	5.380000	0.649000	4.540000	6.370000
Std. Dev.	13.04154	12.93795	18.18808	234.1262	89.52600	550.1226
Skewness	5.479958	0.477776	1.624257	1.794368	0.523606	1.198231
Kurtosis	31.03040	1.400309	4.245220	6.154765	2.699165	4.389512
Jarque-Bera	1245.507	4.774125	16.64221	31.39341	1.632339	10.55144
Probability	0.000000	0.091899	0.000243	0.000000	0.442122	0.005114
Sum	76.53437	660.0000	662.6600	6049.232	3882.770	17771.90
Sum Sq. Dev.	5442.615	5356.500	10585.80	1754082.	256477.0	9684317.
Observations	33	33	33	33	33	33

Unit root test for kofsogidf

Null Hypothesis: D(KOFSOGIDF) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.083716	0.0380
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(KOFSOGIDF,2)

Method: Least Squares

Date: 11/04/20 Time: 09:02

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KOFSOGIDF(-1))	-0.477958	0.154994	-3.083716	0.0044
C	0.423383	0.344110	1.230370	0.2281

R-squared	0.240685	Mean dependent var	0.015625
Adjusted R-squared	0.215375	S.D. dependent var	2.028842
S.E. of regression	1.797129	Akaike info criterion	4.070720
Sum squared resid	96.89023	Schwarz criterion	4.162328
Log likelihood	-63.13152	Hannan-Quinn criter.	4.101085
F-statistic	9.509304	Durbin-Watson stat	1.957529
Prob(F-statistic)	0.004362		

Unit root test for residual using ENGLE-GRANGER COINTEGRATION TEST

Null Hypothesis: RESID02 has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.707532	0.0000
Test critical values: 1% level	-3.653730	
5% level	-2.957110	
10% level	-2.617434	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RESID02)

Method: Least Squares

Date: 11/04/20 Time: 09:04

Sample (adjusted): 1988 2019

Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID02(-1)	-1.202557	0.179285	-6.707532	0.0000
C	-0.030941	2.176141	-0.014219	0.9887
R-squared	0.599952	Mean dependent var		0.154354
Adjusted R-squared	0.586617	S.D. dependent var		19.14479
S.E. of regression	12.30912	Akaike info criterion		7.919019
Sum squared resid	4545.432	Schwarz criterion		8.010628
Log likelihood	-124.7043	Hannan-Quinn criter.		7.949385
F-statistic	44.99098	Durbin-Watson stat		2.055238
Prob(F-statistic)	0.000000			

LONG RUN OLS

Dependent Variable: RGDPG

Method: Least Squares

Date: 11/04/20 Time: 09:03

Sample (adjusted): 1987 2019

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.295974	7.623358	-0.694704	0.4932
KOFSOGIDF	0.592885	0.348323	1.702114	0.1002
INF	0.025822	0.156353	0.165153	0.8701
HCI	-0.028118	0.032708	-0.859668	0.3975
EXR	-0.024768	0.062178	-0.398343	0.6935
CAP	0.006141	0.015212	0.403723	0.6896
R-squared	0.129309	Mean dependent var	2.319223	
Adjusted R-squared	-0.031930	S.D. dependent var	13.04154	
S.E. of regression	13.24811	Akaike info criterion	8.168553	
Sum squared resid	4738.836	Schwarz criterion	8.440645	
Log likelihood	-128.7811	Hannan-Quinn criter.	8.260103	
F-statistic	0.801971	Durbin-Watson stat	2.397842	
Prob(F-statistic)	0.558131			

short run model

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 09:09

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.092352	2.884931	-1.418527	0.1752
D(RGDPG(-1))	0.065601	0.311761	0.210421	0.8360

D(RGDPG(-2))	0.082426	0.173245	0.475779	0.6407
D(KOFSOGIDF(-1))	4.824616	1.800233	2.679995	0.0164
D(KOFSOGIDF(-2))	-1.705387	2.271954	-0.750626	0.4638
D(INF(-1))	-0.070878	0.135651	-0.522503	0.6085
D(INF(-2))	0.074858	0.120668	0.620368	0.5438
D(HCI(-1))	-0.054393	0.053011	-1.026083	0.3201
D(HCI(-2))	0.060088	0.054943	1.093639	0.2903
D(EXR(-1))	0.084983	0.111950	0.759121	0.4588
D(EXR(-2))	0.010888	0.121863	0.089343	0.9299
D(CAP(-1))	0.004271	0.018542	0.230361	0.8207
D(CAP(-2))	0.001354	0.018231	0.074283	0.9417
ECM2(-1)	-0.940785	0.463538	-2.029574	0.0594

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R-squared	0.852663	Mean dependent var	-0.002450
Adjusted R-squared	0.732952	S.D. dependent var	19.67113
S.E. of regression	10.16538	Akaike info criterion	7.780577
Sum squared resid	1653.359	Schwarz criterion	8.434470
Log likelihood	-102.7087	Hannan-Quinn criter.	7.989763
F-statistic	7.122681	Durbin-Watson stat	2.021495
Prob(F-statistic)	0.000205		

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redundant test for short run ols 1

#### Redundant Variables Test

Equation: UNTITLED

Specification: D(RGDPG) C D(RGDPG(-1)) D(RGDPG(-2))

D(KOFSOGIDF(

-1)) D(KOFSOGIDF(-2)) D(INF(-1)) D(INF(-2)) D(HCI(-1))

D(HCI(-2))

D(EXR(-1)) D(EXR(-2)) ECM2(-1)

Redundant Variables: D(RGDPG(-1)) D(EXR(-2))

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Value	df	Probability
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F-statistic	0.063733	(2, 18)	0.9385
Likelihood ratio	0.211696	2	0.8996

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	11.74791	2	5.873954
Restricted SSR	1670.708	20	83.53541
Unrestricted SSR	1658.960	18	92.16446
Unrestricted SSR	1658.960	18	92.16446

LR test summary:

	Value	df
Restricted LogL	-102.8652	20
Unrestricted LogL	-102.7594	18

Restricted Test Equation:

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 09:14

Sample: 1990 2019

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.107414	2.497140	-1.644847	0.1156
D(RGDPG(-2))	0.043469	0.095216	0.456534	0.6529
D(KOFSOGIDF(-1))	5.230039	1.284767	4.070806	0.0006
D(KOFSOGIDF(-2))	-1.993428	1.791515	-1.112705	0.2790
D(INF(-1))	-0.068109	0.120860	-0.563533	0.5793
D(INF(-2))	0.076337	0.106859	0.714372	0.4833
D(HCI(-1))	-0.046690	0.029974	-1.557647	0.1350
D(HCI(-2))	0.061415	0.036203	1.696397	0.1053

D(EXR(-1))	0.096035	0.093586	1.026167	0.3171
ECM2(-1)	-0.852218	0.266262	-3.200677	0.0045
<hr/>				
R-squared	0.851117	Mean dependent var	-0.002450	
Adjusted R-squared	0.784120	S.D. dependent var	19.67113	
S.E. of regression	9.139771	Akaike info criterion	7.524349	
Sum squared resid	1670.708	Schwarz criterion	7.991415	
Log likelihood	-102.8652	Hannan-Quinn criter.	7.673768	
F-statistic	12.70378	Durbin-Watson stat	2.006342	
Prob(F-statistic)	0.000002			
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Parsimonious result

Dependent Variable: D(RGDPG)

Method: Least Squares

Date: 11/04/20 Time: 09:17

Sample (adjusted): 1990 2019

Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.107414	2.497140	-1.644847	0.1156
D(RGDPG(-2))	0.043469	0.095216	0.456534	0.6529
D(KOFSOGIDF(-1))	5.230039	1.284767	4.070806	0.0006
D(KOFSOGIDF(-2))	-1.993428	1.791515	-1.112705	0.2790
D(INF(-1))	-0.068109	0.120860	-0.563533	0.5793
D(INF(-2))	0.076337	0.106859	0.714372	0.4833
D(HCI(-1))	-0.046690	0.029974	-1.557647	0.1350
D(HCI(-2))	0.061415	0.036203	1.696397	0.1053
D(EXR(-1))	0.096035	0.093586	1.026167	0.3171
ECM2(-1)	-0.852218	0.266262	-3.200677	0.0045
<hr/>				
R-squared	0.851117	Mean dependent var	-0.002450	

Adjusted R-squared	0.784120	S.D. dependent var	19.67113
S.E. of regression	9.139771	Akaike info criterion	7.524349
Sum squared resid	1670.708	Schwarz criterion	7.991415
Log likelihood	-102.8652	Hannan-Quinn criter.	7.673768
F-statistic	12.70378	Durbin-Watson stat	2.006342
Prob(F-statistic)	0.000002		

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Model 4

Pairwise Granger Causality Tests

Date: 11/04/20 Time: 20:36

Sample: 1986 2019

Lags: 2

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Null Hypothesis:	Obs	F-Statistic	Prob.
KOFECGIDF does not Granger Cause RGDPG	31	0.10844	0.8976
RGDPG does not Granger Cause KOFECGIDF		0.15017	0.8613
KOFPOGIDF does not Granger Cause RGDPG	31	0.28415	0.7550
RGDPG does not Granger Cause KOFPOGIDF		0.29108	0.7499
KOFSOGIDF does not Granger Cause RGDPG	31	20.5615	4.E-06
RGDPG does not Granger Cause KOFSOGIDF		0.29221	0.7490
KOFPOGIDF does not Granger Cause KOFECGIDF	32	1.03988	0.3672
KOFECGIDF does not Granger Cause KOFPOGIDF		2.83680	0.0762
KOFSOGIDF does not Granger Cause KOFECGIDF	32	1.50791	0.2394
KOFECGIDF does not Granger Cause KOFSOGIDF		0.03457	0.9661
KOFSOGIDF does not Granger Cause KOFPOGIDF	32	10.6106	0.0004
KOFPOGIDF does not Granger Cause KOFSOGIDF		0.39094	0.6802

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