

THE IRRATIONALITY OF THE “RATIONALE”: UNVEILING THE HIDDEN MYSTERY OF THE INVISIBLE HAND

By

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Courtesy

Vice-Chancellor, Sir
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Deputy Vice-Chancellor (Administration),
Deputy Vice-Chancellor (Research, Innovation and Development)
Registrar and other Principal Officers,
Provost, College of Health Sciences,
Deans of Faculties, Postgraduate School and Student Affairs,
Directors,
Heads of Department and Unit,
Colleagues,
Invited Guests,
Students, Brothers and Sisters,

Salaamun Alaikum,

It is with absolute gratitude to Allah (swt) and with all sense of humility and honour that I stand before you today, in which I am presenting the FIRST inaugural lecture from the Department of Economics since its inception in 1977. I would also like to inform the Vice Chancellor Sir, however, with due respect and humble submission that I am also representing Faculty of Social Sciences to present the SECOND inaugural lecture on behalf of the faculty. The first Inaugural lecture from the faculty was presented by Prof. D. Shehu of Geography department on 29-01-2009, which was the 7th in the university.

Mr. Vice Chancellor Sir, I would like to thank the Usmanu Danfodiyo University, Sokoto for giving me this opportunity today to share my experiences in the field of economics as well as my thoughts about its theories, methodologies as well as the outcomes and consequences of what it teaches to the humanity. May I seize this opportunity to thank the Head and staff of the Department of Economics for their encouragement, support and prayers. I would also like to show my appreciation and thank the Dean and my other colleagues in the faculty.

I deeply appreciate the presence of all my academic colleagues, students and the general public, hoping and praying that the value and benefit of this lecture will reward the time they spent here and that it will be of immense benefit to them.

1.0. Preamble

It was in late December, 1988, when I came back to my hometown for the Christmas and new year holiday from my place of primary assignment during my National Youth Service Corps (NYSC) in Imo state. The following year, early January, on my way to the University, I met a friend with whom I attended the same University, who told me that the University was looking for me for an interview for employment as a Graduate Assistant with my Department, Economics.

During the Interview, I was asked “what is ‘INVISIBLE HAND’”? And, I immediately answered, “THE HAND, WHICH YOU CANNOT SEE”! I had my reason for giving that answer, but none of the interviewers cared to ask me for more explanation. However, other questions ensued, until when I finished the interview.

To be candid, there were two reasons why I answered the question the way I did. First, I was not willing to take up appointment with the University, as I was aspiring to be a professional banker. That was the main reason why during my early undergraduate programme, I transferred from the Faculty of Education and Extension Services, to the then Faculty of Social Sciences and Administration so as to study single honours degree (B.Sc. Hons) in Economics ONLY. To me, if the Interview Panel realised that I was not a good material for the academics, they would simply deny me the chance and, that was already my target. However, destiny had already aborted my plan. I subsequently, found myself in the academic circle.

My second reason was that I really and truly meant what I said, “THE HAND, WHICH YOU CANNOT SEE”. It is a known fact to everybody that when you see someone’s hand approaching your pocket to take something out of it, you will hurriedly try to protect your pocket and secure the contents therein. However, when you cannot see the hand, you cannot deny that hand from taking whatever it wants to take. This is because the HAND is INVISIBLE. It is this INVISIBLE hand that I am going to explain in this INAUGURAL LECTURE, by the Grace of Allah.

1.1. Introduction

The whole Modern Conventional Economics revolves around the MARKET FORCES or MARKET MECHANISM, which at the elementary level is referred to as DEMAND and SUPPLY or PRICE SYSTEM, or *LAISSEZ FAIRE*, and at the higher level, CAPITALISM or INVISIBLE HAND. Beginning with its elementary level, one can hardly find a student of Economics who did not find it difficult to understand the mechanics of Demand and Supply. This is also true, when it comes to the higher level, where it also reflects the true nature of the Conventional Economics, which also becomes very difficult, more especially when it comes to the understanding of its real philosophy.

MARKET FORCES or MARKET MECHANISMS are the forces that decide price levels in an economy or trading system whose activities are not influenced or limited by government. The action of market forces means that the cost of something rises if demand for it rises and the amount available remains constant. It is the way in which the supply of a product is

related to the level of demand for it, and the effect of this on price. The economic reforms included allowing prices to be determined by market forces.

DEMAND AND SUPPLY or PRICE SYSTEM is a relationship between the quantity of a commodity that producers wish to sell at various prices and the quantity that consumers wish to buy. It is the main model of price determination used in economic theory. The price of a commodity is determined by the interaction of supply and demand in a market. The resulting price is referred to as the equilibrium price and represents an agreement between producers and consumers of the good. In equilibrium, the quantity of a good supplied by producers equals the quantity demanded by consumers.

LAISSEZ FAIRE, Wikipedia, literally defined *Laissez-faire*, as “LET DO”, which is an economic system in which transactions between private parties are absence of any form of government intervention such as regulation, privileges, imperialism, tariffs and subsidies’. Proponents of laissez-faire emphasized on a complete separation of government from the economic sector. Laissez –faire started being practiced in the mid-18th century and was further popularized by Adam Smith’s book, The Wealth of Nations.

CAPITALISM or FREE MARKET ECONOMY on the other hand refers to an economic system characterized by PRIVATE ownership of capital goods, by investments that are determined by private decision, and by prices, production and the distribution of goods that are determined mainly by competition in a free market. Capital is wealth – that is, money and goods – that are used to produce more wealth. Capitalism is practiced enthusiastically by capitalists; people who use capital to increase production and make more goods and money. Capitalism works by encouraging competition in a fair and open market. In a pure capitalist system, there would be no public schools or public parks, no government programs such as social security and medical care, and one could not even find any public highways or police. Capitalism is at once far too rational (RATIONAL THINKERS), trusting in nothing that it cannot weigh and measure, and far too little as well, accumulating wealth as an end in itself.

The Advanced Learner’s Dictionary, (Sixth Edition, 2001) defined ‘Invisible’ as referring (to somebody / something) that cannot be seen.....to the naked eye. While, when we add the term ‘Hand’ to the word, ‘Invisible’, we get “Invisible Hand”. Thus, literally, the term “Invisible Hand”, can be defined as “the Hand, which cannot be seen with the naked eye”. INVISIBLE HAND is a metaphor introduced by the 18th-century Scottish Philosopher and Economist, Adam Smith, that characterizes the mechanisms through which beneficial social and economic outcomes may arise from the accumulated self-interested actions of individuals, none of whom intends to bring about such outcomes. It has been used to argue that free markets, made up of economic agents who act in their own self-interest, deliver the best possible social and economic outcomes.

As a metaphor, to the best of my understanding, most of the students and scholars of Economics too, did not understand the real, actual and true meaning, mystery and philosophy of the term “INVISIBLE HAND”. In fact, they hardly, even questioned, what is the real, actual and true meaning, mystery and philosophy of the term “INVISIBLE HAND”.

In conclusion, DEMAND and SUPPLY or PRICE SYSTEM, MARKET FORCES or MARKET MECHANISMS, *LAISSEZ FAIRE*, CAPITALISM or FREE MARKET ECONOMY and INVISIBLE HAND mean one and the same thing.

1.2. LAYING THE FOUNDATIONS OF THE MYSTERY OF THE INVISIBLE HAND

To see the workings of the “Invisible Hand” I have chosen an aspect out of the many economic phenomena that is highly widespread in various economies of the world, especially the developing countries in general and Nigeria in particular. That economic circumstance is “**Inflation**”, which is widely regarded by the Monetarists as a **monetary phenomenon**. Inflation ordinarily is seen as a general increase in the average level of prices. In Economics, it is defined as a “condition in which the supply persistently fails to keep pace with the expansion of demand”. It is likewise, a state of disequilibrium in which too much money is chasing too few goods. In fact, anything that tends to raise the total rate of spending is termed ‘inflationary’ (Udu and Agu, 1999).

Inflation is a worldwide an economic phenomenon. No economy in the modern world is without inflation. However, the degree and level of inflation between countries / economies differs. And, in most cases one finds that inflationary trend is almost always rising, with very few experiences in its decline. Nigeria is one of those countries that experience inflation with very little or unnoticed decline in their inflationary trends. The graph in appendix 1a shows the trend of inflation in Nigeria from 1960 to 2018:-

Generally, causes of inflation are described in terms of the dominant factor responsible for its occurrence. Thus, there are fundamentally two causes of inflation. These are **Demand-Pull inflation**, and **Cost-Push inflation**.

1. Inflation can be caused by **Demand-Pull inflation**. This type of inflation occurs when demand for various commodities is very high and is continuously rising. This means there is excessive demand. Buyers are therefore, eagerly trying to buy goods and services. Thus, pulling up the prices of those commodities. These increases in the prices of various commodities are stimulated because the supply of these goods is persistently falling short of the demand for these commodities. That is demand for goods greatly exceeds their supply. As a result, prices begin to rise in response to a situation often described as “too much money chasing too few goods”.
2. The other cause of inflation is the one termed as **Cost-push inflation**. This is where there is persistent rises in the cost of production, which push the prices of those commodities to rise. This usually occurs when wages and other costs of production such as **the cost of raw materials rise or are too expensive** and these are usually passed on to consumers in the form of higher prices for the goods and services whenever they are going to be sold out. In other words prices are pushed up as a result of rise in the cost of production.

There are many theories that provide more explanation about the demand-Pull inflation. However, some of the principal ones include the Monetarists, the Keynesians and the Danish. The Monetarists’ view is the one that emphasized on the increase in money supply

to be the main cause of inflation. They emphasize the role of money as the principal cause of demand-pull inflation. Its earliest explanation however, is to be found in the Quantity Theory of Money, which was developed by Milton Friedman.

Quantity Theorists hold that “inflation is always and everywhere a monetary phenomenon that arises from a more rapid expansion in the quantity of money than in the total output”. They argue that changes in the quantity of money supplied into the economy lead to the cause of changes in the individuals’ income. Inflation everywhere is therefore, based on an increased demand for goods and services as people try to spend their money. This excess spending is thus, the outcome of a rise in the quantity of money supplied to the economy (Jhingan, 2004).

Apart from Demand-Pull and Cost-push inflation there are however, some frequently mentioned causes of inflation, with different names that are not given serious consideration. These are:

Hyper-inflation or Runaway inflation,
Chronic inflation,
Creeping inflation,
Imported inflation, etc.

Other causes of inflation, that are still either having relationship with anyone of the above mentioned causes or are as a result of other activities of the economic agents, include the followings:

Increase in disposable income,
Increase in the consumer spending,
Cheap monetary policy,
Deficit financing,
Expansion of the private sector,
Black money,
Repayment of public debt, and
Increase in exports. (Jhingan, 2004)

An uncontrolled inflation can dislocate the economy and causes social upheaval in the society. Therefore, inflation needs to be controlled for the smooth running of not only economic activities, but also as a means to control crimes and violence. Thus, inflation control is absolutely necessary for economic stability.

But, the question is how could inflation be controlled by the government? The measures taken to control inflation include, but are not limited to the following:

1. increasing output or productivity: Inflation occurs because supply falls short of demand for commodities. If supply increases, prices will fall. Increasing productivity or output is, therefore, an effective way of controlling inflation.
2. reducing the volume of purchasing power: Too much money in the hands of people naturally leads them to spending it and thus pushing up their demand for

commodities. This leads to inflation. The government can use monetary or fiscal measures, or both types, to control inflation. Monetary measure can be affected through the contraction of bank credit or purchasing power. Fiscal measures can be through the means of increased taxation. Another fiscal measure has to do with reducing the government spending. This is because, government is the biggest single spender in any economy, and its spending could be drastically reduced in the form of budget surplus. This will have significant contracting effect on total demand in the economy.

3. price control, Rationing, Subsidizing and Other Physical measures. Governments have often resorted to these measures to control inflation. But these measures have never worked in Nigeria for many reasons (Udu and Agu, 1999).
4. wage Control: Whenever wages are being controlled, it is aimed at stemming the price increases resulting from “cost push” inflation. Government also controls other incomes such as profit and rent.
5. raising bank rates: Bank rates generally determine the rate of interest that central bank charge for lending money to commercial banks as well as the rates at which the commercial banks lend money to their customers. During inflation the rates can be raised to discourage borrowing for non-productive activities. Reduced borrowing will tend to reduce the tempo of excessive demand.
6. open-market operation: This is one of the techniques, which the central bank can use to influence the levels of loans and advances of commercial banks. It serves the purpose of either reducing or increasing the capacity of commercial banks to grant credit and loans to customers. During the period of inflation, it can be used to reduce the power of the commercial banks to grant loans and advances (Aderinto and Abdullahi, 1999).

There are also some other measures that a government can use to control inflation and these are grouped into three. They are:

1.) **Monetary measures**, which are aimed at reducing money incomes, include:

a.) Credit control – The central bank of a country raises bank rate, sell securities in the open market, raises the reserve ratio, and adapts a number of selective credit control measures, such as raising margin requirements and regulating consumer credit.

b.) Demonetisation or Redenomination of currency. This is the process of changing the face value of banknotes and coins in circulation. Demonetising currency of higher denominations is usually adopted when there is abundance of black money in circulation in the country. This leads to the issue of new currency in place of the old currency. Here, one new note is exchanged for a number of notes of the old currency. The value of bank deposits is also fixed accordingly. Such a measure is adopted when there is an excessive issue of notes and there is hyperinflation in the country. Redenomination is usually done because inflation has made the currency unit so small that only large denominations of the currency are in circulation.

2.) **Fiscal measures:** Monetary policy alone at times is incapable of controlling inflation. It should therefore, be supplemented by fiscal measures. Fiscal measures are highly effective for controlling government expenditure, personal consumption expenditure, and private and public investment. The following are the principal fiscal measures:

- a.) Reduction in unnecessary expenditure.
- b.) Increase in Taxes.
- c.) Increase in Savings.
- d.) Surplus Budgets, and
- e.) Public Debt.

Like the monetary measures, fiscal measures alone cannot help in controlling inflation. They should be supplemented by monetary, non-monetary and non-fiscal measures.

3.) **Other measures:** The other types of measures are those which aim at increasing aggregate supply and reducing aggregate demand directly. These are:

- a.) to increase production,
- b.) rational wage policy,
- c.) price control and
- d.) rationing.

It is understood that inflation being a monetary phenomenon is to be controlled by the Central Bank. Thus, inflation control is one of the responsibilities of the Central Bank of any country. The procedure of controlling inflation has been clearly explained in the *Monetary Policy at a Glance*, published by the Central Bank of Nigeria, Monetary Policy Department (March, 2017). It stated that,

Discretionary monetary policy (sic) are deliberate actions taken by the monetary authority to influence money supply in the system with a view to achieving its mandates. In particular, the central adopts measures, including adjusting target interest rates, bank reserve limits and money supply. These actions, are aimed at achieving the monetary authorities' mandate such as ensuring price stability, along with stimulating growth, maintaining international value of the local currency, ensuring high employment, to name a few.

Discretionary monetary policy is widely used by independent central banks globally. A key advantage of discretionary monetary policy is the flexibility that it offers to policy makers to provide quick responses to emerging developments. This, however, raises concerns about the direction of monetary policy which can lead to non-credible and ineffective monetary policy as well as macroeconomic uncertainty.

This can be achieved as stated above through implementing various **monetary policies**. These monetary policies have their objectives, which needed to be achieved. Thus, monetary policy can be said to have its main targets that include:

1. **maintenance of a reasonably stable internal price level.**
2. maintenance of full employment or reducing the level of unemployment.
3. stimulating economic growth (recovery) and thereby increase both national income as well as raising the standard of living of the people.
4. keeping the balance of payment in balance, and
5. **maintenance of stability in the external value of the currency, i.e. exchange rate.**

It can be seen from the above that one of the objectives of any monetary policy is to “maintain a reasonable stable internal price level” that is to attain the lowest level of inflation in the country. This is objective number one (1) above, as well as the objective number five (5), which has to do with the maintenance of stability in the external value of the currency, i.e. exchange rate, which will be our main focus in the following discussions.

However, in order to properly control inflation, **I think**, we need to know “**more and actual**” causes of inflation. This will again provide us with the opportunity with which we can see them clearly and know the other problems that they can cause.

Now the question that needs to be asked boldly is “**Are there other causes of inflation apart from the above mentioned causes?** Yes, there are other causes of inflation, which to me are not being shown clearly to the students of Economics, and cannot be seen, or are not being given serious consideration or attention by the “Irrational Thinkers”, or the **Real and True Rational Thinkers – the Economists**, fail to show them to the “Irrational Thinkers” or probably, they could have been **hidden** by the Invisible Hand.

Consequently, after careful thought and observation, the writer is of the view that there are other additional major causes of inflation. It therefore, appears as if inflation is also fuelled by some activities of Government and other economic agents in the economy. Some of these have already been mentioned in the above explanations. These are again the major focus of this work. These activities are as follows:

1. increase in money supply: Increase in money supply by the monetary authorities in favour of the banking system (bail out) or government—the so called *Ways and Means*. [CBN, 2011] “Understanding Monetary Policy Series” Series No. 4, p. 4.] Inflation is caused by an increase in the supply of money, which leads to increase in aggregate demand. The higher the growth rate of the nominal money supply, the higher is the rate of inflation.
2. increase in public expenditure: Increase in government spending (or increase in government expenditure). This is done through central bank’s lending to government via printing of new money for the purpose thereof. Thus, government spending could serve as a trigger for money creation via deficit financing (borrowing) and monetization of foreign exchange. Government activities have been expanding much with the result that government expenditure has also been increasing at a phenomenal rate, thereby raising aggregate demand for goods and services.
3. importation of foreign goods, which leads to **imported inflation**, and commercial banks’ creation of money, which is regarded as **banking profitability**, and as a **completion of a Fractional Reserve Banking System process**, and
4. quantitative Easing (QE). “Quantitative easing is an unconventional monetary policy tool which involves central banks’ purchase of financial assets such as government bonds or other securities from the market. Thus, it helps to lower interest rates and increase the supply of money. Quantitative easing is essentially an injection of liquidity into the financial system, aimed at boosting banks’ lending to the real sector, increasing private spending as well as, correcting inflation to central bank target.” [Sources: CBN (2017); “Monetary Policy at a Glance”; Pg.59;

<https://www.cbn.gov.ng/Out/2017/CCD/MONETARY%20POLICY%20AT%20A%20GLANCE.pdf>]

5. Currency counterfeiters and
6. Foreign exchange rate,

Now, our discussion will give focus on items No. 1, 2, 3, 4, and 7. This means, our study on the above mentioned five (5) causes of inflation one-by-one will allow us to see their movement or trend over time, more especially in the Nigerian economy. By this, we can realise the potentialities of each one of them being a cause for inflation or not.

We begin with **number one (1)** that is **Increase in money supply through printing and issuance of money by the government** as a monetary policy. To see this aspect clearly, we need to refer to the institution of Central Bank whose responsibility is maintaining the monetary stability of the economy of a country. Central Bank is described as “as an institution that is entrusted with the task of managing the currency of a country according to the form of monetary standard that is legally adopted by that country”. It is the only authority empowered by the law to print and issue all paper money and coins. It has the responsibility of controlling the currency system of the country. Its primary function is to promote monetary stability. This shows therefore, that one of the major functions of a central Bank is to “control the printing and issuance of currency notes and coins. However, the data available in Nigeria has shown that it is not always that the central banks ‘control the printing and issuance of currency notes and coins’, as the supply of money to the economy is always increasing at an increasing rate as shown by the graph in appendix 1b.

The **second** potential cause of Inflation has to do with **increase in government spending (or increase in government expenditure)**. This issue has to do with Government fiscal policy, which in most cases can be done in two different ways. Government can increase the level of taxes in the economy in order to reduce the strength of their purchasing power, so as to reduce the level of their consumption, which is likely to reduce the level of inflation in the economy. The data on taxation in Nigeria is too complex to be separated to identify the personal income tax, which easily reduces the disposability of the income of the consumers. Nevertheless, government often manipulates its expenditure in pursuit of economic stability, that is, it tries to stimulate economic activity when a recession threatens and restrains it when inflation threatens. To stimulate recovery from recession, when there is a fall in the general business activities, the budget can be used to increase the amount of money people have for spending (disposable income){**(Please, refer to my question above. on “How do consumers have more purchasing power to buy goods and services ?”)**} by sufficiently reducing the amount of taxes they pay. Refer to Appendix – 1c

The **third** potential cause of inflation is experienced through **the importation of foreign goods for domestic consumption**. When a country exporting its commodities to a foreign country has inflation, there is every possibility for that country to transfer its inflation to the importing country, particularly if those goods are essential commodities that has inelastic demand. However, one should know that the fundamental difference between foreign exchange as a causative factor of inflation and imported inflation is: when an inflation is caused by changes in foreign exchange rate, and prices of commodities in the exporting countries are assumed to be relatively constant; meaning, the inflation is caused as a result

of value increase (appreciation or revaluation) of the currency of the exporting country. On the other hand, imported inflation is chiefly caused by rise in the prices of commodities of the exporting countries when the values of their foreign exchange rates remain relatively stable. Thus, it will affect the general price level of the importing country. The graph found in Appendix - 1d illustrates the trend of the imports of Nigeria for the period 1960 to 2018.

The **fourth** potential cause of inflation is **the commercial banks' creation of money**. Banks in the modern world have the power to create money when they lend it out. The process by which this happens is called fractional reserve banking. Under a fractional reserve banking system, banks can expand the total money supply of the system by several times. This expansion of money supply is called the "multiplier effect". It is an undisputable fact that commercial banks create money and the creation of money is one of the most important functions of commercial banks today. But still I ask a question, **who do the commercial banks create money for ?** However, this is also called 'creation of bank deposits or credits, and that bank deposits are money. In advanced economies, around 90% of the money supply is the creation of banks. The creation of money by banks is also known as the "multiple expansion of bank deposits". This means that the banking system as a whole can create deposits equal to a multiple of the reserves which it acquires. But any single bank can create deposits (by lending its excess reserve) by an amount equal to only a fraction of the reserve which it acquires. Now the question is, **how do banks create money ?**

Commercial banks deal in debt instruments and in the process they 'create' and 'destroy' money. The modern banking system is a "fractional reserve banking system", that is to say, only a fraction of the deposit liabilities of the commercial banks is held in reserve. The rest is loaned to customers. Bankers know from experience that not all customers will withdraw their money at the same time. So they keep the reserve (cash) that they know (also from experience) will be enough to meet the demand of their customers for cash. The central bank determines the "legal reserve ratio". The banks having met the legal reserve ratio, are free to lend the rest of their deposits to businesses, charging an interest on each loan.

Inflation is caused internally by **the commercial banks' creation of money**, which increases the level of money supply in the economy, as well as forcing government to increase, to a certain extent, the level of its expenditure. Consequently, all of these activities led to the root cause of decline in the value of local currency vis-a-vis the various foreign currencies in the process of exchange. In normal circumstances, the country, whose value of its currency declines loses and the country which receives the lost value of its counter country's currency gains. This is shown in Appendix – 1e.

The **fifth** potential cause of Inflation has to do with **foreign exchange rate**. This is related to the fifth objective of the monetary policy, which is meant to achieve the target of **Maintenance of stability in the external value of the currency, i.e. exchange rate**. In the Nigerian markets, trade payments are made and received in the national currency, the Naira. However, in the international trade, all imports are paid for with foreign currencies. This means when Nigeria wants to buy (import) from foreign countries it must exchange Naira for the currencies of the foreign country (ies). Likewise, when foreign countries want to buy (import) from Nigeria, they also must exchange their currencies for Naira. This means there is the need to exchange Naira for other foreign countries' currencies, and the

exchange of other foreign countries' currencies for those countries willing to buy Nigerian products. This means that one must buy a foreign currency before one can buy from other countries. The exchange of one country's currency for the currency of another country is called foreign exchange. The price at which one currency exchanges for another currency is called the exchange rate. We can therefore, see that the foreign exchange rate is defined as the price of one unit of a foreign currency in terms of a unit of the domestic currency.

A change in the exchange rate will immediately affect the price of foreign currencies and also, the prices of imports and exports in terms of other currencies. Thus, when the value of a foreign exchange rate rises, the domestic currency depreciates or falls in value in terms of foreign currency. And, reverse is the case, when the value of a foreign exchange rate falls, and the domestic currency appreciates or rises in value in terms of foreign currency. The trend of foreign exchange for Nigeria is shown in Appendix – 1f.

When one observes all the above graphs with deep curiosity and a certain level of sense of reasoning, one can realise and understand that each graph started "rising" up at an increasing rate. Some of them even at an exponential rate without any sign of decline, beginning from 1990 except for the foreign exchange, which began as early as 1986. This was the year when Structural Adjustment Programme (SAP) was introduced in Nigeria. Under SAP Nigeria reformed its foreign exchange system, trade policies, and business and agricultural regulations.

The discussion above focused on the "potential" causes of inflation that are going to be given consideration in this write up. In order to lean on the conventional research techniques, the following sub-section is going to focus on the evidence provided by the previous literature on these issues. Hence, we will review the empirical literature that is based on the above variables and see the trend it follows.

1.3. A Brief Review of the Empirical Literature

There is a great deal of literature dealing with these variables. However, our review is not exhaustive, but rather it is only meant to give us a clue, a guide and well established supporting evidence on our propositions. We need to recall that we are dealing with some causes of inflation that most of the "Rational Thinkers" of the developed countries and the "Irrational Thinkers" of the developing countries did not give them serious consideration in the 'textbooks' of Economics, but also have a very serious "negative impact" to the proper and smooth running of the economy. These variables, no doubt, impacted negatively on the economy to the extent that various world economies can no longer experience "stability". Thus, these economies are always in an "unstable" position to the extent that even a layman can vividly and clearly see the existence of economic instability in his country, especially Nigeria.

a.) Inflation and Government expenditure

Many researches were conducted in an effort to show the relationship between government expenditure and inflation, where mixed results were found in most instances. For instance, Ezirim, Muoghalu and Elike (2008) found bi-directional causal relationship

between government expenditure and inflation in the US, while Irfan, Attari and Javed (2013) found uni-directional causality between the rate of inflation and government expenditure in Pakistan.

b.) Inflation and Exchange Rate

On the relationship between inflation and exchange rate, Achsani, et al, (2010) found out that there is strong relationship between the movements inflation with real exchange rate in Asia compared to EU and North American regions. Imimole and Enoma (2011) on the other hand, found that Naira depreciation has significant long run effect on inflation in Nigeria, while Odusola and Akinlo (2001) found that official exchange rate shocks were followed by increase in prices in Nigeria.

c. Inflation and Money Supply

As far as money supply and inflation are concerned, Akimbobola (2012) found that money supply and exchange rate have significant inverse effects on inflationary pressure. There exists a causal linkage between inflation, money supply and exchange rate in Nigeria. Batarse (2021) found out that money supply causes inflation in the Jordanian economy while, Kiganda's (2014) result indicated a significant positive long run relationship between inflation and money supply in Kenya.

d. Inflation and money Creation

The many researches conducted on the relationship between money creation and inflation included that of Cheng (1996) who found that money (measured in M_1 and M_2) does not cause inflation. However, when M_3 measure is used, it is found that money creation causes inflation in the US. Dastjerdi and Ansari (2015)'s result indicated that reducing the money creation power of the commercial banks by increasing the legal reserve rate led to less optimal inflation in Iran. Nuri (2019) observed that modern international "fractional reserve banking system" is actually equivalent to legalized economic parasitism by private bankers, because the proceeds of inflation are not actually spendable by the state.

e. Inflation and Imports

Researchers on the relationship between imports and inflation such as Corrigan (2005), proved that import prices are significant variables in helping to explain inflation at various levels over the tested time periods in the US. Munepapa and Sheefani (2017) showed imports have a positive effect on inflation in the long run, but in the short run the effect is insignificant in Namibia. Kiganda and Omodi (2020) showed that imports influence inflation in Kenya, but commercial imports highly determined total imports influence on inflation in Kenya.

f. Other Determinants of Inflation

Studies on the other determinants of inflation are many with different and sometimes similar determinants from various countries. The identified determinants included fiscal

deficits by Bayo (nd), Alexander, et al, (2015), Adu & Marbuah (2011). Interest rates were found by Bayo (nd), and nominal interest rates was identified by Adu & Marbuah (2011). In the case of money supply, it was found by Bayo (nd), Alexander, et al, (2015), Gyebi & Buafo (2013), Lim & Sek (2015), Edward & Ramayah (2016), and broad money supply was identified by Adu & Marbuah (2011), and money growth was found by Mahabadi & Kiaee (2015). On exchange rates, it was identified by Bayo (nd), Alexander, et al, (2015), Lagoa (2017), Mahabadi & Kiaee (2015), and for nominal exchange rate it was identified by Adu & Marbuah (2011), Edward & Ramayah (2016), and for depreciation of exchange rate, it was found by Gyebi & Buafo (2013), and nominal effective exchange rate was identified by Kandil, et al, (2009).

Other identified determinants included government spending, which was found by Kandil, et al, (2009), Lim & Sek (2015), Mahabadi & Kiaee (2015). Imports were identified by Alexander, et al, (2015), Kandil, et al, (2009), and Lim & Sek (2015). Real outputs (GDP) were found by Adu & Marbuah (2011), Gyabi & Buafo (2013), Lim & Sek (2015), and Mahabadi & Kiaee (2015). Oil prices were identified by Kandil, et al, (2009), and Mahabadi & Kiaee (2015). Capital formation and income level of a country was found by Mahabadi & Kiaee (2015). Depreciation in the bilateral exchange rates relative to non-dollarized trading partner and peg fixes the exchange rate with respect to dollar was found by Kandil, et al, (2009).

The empirical literature reviewed so far has shown that the causes of inflation are multifarious and multi dimensional, which included fiscal deficits, **money supply or money growth**, interest (rates), **exchange rates** (nominal), **imports**, real output (GDP), **government spending**, oil prices, capital formation, **money creation** by the commercial banks, and income level of a country.

The following discussion will be centred on the results of the inferential statistics, which used Nigerian data for such analysis. We found that most of the variables are either uni-directional or bi-directional in their relationship with one another. At times, the relationship could be negative or positive.

1.4. Inferential Results Based on Nigerian Data

The following inferential result is based on the Nigerian data in order to see the cause and effect of the relationship between inflation, exchange rate, government spending, money supply, and money creation. The data was obtained from the Central Bank of Nigeria Statistical Bulletin for various years.

a.) Unit Root Tests

To begin this analysis, unit root tests were conducted to identify the order of integration of the variables prior to specification and estimation of the models. The presence of a unit root was tested for in both levels and first differences of the variables. The ADF test assumes the series follows an AR process. The PP test then modifies the t-ratio of the coefficient such that the presence of serial correlation in the error term will not affect the asymptotic distribution of the test statistic.

Table 1: Augmented Dickey Fuller test

Variable	Level		1 st difference		Order of integration
	t-statistics	Critical value (5%)	t-statistics	Critical values	
Inflation	-1.81635	-3.48923	-7.92492	-3.49066	I(1)
Foreign exchange	-0.08536	-3.49215	-6.43525	-3.49215	I(1)
Money Creation	-5.88078	-3.50237	-5.04224	-3.50851	I(1)
Money supply	6.30884	-3.50637	2.496387	-3.50851	I(2)
Total Govt Expend	1.744888	-3.50851	1.782522	-3.51074	I(2)

Source: E-views output, 2020

Table 1 above shows the result of ADF (with both constant and trend as nature of residuals) with null hypothesis that the variables have unit root tested against the alternative hypothesis that the variables do not. From the result, three variables are integrated in order one $I(1)$ and these are; inflation, foreign exchange and money creation, while two other variables (Money supply and total government expenditure) were integrated at second order $I(2)$. These has violated the necessary condition for co-integration test of the same order of integration $I(1)$ of the variables, this can be as a result of the fact that the ADF test assumes the series follows an AR process. Based on this, we proceed to use Philips- Perron technique of stationarity test. The PP test then modifies the t-ratio of the coefficient such that the presence of serial correlation in the error term will not affect the asymptotic distribution of the test statistic.

Table 2: Philips-Perron Stationarity test

Variable	Level		1 st difference		Order of integration
	t-statistics	Critical values (5%)	t-statistics	Critical values	
Inflation	-1.92241	-3.48923	-7.92464	-3.49066	1(1)
Foreign exchange	0.398623	-3.48923	-4.33352	-3.49066	1(1)
Money Creation	3.046916	-3.48923	-7.22231	-3.49066	1(1)
Money supply	3.041674	-3.48923	-6.42501	-3.49066	1(1)
Total Govt Expend	0.396630	-3.49066	-14.4959	-3.49215	1(1)

Source: E-views output, 2020

The test above was carried out on levels and differences of the chosen variables and assuming trend and intercept in the PP specifications. The results indicated that within the framework PP unit root tests, all the variables are non-stationary at levels, but become stationary after their first differences. In other words, all the chosen variables are integrated in the same order, that is order one, $I(1)$. This suggests the possibilities of long run relationship among the variables. Based on this, we proceed to test for co-integration.

Cointegration Analysis

To check for long run relationship among the variables, this study follows the Johansen co-integration test.

Table 3: Johansen Co-integration test.

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.885226	290.2556	69.81889	0.0001
At most 1 *	0.827277	169.0273	47.85613	0.0000
At most 2 *	0.518077	70.68761	29.79707	0.0000
At most 3 *	0.410247	29.80928	15.49471	0.0002
At most 4	0.004248	0.238384	3.841466	0.6254

Source: E-views output, 2020

The table above reports the results of the Johansen co-integration test. It shows that there are three co-integrating relationships between variables which means that there is significant long run relationship between variables. We compare the trace and the Max-Eigen statistics to critical values to know if there is a unique co-integrating vector/ unique linear combination of the I(1) variables that links them in a stable and long-run relationship. Based on the result above, there is unique co-integrating vector/ unique linear combination of the I(1) variables that links them in a stable and long-run relationship, which implies that, there is a long run relationship within the period under study. The values of Trace-statistics (290.2556) is greater than the critical value at 5% (69.81889) for none co-integration which make us reject the null hypothesis of none co-integrating equations and thereby conclude that, in general there exists a long run relationship. In addition, the results indicated the presence of three co-integrating equations, the values of Trace-statistics (29.80928) is greater than the critical value at 5% (29.80928), while the p-value is 0.0002 which is less than 5%.

b.) Granger Causality test

Co-integration further indicates that causality exists between the series of identified variables but it fails to reveal the direction of the causal relationship. In the case of multivariate causality tests, the testing of long-run causality between two variables is problematic as it is not possible to determine which explanatory variable is causing the causality through the error correction term. As such, we test the possibility of causality at least, in one direction among the variables, Pair-wise Granger causality test was employed. Usually, it test for when a time series X is said to Granger cause a time series Y if and only if it can be clearly shown through series of t-tests and F-tests on the lagged values of X (with lagged values of Y inclusive) that all the lagged X values provide statistically significant information about the future values of Y. The null hypothesis underlying the Granger causality test is that the variable under study (say X) does not Granger-cause the other (say Y).

Table 4: Granger Causality test

Null Hypothesis:	No. of Obs	F-Statistic (Prob.)	Prob.
INFL does not Granger Cause FEX FEX does not Granger Cause INFL	57	2.79520 (0.0703)* 0.65271 (0.5248)	Rejected Accepted
MNC does not Granger Cause FEX FEX does not Granger Cause MNC	57	8.40680 (0.0007)* 5.04099 (0.0100)*	Rejected Rejected
MNS does not Granger Cause FEX FEX does not Granger Cause MNS	57	6.60926 (0.0028)* 8.74439 (0.0005)*	Rejected Rejected
TGEX does not Granger Cause FEX FEX does not Granger Cause TGEX	56	4.02625 (0.0238)* 6.86829 (0.0023)*	Rejected Rejected
MNC does not Granger Cause INFL INFL does not Granger Cause MNC	57	6.02876 (0.0044)* 9.86944 (0.0002)*	Rejected Rejected
MNS does not Granger Cause INFL INFL does not Granger Cause MNS	57	6.83100 (0.0023)* 14.9503 (7.E-06)	Rejected Accepted
TGEX does not Granger Cause INFL INFL does not Granger Cause TGEX	56	1.07600 (0.3486) 20.7884 (2.E-07)	Accepted Accepted
MNS does not Granger Cause MNC MNC does not Granger Cause MNS	57	1.27600 (0.2877) 0.82504 (0.4439)	Accepted Accepted
TGEX does not Granger Cause MNC MNC does not Granger Cause TGEX	56	3.64632 (0.0331)* 12.5551 (4.E-05)	Rejected Accepted
TGEX does not Granger Cause MNS MNS does not Granger Cause TGEX	56	7.94488 (0.0010)* 10.8147 (0.0001)*	Rejected Rejected

* Implies rejection of null hypothesis at 5% and 10% level of significance

Source: E-views output, 2020

The results of the Granger causality test on the table above indicated that, a unidirectional causality runs from inflation (INFL) to foreign exchange (FEX) at 10% level of significance, at two lags, as determined by the selection criteria, and not in the reverse. The results also showed that, there exists a bi-directional causality running from money creation (MNC) to foreign exchange (FEX). That is causality runs from money creation to exchange rate, as well as from exchange rate to money creation at 5% level of significance. In addition, there also exists a mi-directional causality running from money supply (MNS) to foreign exchange (FEX), and from foreign exchange to money supply.

Also evidence of bi-directional relationship was found running from Money Supply to Foreign Exchange as the p-value is less than 5% and such implying the rejection of null hypothesis, the same can be said for money creation (MNC) and inflation, the result showed that, there exist a bi-directional causality running between the variables at two lags. The result above also indicated that there is a unidirectional causality running from Money Supply (MNS) to inflation, and reverse is not the case, as there is no evidence of causality running from inflation to money supply. However, the results show the absence of causality running among Government Expenditure (TGEX) and Inflation (INFL), Money Supply (MNS) and Money creation (MNC), as well as Government Expenditure (TGEX) and Money Creation (MNC). Lastly, it was discovered that there is a bi-directional causality between Government Expenditure (TGEX) and Money Supply (MNS)

The inferential statistics shown above have all shown that there is strong relationship (either positive or negative), and again either (significant or insignificant) between the following variables:

1. Inflation and Foreign exchange,
2. Inflation and Money creation,
3. Inflation and Money supply, and
4. Inflation and Government expenditure.

In all the above Econometrics (Economic Tricks) presentation, I did not include one of my important variables, i.e. “Imports”. This is due to the fact that in the economic analysis it is already an established fact that ‘importation’ is causing inflation. This led to a popular concept known as “Imported Inflation”.

1.5. RESULTS OF DESCRIPTIVE STATISTICS BY COMPARING THESE VARIABLES BETWEEN DEVELOPED AND DEVELOPING COUNTRIES

After using inferential method of economics, we were able to establish the fact that all the proposed variables are among the causes of inflation, but it was not shown to us **clearly** by the “Rational Thinkers”. And, the blind followership of the “Irrational Thinkers” could not allow them to see these causes. We now move to make a comparison on the position of those variables (causes of inflation) between the developed and developing countries in order to again establish the fact that most if not all these variables are more favourable to the developed countries than the developing countries.

To establish this fact, we now use descriptive statistical method of economics and get the data of six developed countries; United States, United Kingdom, Switzerland, Norway, Canada and Australia, and six developing countries of Turkey, Indonesia, South Africa, India, Brazil and Korea Rep. This is done in order to have a wide spread of our evidences from different continents across the globe. Looking very closely at our selected countries, one will realise that we have chosen the developed countries from the American continent, Europe, and Australia. While the developing countries cut across Middle East, Asia, Africa and Latin America.

The data used covered a period of 61 years from 1960 – 2020, except for some few countries, which the data for some years is not available. These are Brazil, Indonesia, Switzerland, Canada and Australia. This can be seen in the appendix. The data was obtained from the World Development Indicators, World Bank (2021).

In order to simply our understanding of this reality, descriptive statistics, which is part of the methodologies being used in the conventional economics to established facts is applied in this analysis. The following discussion will explain our results and analysis clearly:-

a.) --- Inflation

Developed Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
USA	61	3.68007	2.773351	-0.3555463	13.5492
UK	61	5.090183	4.858125	0.3680468	24.20729
Switzerland	61	2.395533	2.395941	-1.143909	9.767414
Norway	61	4.413155	3.250303	0.3604923	13.64296
Canada	61	3.696654	3.00816	0.1655629	12.47161
Australia	61	4.68779	3.784463	-0.3194888	15.41667

Sources: Author's own computation using Stata16, 2021

Looking at the above table, it can be seen that the lowest mean (average) level of inflation in the developed countries is 2.39 from Switzerland and the highest mean (average) level of inflation in the developed countries is from UK with 5.09. When it comes to the lowest (minimum) level of inflation of the developed countries, it is -1.14 again from Switzerland and the highest (maximum) level of inflation for the developed countries is 24.20, which again is from the UK. This shows that the average level of inflation in the developed countries is between 2.39 and 5.09. While the lowest level of inflation for the developed countries is -1.14, the highest level is 24.40.

Developing Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Turkey	61	31.64785	28.75766	1.119638	105.215
Indonesia	60	44.59667	151.6378	3.03	1136.25
South_Africa	61	7.827198	4.692741	-0.6920301	18.65493
India	61	7.425945	4.95047	-7.633948	28.59873
Brazil	40	293.8391	660.2635	3.195076	2947.733
Korea_Rep	61	7.774089	7.253974	0.3829461	29.46282

Sources: Author's own computation using Stata16, 2021

In the case of developing countries, the mean (average) level of inflation has the lowest at 7.42 experienced by India, and the highest mean (average) comes from Brazil with 293.83. The lowest (minimum) level of inflation by the developing countries is again India with -7.63. But the highest (maximum) level of inflation comes from Brazil again with 2947.73. This shows that the lowest level of inflation for the developing countries is -7.63 and the highest level is 2947.73.

A comparison of the inflationary level of developed and developing countries shows that the mean (average) shows that while the average level of inflation in the developed countries is 7.42 that of the developing countries is 293.83 with a gap of 286.41. While the lowest level of inflation for the developed countries is -1.14, that of developing countries is -7.63 with the gap of -6.49. Similarly, when the highest level of inflation for the developed countries is 24.20, the highest level of inflation for developed countries is at 2947.73 with the gap of

2,923.53. These gaps show the differences in the inflationary level between the developed and developing countries in which it proves that developed countries have less inflation than the developing countries that have higher level of inflation.

b.) --- Exchange Rate

Developed Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
US	61	1	0	1	1
UK	61	0.5609585	0.1275691	0.357143	0.7834451
Switzerland	61	2.130283	1.249913	0.888042	4.37295
Norway	61	6.850143	1.042583	4.939225	9.415833
Canada	61	1.194185	0.1606495	0.9697668	1.570343
Australia	61	1.164757	0.2887856	0.6966659	1.933442

Sources: Author's own computation using Stata16, 2021

The table above on the exchange rate of the developed countries shows that the lowest mean (average) of the exchange rate against the US Dollar is found to be UK with 0.56 and the highest mean (average) is the Norway with 6.85. On the lowest (minimum) exchange rate, it is found to be UK with 0.35 and the highest (maximum) is Norway with 9.41. This shows that the average exchange rate against US Dollar for the developed countries ranges from 0.56 to 6.85. Likewise, the lowest level of exchange rate against the US Dollar for the developed countries is 0.35 and the highest exchange rate against the Dollar is 9.41.

Developing Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Turkey	61	0.8228813	1.461839	9.02E-06	7.008605
Indonesia	54	5149.868	4980.739	149.5833	14582.2
South_Africa	61	4.526767	4.405644	0.679477	16.45911
India	61	27.87604	21.84871	4.7619	74.09957
Brazil	61	1.029993	1.350521	8.10E-14	5.155179
Korea_Rep	61	762.9138	366.0589	63.125	1403.183

Sources: Author's own computation using Stata16, 2021

In the case of developing countries, the mean (average) level of exchange rate against the US Dollar has the lowest at 0.82 experienced by Turkey, and the highest mean (average) comes from Indonesia with 5149.86. The lowest (minimum) level of exchange rate by the developing countries is South Africa with 0.67. But the highest (maximum) level of exchange rate comes from Indonesia with 14582.20. This shows that the lowest level of exchange rate for the developing countries is 0.67 and the highest level is 14582.20.

A comparison of the exchange rate of developed and developing countries shows that the mean (average) shows that while the average level of exchange rate in the developed countries is 0.56 that of the developing countries is 0.82 with a gap of 0.26. While, the lowest level of exchange rate for the developed countries is 0.35 that of developing countries is 0.67 with the gap of 0.32. Similarly, when the highest level of exchange rate for

the developed countries is 9.41 the highest level of exchange rate for the developing countries is at 14582.20 with a gap of 14,572.79. These gaps show the differences in the exchange rate level between the developed and developing countries in which it proves that developed countries have less rate of exchange against the US Dollar than the developing countries that have higher rate of exchange against the US Dollar.

c.) --- Government Expenditure

Developed Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
US	50	15.61722	1.08227	13.97389	17.96184
UK	60	19.18321	1.613284	16.13435	22.48922
Switzerland	50	11.13273	1.081164	8.267573	12.48065
Norway	50	20.09482	2.001866	15.70633	24.41894
Canada	59	20.67228	1.914232	16.35968	24.52714
Australia	60	16.6797	2.372555	11.11044	19.04452

Sources: Author's own computation using Stata16, 2021

Looking at the above table, which has to do with government expenditure, it can be seen that the lowest mean (average) level of government expenditure in the developed countries is 11.132 from Switzerland and the highest mean (average) level of government expenditure in the developed countries is from Canada with 20.672. When it comes to the lowest (minimum) level of government expenditure of the developed countries, it is 8.267 again from Switzerland and the highest (maximum) level of government expenditure for the developed countries is 24.527, which comes again from Canada. This shows that the average level of government expenditure in the developed countries is between 11.132 and 20.672. While the lowest level of government expenditure for the developed countries is 11.132, the highest level is 20.672.

Developing Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Turkey	60	11.52699	2.058162	7.515493	15.65786
Indonesia	60	8.965629	1.586477	5.608604	12.03548
South_Africa	60	16.30957	3.757123	9.31436	21.29574
India	60	10.13007	1.291362	6.573492	12.17549
Brazil	60	15.0779	4.297211	8.284794	20.92792
Korea_Rep	60	11.75642	2.072747	8.207603	17.15939

Sources: Author's own computation using Stata16, 2021

In the case of developing countries, the lowest mean (average) level of government expenditure is at 8.96 experienced by Indonesia, and the highest mean (average) comes from South Africa with 16.30. The lowest (minimum) level of government expenditure by the developing countries is from Indonesia with 5.60. But the highest (maximum) level of government expenditure comes from South Africa with 21.29. This shows that the lowest level of government expenditure for the developing countries is 5.60 and the highest level is 21.29

A comparison of government expenditure of developed and developing countries shows that while the lowest mean (average) level of government expenditure in the developed countries is 11.132 that of the developing countries is 8.96 with a gap of 2.172. While, the lowest level of government expenditure for the developed countries is 8.267 that of the developing countries is 5.60 with the gap of 2.667. Similarly, when the highest level of government expenditure for the developed countries stood at 24.527 the highest level of government expenditure for the developing countries is at 21.29 with a gap of 3.237. These gaps show the differences in the government expenditure levels between the developed and developing countries in which it proves that developed countries have higher government expenditure (or spend more) than the developing countries that have less government expenditure.

d.) --- Money Supply

Developed Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
US	60	72.85854	9.12895	59.65885	92.7603
UK	60	76.52411	45.07774	30.454	164.1232
Switzerland	57	116.524	27.51419	71.20892	189.274
Norway	60	53.9113	4.904849	47.69947	66.18799
Canada	49	72.72848	34.27786	35.95066	159.1787
Australia	60	63.91101	25.38034	37.71129	122.6026

Sources: Author's own computation using Stata16, 2021

Looking at the above table, which has to do with money supply of the developed countries, it can be seen that the lowest mean (average) level of money supply in the developed countries is 53.91 from Norway and the highest mean (average) level of money supply in the developed countries is from Switzerland with 116.52. When it comes to the lowest (minimum) level of money supply of the developed countries, it is 30.45 from UK and the highest (maximum) level of money supply for the developed countries it is at 189.27, which comes again from Switzerland. This shows that the average level of money supply in the developed countries is between 53.91 and 116.52. While the lowest level of money supply for the developed countries is 30.45, the highest level is 116.52.

Developing Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Turkey	60	31.55577	12.60709	14.59227	58.74038
Indonesia	51	33.89934	14.33247	8.462104	59.86041
South_Africa	55	60.08922	9.348997	45.50002	80.79989
India	60	45.82151	20.67349	19.10577	79.0752
Brazil	60	43.22289	29.37291	10.0829	111.3253
Korea_Rep	60	60.48476	45.61231	8.602233	151.8264

Sources: Author's own computation using Stata16, 2021

In the case of developing countries, the lowest mean (average) level of money supply is at 31.55 experienced by Turkey, and the highest mean (average) came from Korea_Rep with

60.48. The lowest (minimum) level of money supply by the developing countries is from Indonesia with 8.46. But the highest (maximum) level of money supply comes from Korea_Rep with 151.82. This shows that the lowest level of money supply for the developing countries is 8.46 and the highest level is at 151.82

A comparison of money supply of developed and developing countries shows that while the lowest mean (average) level of money supply in the developed countries is 53.91, that of the developing countries is 31.55 with a gap of 22.36. While the lowest level of money supply for the developed countries is 30.45, that of the developing countries is 8.46 with the gap of 21.99. Similarly, when the highest level of money supply for the developed countries stood at 189.27 the highest level of money supply for the developing countries is at 151.82 with a gap of 37.45. These gaps show the differences in the money supply levels between the developed and developing countries in which it proves that developed countries have higher money supply than the developing countries that have less money supply.

e.) --- Money Creation

Developed Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
US	60	7.440335	3.803484	-2.75234	17.19951
UK	60	10.87255	13.66457	-28.62978	89.33107
Switzerland	56	6.469966	5.99663	-17.05073	18.58186
Norway	60	8.658933	5.115552	-5.326429	19.18678
Canada	48	11.92284	18.59698	-25.55069	125.031
Australia	60	10.46512	5.253153	1.182172	31.01604

Sources: Author's own computation using Stata16, 2021

Looking at the above table, which has to do with money creation of the developed countries, it can be seen that the lowest mean (average) level of money creation in the developed countries is at 6.46 from Switzerland and the highest mean (average) level of money creation in the developed countries is from Canada with 11.92. When it comes to the lowest (minimum) level of money creation of the developed countries, it is at -2.75 from UK and the highest (maximum) level of money creation for the developed countries it is at 125.03, which comes from Canada. This shows that the average level of money creation in the developed countries is between 6.46 and 11.92. While the lowest level of money creation for the developed countries is -2.75, the highest level is 125.03.

Developing Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Turkey	60	41.81535	31.78224	9.289617	144.7968
Indonesia	51	23.08888	13.50597	4.757902	62.76287
South_Africa	55	13.23623	6.001108	1.761086	27.01572
India	60	15.11149	4.117505	3.211716	24.48557
Brazil	60	245.0311	632.3895	4.190151	3280.653
Korea_Rep	60	22.52881	17.7884	2.98069	85.20308

Sources: Author's own computation using Stata16, 2021

In the case of developing countries, the lowest mean (average) level of money creation is at 13.23 experienced by South Africa, and the highest mean (average) comes from Brazil with 245.03. The lowest (minimum) level of money creation by the developing countries is from South Africa with 1.76. But the highest (maximum) level of money creation comes from Brazil with 3280.65. This shows that the lowest level of money creation for the developing countries is at 1.76 and the highest level is at 3280.65

A comparison of money creation of developed and developing countries shows that while the lowest mean (average) level of money creation in the developed countries is 6.46, that of the developing countries is 13.23 with a gap of 6.77. And, while the lowest level of money creation for the developed countries is -2.75, that of the developing countries is 1.76 with the gap of -0.99. Similarly, when the highest level of money creation for the developed countries stood at 125.03 the highest level of money creation for the developing countries is at 3280.65 with a gap of 3155.62. These gaps show the differences in the money creation levels between the developed and developing countries in which it proves that developed countries have very low level of money creation than the developing countries that have a very higher level of money creation.

f.) --- Imports

Developed Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
US	50	1.22E+12	1.03E+12	5.45E+10	3.12E+12
UK	50	4.06E+11	3.13E+11	2.66E+10	9.16E+11
Switzerland	43	1.73E+11	1.33E+11	2.52E+10	4.24E+11
Norway	45	6.60E+10	4.61E+10	1.38E+10	1.49E+11
Canada	60	2.11E+11	2.02E+11	7.39E+09	5.90E+11
Australia	31	1.67E+11	1.02E+11	5.27E+10	3.33E+11

Sources: Author's own computation using Stata16, 2021

Looking at the above table, which has to do with imports of the developed countries, it can be seen that the lowest mean (average) level of imports in the developed countries is at 1.22 from US and the highest mean (average) level of imports in the developed countries is from Norway with 6.60. When it comes to the lowest (minimum) level of imports of the developed countries, it is at 1.38 from Norway and the highest (maximum) level of imports for the developed countries it is at 9.16, which comes from UK. This shows that the average level of imports in the developed countries is between 1.22 and 6.60. While, the lowest level of imports for the developed countries is at 1.38 and the highest level is at 9.16.

Developing Countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Turkey	46	8.91E+10	9.46E+10	3.96E+09	2.75E+11
Indonesia	39	8.48E+10	6.85E+10	1.62E+10	2.19E+11
South_Africa	60	3.85E+10	3.94E+10	1.70E+09	1.24E+11
India	45	1.78E+11	2.18E+11	5.76E+09	6.43E+11
Brazil	45	1.02E+11	1.01E+11	1.45E+10	3.26E+11
Korea_Rep	44	2.43E+11	2.31E+11	9.60E+09	6.63E+11

Sources: Author's own computation using Stata16, 2021

In the case of developing countries, the lowest mean (average) level of imports is at 1.02 experienced by Brazil, and the highest mean (average) comes from Turkey with 8.91. The lowest (minimum) level of imports by the developing countries is from Brazil with 1.45. But the highest (maximum) level of imports comes from Korea_Rep with 6.63. This shows that the lowest level of imports for the developing countries is at 1.45 and the highest level is at 6.63.

A comparison of imports of the developed and developing countries shows that while the lowest mean (average) level of imports in the developed countries is 1.22, that of the developing countries is at 1.02 with a gap of 0.20. While the lowest level of imports for the developed countries is 1.38, that of the developing countries is 1.45 with the gap of 0.07. Similarly, when the highest level of imports for the developed countries stood at 9.16, the highest level of imports for the developing countries is at 6.63 with a gap of 2.53. These gaps show the differences in the importation levels between the developed and developing countries in which it proves that developed countries have very low level of imports than the developing countries that have a very higher level of imports; except for the maximum level of imports, where the developing countries have 6.63 and the developed countries have 9.16.

1.6. TOOLS OF THE INVISIBLE HAND

Our analysis in this section will rely on the outcome of the reviewed literature, the results of Granger Causality tests and the descriptive statistical analysis; thus, the three will serve as the basis of our analysis. We now take them again one-by-one.

a.) Inflation

When we refer to the comparison made between inflation in the developed and developing countries, we can see and realise that there is a great gap of 286.41 in the mean average level of inflation. The lowest level of inflation gap is -6.49, and a gap of 2, 923.53 is at the highest level. This proves that developed countries have less inflation than the developing countries that have higher rate of inflation. The question to ask is why? There are of course many reasons.

b.) Government expenditure and Inflation

From the literature reviewed so far, there is both bi-directional and uni-directional causal relationship between government expenditure and inflation. Then, from our inferential statistics, the results show the **absence of causality running among Government Expenditure (TGEX) and Inflation (INFL)**. But, from the descriptive statistics, the comparison made shows that developed countries have higher government expenditure (or spend more) than the developing countries that have less government expenditure. Yet, it is the developing countries that experience higher inflation and not the developed countries. Again, why? Because, earlier studies have shown that higher government expenditure is expected to cause higher inflation.

c.) Money Supply and Inflation

As far as money supply and inflation are concerned, our reviewed literature has shown that money supply have significant inverse effects on inflationary pressure meaning that money supply causes inflation. The inferential statistics results above indicated that there is a **uni-directional causality running from Money Supply (MNS) to inflation**. And, our descriptive statistics results show that developed countries have higher money supply than the developing countries that have less money supply. Again here, it is expected that the developed countries should have higher rate of inflation than the developing countries. This is due to the fact that the developed countries have higher money supply than the developing countries. But this is not happening !

d.) Money Creation and Inflation

On the relationship between money creation and inflation, it has been found out that money creation causes inflation through the increase in money supply and that reducing the money creation power of the commercial banks by increasing the legal reserve rate leads to less inflation. The inferential results also show that **money creation (MNC) and inflation** have a **bi-directional causality** running between the variables. But the descriptive statistics results prove that developed countries have very low level of money creation than the developing countries that have a very higher level of money creation. Here, we can observe a difference that shows less money creation by the developed countries, which is likely leading them to the low level of inflation. Thus, the developing countries have higher level of money creation, which again might lead them to higher level of inflation.

e.) Imports and Inflation

As for the relationship between imports and inflation our reviewed literature shows that import prices are helping in explaining inflation. That is imports have a positive effect on inflation in the long run, but not in the short run. It also shows that imports influence inflation, but commercial imports highly determined total imports influence on inflation. The descriptive results reveal that developed countries have very low level of imports than the developing countries that have a very higher level of imports. This result is also not surprising as the developed countries are the major manufacturers and suppliers to the

developing countries. Thus, this is in the right direction, as the developing countries keep on importing highly priced (due to low foreign exchange value of the currencies) goods into their countries. Thereby, the developing countries continue importing highly priced commodities (**inflation**) into their countries.

f.) Exchange Rate and Inflation

With regards to the relationship between inflation and exchange rate, the reviewed literature found out that there is strong relationship between the movements of inflation with real exchange rate. And, that currency depreciation has significant long run effect on inflation. Additionally, official exchange rate shocks were usually followed by increase in prices (inflation). The results of the Granger causality test earlier highlighted above indicated the existence of a **unidirectional causality** that runs from inflation (INFL) to foreign exchange (FEX). **Uni-directional causality** means, it is only inflation that causes foreign exchange depreciation and that depreciation of foreign exchange cannot cause inflation. The descriptive results prove that developed countries have less rate of exchange against the US Dollar than the developing countries that have higher rate of exchange against the US Dollar. This shows that with the unidirectional causality that causes foreign exchange depreciation, then the countries with higher inflationary trend are expected to have higher rate of foreign exchange against the US Dollar. Thus, developing countries are experiencing higher foreign exchange rate against the US Dollar.

Now, it became an established fact that government expenditure, money supply, money creation, and imports have all fuelled inflation for the developing countries. Despite this fact, the developed countries' government expenditure, money supply, and imports with the exception of money creation are ALL higher than those of the developing countries, yet they did not experience inflation as done by the developing countries. The question now is, why? To answer this question, we still need to refer to the exchange rate, which also shows that the value of developed countries' currency is again more valuable than the value of the currencies of the developing countries. Again, why should this be reversing the established facts when it comes to the issue of money creation and exchange rates between developed and developing countries?

The following discussions, are meant to reveal the reasons for these differences, so that the "invisible hand" will now become "VISIBLE" to everyone, Insha'Allah.

1.7. THE MECHANICS OF THE INVISIBLE HAND:

Here, these mechanics are the ones known to every "RATIONAL THINKER" if he thinks very well and becomes a truly "RATIONAL THINKER". There is no other mechanism apart from the "INVISIBLE HAND" itself. Remember that from our introduction, we concluded that DEMAND and SUPPLY or PRICE SYSTEM, MARKET FORCES or MARKET MECHANISMS, LAISSEZ FAIRE, CAPITALISM or FREE MARKET ECONOMY and INVISIBLE HAND mean one and the same thing. Thus, this is the mechanism, which is being used.

Ordinarily, in our daily life we can realise that the tendency of people is to buy more of a commodity when its price is low, and to buy less of it when the price is high. Thus, as price

falls, the consumer buys more and more units of the commodity. And, as price goes up, the consumer buys less and less units of the commodity. With this, we can understand the effect of price changes on the quantity of a commodity demanded. This can lead us to understand what is taught at the “O” Level Economics, on demand and supply as the price system. On the operations of these mechanics, a LAW has been well established, which states that “the higher the price of a commodity, the lesser it is demanded, and the lower the price of a commodity, the more of that commodity is demanded”. This law is not only a domestic, local, or national law, but rather a universal law, which is applicable worldwide and for all commodities, without some certain “exceptional” cases.

Now, assuming a Nigerian found himself in Japan and he wants to buy a certain commodity from a local Japanese seller. Can the Nigerian pay his Japanese customer in Nigerian Naira? But, what about if it was the Japanese buying a commodity from a local Nigerian seller? Can he pay his Nigerian customer in Japanese currency? In both cases, it is expected that each one is to pay in the local currency of the commodity he is to purchase. This circumstance is also to be the same in the case of countries purchasing commodities from their trading partners. Thus, if Japan is to buy a certain commodity from Nigeria, Japan is expected to pay Nigeria in Nigerian Naira, and if Nigeria is to buy a certain commodity from Japan, Nigeria is expected to pay Japan in Japanese Yen.

With this logic, it can be seen that as long as Japan wants to buy commodities from Nigeria, then it needs more and more of Nigerian Naira. Likewise, the more the Nigeria needs to buy commodities from Japan, the more it needs more and more of Japanese Yen. Thus, for both countries, as long as there is more demand for their products, then more and more prices of their products will be going high, based on law of demand. Interestingly, demands for foreign goods (products) always necessitate the demands for foreign currencies. Consequently, the law (law of demand) must also apply to foreign exchange. For this reason, there is need here for us to use the same logic to unravel the effect of the law on the dynamics of foreign exchange in the case of our putative countries—Nigeria and Japan.

Thus, in a situation where Nigeria wants to buy a commodity from Japan, it is expected that Nigeria pays Japan in Japanese Yen. This will necessitate Nigeria to look for Yen to buy from Japan. And, the more and more Nigeria needs Yen from Japan, the more and more price of Yen will continue to go high based on the law of demand. Thus, it means the more and more Japanese Yen’s value (rate) of exchange will rise. Similarly, in the case of Nigeria, whenever Japan wants to buy a commodity from Nigeria, it is also expected that Japan pays Nigeria in Nigerian Naira. This will necessitate Japan to look for Naira to pay Nigeria what it bought from Nigeria. And, the more and more Japan needs Naira from Nigeria, the more and more price of Naira (value) will go high; again, based on the law of demand. Consequently, the more and more Nigerian Naira’s value (rate) of exchange will rise.

This looks quite logical, in the sense that it is the demand of the currency for each country that determines the value of its currency based on the law of demand. Thus, the more the export of a country, the more is the demand for its currency in the international market, and the more and more the exchange rate (value) of its currency rises. And, this will also determine the strength of its currency. If it is demanded every now and then, it becomes very strong, and if it has less and less demand then, it becomes very weak. This is the case

for every national currency. Therefore, one finds various countries' currencies weak or strong based on the level of their exports or level of demand for their currencies.

To be a little bit technical, a foreign country (Nigeria) that demands a commodity from another foreign country (Japan) is expected to pay the selling country (Japan) in its domestic currency (Yen) and not in the foreign currency (Naira) of a buying country (Nigeria). This will lead to the increase in the demand of the selling country's (Japan) currency (Yen) and subsequently, Yen's rate of exchange (value) will increase against Naira. Similar case can also be applied when a foreign country (Japan) demands a commodity from another foreign country (Nigeria). It is expected that the selling country (Nigeria), is to be paid in its domestic currency (Naira) and not in the foreign currency (Yen) of a buying country (Japan). Applying the same economic trajectory, the demand for Naira will increase and consequently, its rate of exchange (value) will increase against the Yen. In summary the exchange rate of a country's currency, in terms of another country, is determined by the interface of demand and supply of the currency at the time of exchanging it with other foreign currencies. This is what is referred to as a currency **appreciation** or **depreciation**.

However, at times the value or exchange rate of a currency is tempered with by the fiat action of a government not by the vagaries of demand and supply (as explained above), resulting into its **devaluation** or **revaluation**.

As a result of this interaction of demand and supply, it is quite possible to find the value of certain currencies of countries like Kuwait's, Bahrain's, Oman's, Jordan's, Cayman Island's, and Swiss's currencies being more than the value of US dollar. Also, in the past, Nigeria and many other developing countries saw their currencies having more values than US dollar. Although, nowadays, it is very unlikely to find currencies of developing countries having more value than the US dollar. However, some of the plausible explanations for this oddity are: less demand for American and foreign commodities that are priced in US dollars; and, the ability of the developing countries to control the supply of their domestic currencies. There is also the existence of currency war among the exporting (developed) economies, especially between China and America, where every one of them is cunningly devaluing its currencies (the so called currency war) against the wishes of other exporting nations.

1.8 UNVEILING THE HIDDEN MYSTERY OF THE INVISIBLE HAND

Immediately after the Breton Woods Agreement in the year 1944, which has the principal aim of creating an efficient foreign exchange system, and preventing competitive devaluations of currencies, as experience has shown above in the currency war between different countries, some governments and their Central Banks started to rely on the U.S. dollar to back up the value of their own currencies. This is due to the status of U.S. reserve currency as the currency of the world's major exporting nation with the highest G.D.P in the world. As a result, the US dollar receives extra legitimacy in the eyes of its domestic users, currency traders, and participants in international transactions. This makes the U.S. dollar to be not only a reserve currency of the world, but also the most prevalent among the other entire world currencies.

However, sequel to the Breton Woods Agreement, foreign exchange being a medium of exchange in the international trade was started (and continues till date) to be used by the so called developed economies as a tool for systematic exploitation of the less developed countries (LDCs). Historically, the US dollar was dubiously imposed on international community in two major ways. The first was when US undertook the reconstruction and rehabilitation of Germany, where it gave multi-billion dollar contracts with its currency (\$) in respect thereof.

The second was when the 730 delegates representing 44 sovereign nations met in Breton Woods to endorse US dollar as the basis upon which other nations are to peg their currencies, and the dollar was then pegged to gold. These moves by the US were and are still viewed by many “Irrational Thinkers” as benevolent efforts by the United States of America to help the war ravaged Germany and save international trade from collapsing. This was at a time when the world was eagerly looking for a stable exchange rate mechanism. However, underneath, it was not realised by the “Irrational Thinkers” that it is a means to spread the use of dollar as international currency and consequently increased its demand by the international community.

Finally, the US breached the trust of the international community when it printed more dollars without adequate gold to back them up. This was in response to the increasing inflation as a result of the spree printing of dollars, and the United States of America under President Nixon unilaterally cancelled the direct convertibility of its dollar to gold. Meaning, holders of US dollars should either accept dollar on its face value or leave it. Thus, holders of US dollars were left with no option other than to use it as it is.

Pathetically, some “Irrational Thinkers” continue to believe that these economic events (German’s reconstruction and rehabilitation, Breton Wood Agreement and unilateral cancellation of dollar convertibility to gold) happened by chance. But it was not! It was a calculated attempt to pave the way for dollar to become the world currency. In the first place, why should the international community agree to peg their currencies to dollar, instead of gold directly, which the dollar itself is pegged to? The flimsy answer as put forward in defence of Breton Wood Agreement is to prevent the “beggar-thy-neighbour” currency war. But this is not enough as an answer!

In addition to that, with the increased demand for dollar, which is now fully established, dollar is now the major if not the only currency that enjoys seigniorage—profit from currency production, more than any other currency as was never seen before in the modern times. United States of America can now print more dollars at cheaper cost to purchase commodities of higher values in the international market. For instance, in 2005, it cost United States of America only 4 cents to produce 1 dollar note, which means that for every 1 dollar note produced, American Government profited from it 96 cents, as shown by McConnell, C. R. & Brue, S. L. (2005). This indicates that during that period America acquired about 96% of every purchase it made with a dollar for free! This is the kind of monetary exploitation, which continues until today. One only needs to know the cost of producing a currency to understand that. Therefore, the more the demands for a currency in the international trade, the more profit it earns for its owner via seigniorage.

Unfortunately for the developing economies, their currencies are deprived of such opportunity by the so called owners of 'hard currencies'—the developed economies (to see the leading countries get the % of global foreign exchange reserve from IMF).

However, one may ask: if the weakness of less developing economies' (LDEs') currencies (devaluation/depreciation) is the basis and means via which their resources are being syphoned by owners of hard currencies, then, why are the developed economies (owners of hard currencies) competing to devalue their currencies against one another? The recent currency war (competitive devaluation) between China and United States of America is a pointer to this argument, where each country is cunningly devaluing its currency for the purpose of increasing the size of its export at the expense of its competitors. However, the simple answer to this economic twist lies on **Marshall-Lerner** conditions of devaluation. The theory presages that when a country's currency loses its value the demand for its export increases as a result of the cheapness of its currency in relation to the currencies of the importing countries. Consequently, the GDP of the exporting country will increase due to increase in the production of their export commodities. However, this will hold only if the following conditions (Marshall-Lerner conditions of devaluation) exist: **One**, the demand for the export's products is sensitive to price (price elasticity); in such a way that the sum of the price elasticity of the export and import must exceed one (technical jargon). **Two**, any country that wants to reap export benefits, which emanated from depreciated (devalued) currency, must ensure that the export's currency is denominated in its own currency. Meaning that devaluation/depreciation will only be fruitful to an economy if its exports are sold in its own currency.

Unluckily, none of the conditions as proposed by Marshall-Lerner are fulfilled by developing economies, because most if not all of their exporting commodities are natural resources, whose prices are inelastic and denominated in foreign currencies (hard currencies). As a result, developing economies do not have such economic honour to enjoy the benefit of currency devaluation. How will they enjoy the benefits therein when the sacred currencies are imposed on them for international trading? Thus, devaluation will always bring economic misfortunes to the developing economies. This is one of the actual circumstances that lead to the present economic predicament in which Nigeria finds itself.

Another important thing to know here is that profiting from currency production (seigniorage) also exists at domestic level. The only difference is that when a profit is realised from the production of a given currency the return therein becomes a hidden tax on the residents of the very country that produces it, which after all will end in the country's coffer. However, when such currency is used for making payments at international level, it becomes a means for transferring wealth from other economies to the economy of the country that owns the currency.

Regrettably, the IRRATIONAL THINKERS of all the developing and some of the developed countries lead their countries to join the wagon of dollarization. Dollarization has been explained in the *Monetary Policy at a Glance*, published by the Central Bank of Nigeria, Monetary Policy Department (March, 2017, p. 159).

This is a situation where residents of a home country adopt the use of a foreign currency for payments in transaction of goods and services, instead of the domestic currency. On the other hand, dollarization, also known as currency substitution, can be adopted as a formal policy within an economic jurisdiction after a serious economic crisis. Where it is fully adopted, there is whole scale or total replacement of the domestic currency with a more suitable foreign currency. The official adoption of a foreign currency necessarily implies that the adopting currency has given up control of its domestic monetary policy. Domestic monetary developments are, therefore, largely determined and influenced by decisions taken in the country of the anchor currency. Partial dollarization results when residents choose to store a substantial part of their financial asset holdings in a foreign currency, and is usually in response to growing loss of confidence in the stability of the domestic currency.

Now, I would like everyone to open their eyes clearly and think again and again over the following wordings, which I extracted from the above quotation:

This is a situation where residents of a home country adopt the use of a foreign currency for payments in transaction of goods and services, instead of the domestic currency.

and

Where it is fully adopted, there is whole scale or total replacement of the domestic currency with a more suitable foreign currency.

and

The official adoption of a foreign currency necessarily implies that the adopting currency has given up control of its domestic monetary policy.

and

Domestic monetary developments are, therefore, largely determined and influenced by decisions taken in the country of the anchor currency.

and, finally,

Partial dollarization results when residents choose to store a substantial part of their financial asset holdings in a foreign currency, and is usually in response to growing loss of confidence in the stability of the domestic currency.

We now need to critically look at the excerpts above. **First**, residents of a home country have agreed to adopt the use of a foreign currency for payments in transaction of goods and

services, instead of their domestic currency. **Second**, there is whole scale or total replacement of the domestic currency with a foreign currency. **Third**, this official adoption of a foreign currency necessarily implies that the adopting currency has given up the control of its domestic monetary policy. **Fourth**, domestic monetary developments are, therefore, now largely determined and influenced by decisions taken in the country of the anchor currency. **Fifth** and finally, this is usually in response to growing loss of confidence in the stability of the domestic currency.

If we are to assess these statements with an open mind, we can simply understand that as long as economic agents lose confidence in the stability of the value of their domestic currency, then, there is every tendency for such country to have dual currencies in its economy. Meaning, it will officially or unofficially adopt the use of foreign currencies for its domestic transactions, side by side with the domestic currency. As soon as a country allows for the partial usage of foreign currencies in its economy, a whole scale or total replacement of the domestic currency with a foreign currency or currencies will follow; provided the value of the domestic currency will continue to fall (wither). This official/unofficial adoption of a foreign currency necessarily implies that the country has given up the control of its domestic monetary policy. Subsequently, all its domestic monetary developments are, therefore, now largely determined and influenced by decisions taken in the country of the anchored currency. Once again, look at the current happenings in the Nigerian economy, where dollars are moving around in the country just like domestic currency among all those who have the means to do it. And, those without the means are always aspiring to follow the bandwagon.

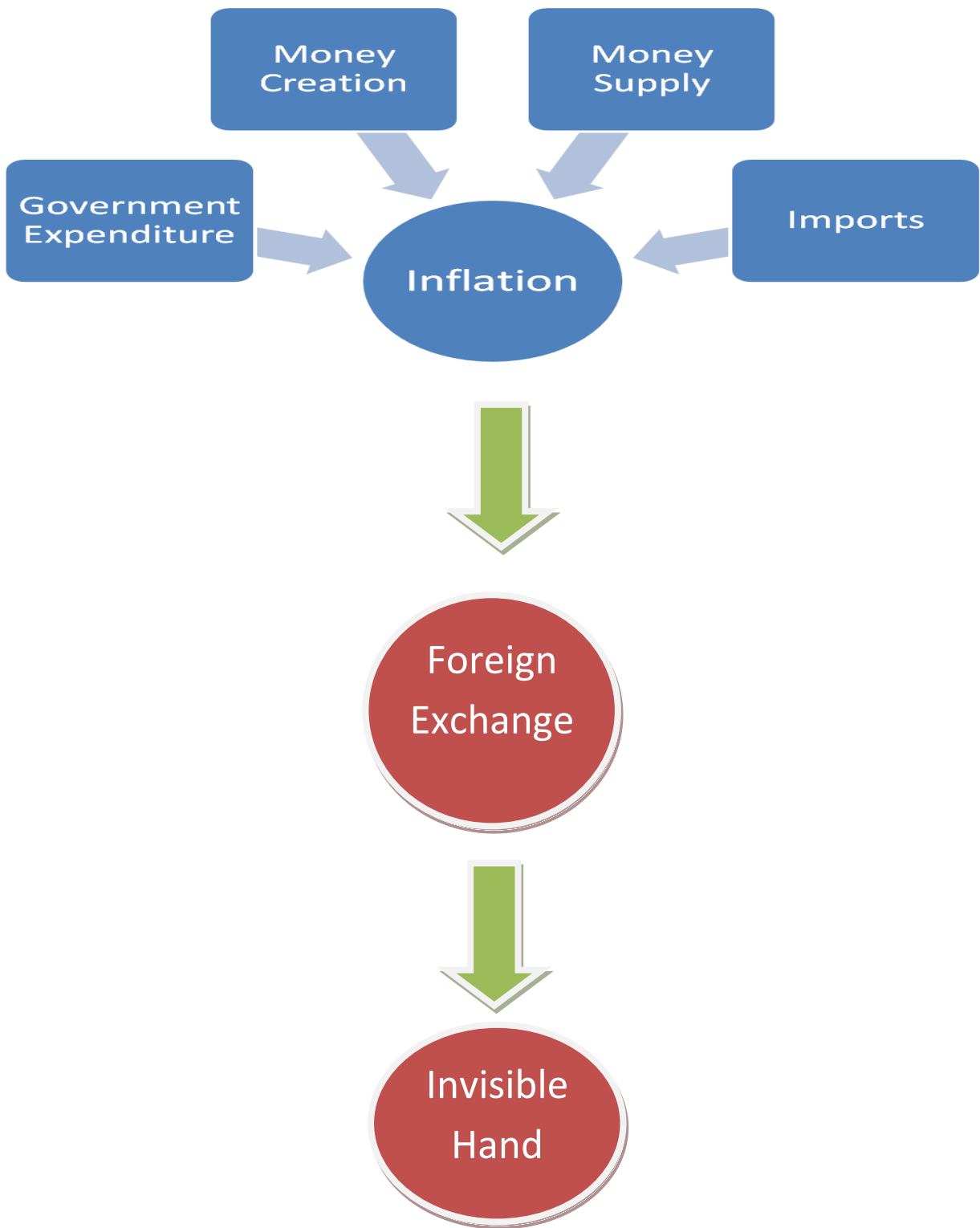
The above simple assessment can be an eye opener showing to us that by losing confidence in the value of a domestic country's currency and adopting a foreign country's currency, the domestic country has also **given out not only the determination of its foreign exchange** but ALL that it has to the foreign country, which it adopted its currency. This ranges from the total replacement of the domestic currency with a foreign currency, to giving up the control through determining and influencing the decisions to be taken by the domestic country of all of its domestic monetary policies, up to the level of all the domestic monetary policy developments of the domestic country. In fact, the domestic country has GIVEN OUT EVERYTHING IT HAS TO THE ANCHOR FOREIGN COUNTRY, whose currency is adopted. And, since it has been said earlier that some governments and their Central Banks, have relied on the U.S. dollar to back up the value of their own currencies, it means that most if not all of these countries have already GIVEN OUT EVERYTHING THEY HAVE TO THE ANCHOR FOREIGN COUNTRY, whose currency is adopted, that is the U.S. dollar.

Now, to be more specific, let us come to the issue of foreign exchange. Here, we need to realise that since the domestic country has already given up the determination of not only its domestic monetary policy developments, but also the value of its currency to the foreign country (the U.S), whose currency is adopted. The question now is, how many of the world countries assented to this agreement? This means that all these countries can now no longer determine the value of their exchange rates, it has to be done by the dollar country, the U. S. Then, how do we expect these countries (developing economies) to have high valued currencies over the dominant hard currencies (particularly the US dollar)? No doubt, their exchange rates will forever remain far below the exchange rate of the dominant hard

currencies specifically the dollar. Consequently, the dollar becomes the major determinant of their exchange rate through predetermined monetary policies of the dollar country, the U.S. It means that, all the inflationary benefits will at the end strengthen the dollar and the economy of its producer (US) through the exchange rate differentials, as these countries (developing economies) cannot utilize the benefits derived from inflation. This is the reason why the proceeds of inflation (increased investment, employment, GDP etc.) as presumed by **Philips Curve** cannot actually be useful (spendable) for developing economies, because the proceeds are stolen by the invisible hand in favour of its masters — the developed economies.

In addition to the above, one can also see the circumventing of the market forces (demand and supply) in order to achieve a particular **selfish interest**. At the time when a particular domestic country lost confidence in its domestic currency and look for a foreign country that it wants to adopt its currency and the foreign country agreed to it, then we can safely say that the system is no longer operating on the **mechanics of demand and supply**, but based on wishful agreements that are meant to achieve what Adam Smith called, “selfish interest”. Similarly, this also manifests the existence of an “INVISIBLE HAND” operating somewhere. This hand, which is invisible, has systematically and strategically withdrawn all the proceeds of inflation from our home country to a foreign country through the mechanism of exchange rate, via dollarization.

The following diagram illustrates all the above explanations in a very simple manner. Strategically, there are some selected causes of inflation that among others include, Government expenditure, money supply, money creation by the commercial banks and importation of foreign goods, which fuelled inflation in an economy. All the lost value of a domestic currency through inflation is appropriated by the foreign exchange mechanism, which is then given to the INVISIBLE HAND.



The above analysis has shown that in most instances and situations, inflation is an artificial phenomenon, sometimes deliberately created through increase in money supply by the monetary authorities (via monetary policies), commercial banks (via money creation), government (via fiscal policies) and governments', businesses' and individual's importation of foreign goods within the country. Therefore, domestic businessmen and governments are not the true beneficiaries of inflation; instead, the remote beneficiaries are the so called developed economies, who taught us how to create inflation under the pretext of the Philip curve's theory. With inflation the 'Rational Thinkers' of the West knew very well that the demand for the currencies of the developing economies is already eroded and weakened to the core. As a result, the increasing demand for their currency will continue to remain and the profits they earn through seigniorage will continue to be guaranteed. Under normal circumstances an increase in money supply must lead to inflation; and consequently devaluation (or depreciation) is inevitable for the affected currency.

Nevertheless, an aberration is perceived here, when we empirically observed (refer to the conclusion of the descriptive statistics under MONEY SUPPLY) that the level of money supply in the developed economies is higher than what is obtainable in the developing economies; yet their rates of inflation and devaluation are lower than what was obtainable in the developing economies (refer to the conclusion of the descriptive statistics under INFLATION & EXCHANGE RATE). In real sense, the rate of inflation and currency devaluation (depreciation) ought to have been higher in the developed economies as a result of the excessive money supply, which they created and injected into their respective economies. But, the crystal and empirical reason why they are not experiencing such economic mishap is their ability to create economic shock-absorbers, which they find in our economies! We are deliberately cajoled and prepared mentally to continue to accept their currencies as international currencies instead of the just and real currency—intrinsic gold. The advantages of this 'divine' currency are criticized by 'rational thinkers' beyond recognition. Subsequently, this ideology of hating gold as international currency was rammed down our throats. Thereafter, we are left with no choice other than to accept their chosen currency.

However, if the intrinsic gold would not be allowed to set the standard for exchange in international trade, countries should have been allowed to apply the principle of international trade proper and in its truest sense. Applying the principle of international trade proper will allow countries to sell their export commodities in their own local currency. Thus, importing countries will now be required to exchange their currencies for the currencies of their suppliers—exporting countries. This way each currency will appreciate or devalue according to the level of demand it enjoys as a result of its export. Hence, usurping resources of the weaker nations through seigniorage will also be reduced drastically.

But allowing the currencies of developed economies to serve as international currencies on the basis of their GDP is a hoax! We would have understood this hoax better if all these currencies, which our governments hold as reserves, or which we individually hold as a store of value, will be returned to their countries of origin for making purchases. At that time we will understand better whether their GDPs are enough to absorb their exiled currencies or not! Certainly, their GDPs cannot accommodate their exiled currencies without the prevalence of hyperinflation in their economies. Unfortunately, because of seigniorage the

demands for currencies of developing economies are systematically weakened in favour of the developed economies.

However, the major way to stop this exploitation is for developing countries to strengthen their currency by restraining their inflation; because when the strength of a currency increases the demand for it will increase and consequently reduces the demand for hard currencies. In modern times however, there are some simple ways that can be followed to do that. These include: returning to the traditional and just way of international trade as explained above, that is through the interaction of Demand and Supply, where countries are allowed to sell their export commodities in their own local currencies (importing countries to exchange their currencies for the currencies of their suppliers—exporting countries).

Unfortunately, in the same way that the ‘veto power’ countries influence and override the collective decision of the United Nations for their selfish interest, so do the developed economies in overruling any direct or indirect measures that may reverse the status-quo of the present economic order.

Finally, if developing countries cannot stop this exploitation via the measures mentioned above, I suggest they should then introduce a single currency similar to what the European nations did by coming out with a single currency, Euro, with which they will substitute other dominants hard currencies that are currently been used for their exploitation.

Do we care to ask ourselves the following questions?

- Why the European countries create euro?
- Why British exited from the EU despite the enormous benefit therein?
- Why developing countries particularly Africans failed to complete the final stages of their many proposed single currencies?

The simple answers to these questions are:

- ✓ European countries create euro for the purpose of sharing the largesse the US dollar, British Pound and other hard currencies owners enjoy from the seigniorage.
- ✓ The British as a major supplier of the world hard currencies does not want to share or relinquish its right of profiting from the printing of Pounds with the European countries.
- ✓ Single currencies for developing countries will be a threat for the existing suppliers of the world’s hard currencies; consequently, put a hold to the present exploitation against their economies by the developed economies.

Pathetically, through their OBJECTIVITY and SCIENTIFIC concepts, the developed economies lure us, convince us and make us to believe that their economic supremacy is as a result of their technological advancement, which surpasses that of the developing economies. However, their economic supremacy depends not only on their technological advancement but also on their dubious economic tricks, specifically the exchange rate mechanism, with which they continue to exploit the weaker nations. In fact, with the latter means (exchange rate mechanism) they clandestinely and easily transfer both human and multifarious natural resources to their economies for their own benefits, leaving us in abject poverty and deprivation.

Therefore, there is the need to ask some fundamental questions at this juncture. **One**, if it is the governments of the developing countries that get the benefits of inflation, then why could they not finance even their own budgets? **Two**, why do they need to go for a supplementary budget, or in many occasions find themselves in budget deficits? They should have used the inflationary proceeds to finance such deficits! What stops them from doing that? **Finally**, why should they go in search of a foreign loan? And so forth.

The reason could simply be because there are many so-called economists in the developing countries that do not make use of their sense of reasoning and their **Rationality** to assess and understand the actual reality on ground, and thus, were made to be IRRATIONAL by **blindly** following the RATIONAL thinkers. Their brains remain dormant, depending on their so-called “Gods” to conduct researches from the point of views of developed countries. Subsequently, the IRRATIONAL economists of the developing countries follow the footsteps of RATIONAL thinkers and blindly adopt their strategies, methodologies and variables that fit only the economies of the developed countries without taking into consideration the peculiarities of their economies (developing countries). And, they are always trying to come out with positive results as obtained in the developed countries, regardless of the poles-apart peculiarities of their economies. Consequently, any negative results will be seen as a taboo. **This kind of “irrational” behaviour is always hiding the actual facts and realities of the developing countries, and thus, making the developing countries to continue to sink into poverty, oppression and decay, without any sign of development in them.** This write up is my humble submission in order to divert and break that dormancy by exerting my brain to have at least pave the way for my colleagues “to start thinking out of the box” and look at reality the way it is. Probably, in the near future, things will be changed for the better in the developing countries.

The above analysis shows that the economists of the western world are really and truly “RATIONAL THINKERS”, because, they think and develop theories, methodologies and strategies (Invisible Hand) upon which they can RATIONALLY EXPLOIT all the resources; human and natural, in such a way that the so-called “Rational Thinkers” (Irrational thinkers) of the developing countries could not understand; nor could they see how the theories, methodologies and strategies (Invisible Hand) were manoeuvred to exploit them and relegate them to the lowest level of degradation in the world. Thus, this made the RATIONAL THINKERS of the developing countries to be IRRATIONAL THINKERS.

Perhaps, that was why one finds thousands of Economics Professors who spent over two to three decades teaching “Savings” and “Investments”, spending all these decades without saving even for the social security of their family needs, not to talk of any efforts to engage in a simple “investment” for the economic growth and development of their countries. Then, what have they been teaching their students? In some instances, you can find some of their students, who they scored as “failures” or “dulls” engaging in prosperous business investments. Then, who is a failure or dull among them ? The Professor of Economics, who knows better than his student without putting into practice what he knew or the failed and dull student who practices what he could not understand from his Professor, but tried to put into practice what he learnt from his personal experiences and became prosperous and contributes to the economic growth and development of his country?

Most recently, more than 80% of Central Banks of various countries across the globe have agreed and accepted to introduce digital currencies or e-currency, Central Bank Digital Currency (CBDC) in their respective countries. This is also called digital fiat currencies or digital base money. China's digital RMB (renminbi), was the first digital currency to be issued by a major economy, undergoing public testing as of April, 2021. This will consequently, lead to the future legalisation of Bitcoin and cryptocurrencies. Cryptocurrency is a digital payment system that does not rely on banks to verify transactions... instead of being physical money like paper money that is carried around and exchanged in the real world, and is typically not issued by a central authority.

All these are yet another "above your thinking capability" and strategy upon which the developed countries are re-invigorating their exploitative techniques to continue siphoning the resources of the developing countries. This time around however, they are doing it in a wider scale than before.

Logical deductions from all the explanations above can lead us to understand that conventional economics is a man-made system where the man who is more intelligent and wise is making all efforts to exploit his man counter-part who is less intelligent than him. Thus, let the man who is less intelligent come back to his senses and adopt an economic system that is created by his Creator – Allah (God), Who does not want to exploit man: both the intelligent and the less intelligent; but wants man to enjoy His abundant bounties that He bestowed for the benefit and comfort of not only the intelligent man and the less intelligent man, but also for the benefit of all other creatures that share living with man on this earth. The economic system that has been established by Allah for the benefit of man is that which is entrenched in the value system of Islam and it is none other than the economic system, which is widely and popularly known in the modern world today as ISLAMIC ECONOMICS.

1.9 CONCLUSION

The term Invisible Hand is a concept, which is deliberately and carefully designed in order to achieve a particular objective. It is fully functional and works in a perfect condition without any hindrance. It is truly and realistically "a hand, which cannot be seen with a naked eye" by many. It works under certain mechanisms that include: government expenditure, money supply, importation of goods and money creation by the commercial banks through the 'fractional reserve banking system'. The combinations of these mechanisms artificially create inflation, the proceeds (benefits) which are transferred by the invisible hand via foreign exchange differentials to the developed economies at the expense of the Less Developed Economies (LDCs).

The proponents of the invisible hand have consciously designed the present-day foreign exchange system so as to mobilise the world resources (human and natural) to themselves, at the expense of the rest of the people living with them in this world. This write up is an eye opener, and is meant to draw the attention of the people to the fact that there is an alternative system, which is fully designed by the Owner of the world resources-(Allah), Who does not need it, but made the resources for the benefit of the entire humanity, and

this is a perfect system for them to derive the benefit meant for them. This (Allah – God) made system, is known in the modern world as the “**Islamic Economics**” system.

Postscript

This Journey started in 1982 when I was to register for a private GCE and a friend convinced me to include Economics, which by then I had no one to teach me. The end result was F9. However, when I joined the University in 1984, I registered Economics during my Pre-Degree programme, which I passed with flying colours. I was to read B.Sc. (Ed) Economics in the Faculty of Education and Extension Services, but I later transferred to Faculty of Social Sciences and Administration to read B.Sc. (Hons) Economics. This was as a result of my desire to be a banker.

I was first introduced to Islamic Economics by my University in 1985 when I was in 200 level. Subsequently, I was introduced to Monetary Economics, which I very much developed interest in, at my 300 level. I began to lose interest of becoming a banker due to my knowledge of Islamic Economics, but I still had interest in Monetary Economics, which I very much cherished to date. To blend the two (Islamic Economics and Monetary Economics), I found an alternative with the Islamic Banking system. Consequently, I started to ask a lot of questions that need to be addressed in Economics right from my Undergraduate days, perhaps due to my background knowledge in Islam, coupled with my newly acquired knowledge in Islamic Economics.

My scepticism of Economics can be divided into three :

1. Classroom Economics, where theories dominate the curriculum/ syllabus.
Economics at the beginning is interesting, fascinating and appealing. However, when one studies it, one finds many questions whose answers are not interesting, not fascinating, and not appealing.

My first encounter with Economics as a discipline is its assumptions, which are part of its building blocks. In almost all the cases one finds that they contradict reality. A good example is that of the assumption of “Ceteris paribus” – “All things, being equal”. It is known to everyone of us that “All things are NEVER equal”, cannot be equal, and can never be equal.

There is also the case of economics being a “Value free” discipline. After all, economics is “VALUE LOADED”. There is even a sub-discipline of economics called WELFARE ECONOMICS, which is concerned with how welfare of people is determined. Take the case of Pareto Optimality, where one’s welfare is improved without making another person worse off. How do we know if one’s welfare is improved without valuation? And, how do we know if one’s welfare is worse off without valuation?

The last case in this aspect has to do with economics being a positive science. There are a lot of normative aspects of economics that are part and parcel of economics, but due to the fact that economics needs to be positive, those normative issues are

deliberately neglected, and they have high and significant influence in economics. This is what led economist to do away with qualitative researches. This will be discussed in the following sub-section.

2. Research methodology. In the research methodology, qualitative research is neglected at the expense of the quantitative one, due only to the need of being positive. Thus, only the quantitative variables are measured, perhaps because the qualitative variables cannot in any way be measured. And, this could be the reason why they are very heavy, and have much significant role and impact in the economic reality.

My second argument here has to do with the data used in the quantitative research. Fundamentally, in most cases this data is cooked or manufactured by those who controlled the data the way they want it to be. For this, I suggest reading a book called, "The Confession of an Economic Hit man" written by John Perkins (2004) for one to see how data is manufactured by the western world.

When it comes to the variables that are to be measured, only the quantitative ones are taken into consideration; whereas, the qualitative ones are taken care of by the error term. How can a single variable (error term) takes care of many qualitative variables that are even more in number and weighty than the quantitative variables that are to be measured. And, in most cases these qualitative variables are even more contributing in terms of their influence (impact) on the dependent variables or the economy being measured.

And, in a situation where data for the exact needed variable is not available, proxies are used. The results obtained from these proxies are then considered to be the exact outcomes and are then generalized as the reality that is to be addressed. Thereafter, conclusion is then arrived at without casting any doubt on it.

Again, the variables used by the researchers in the developed countries are often the same variables being used by the developing countries, without taking into consideration the different peculiarities that exist between them. They expect the result(s) to be the same all the time, despite the fact that in many instances, the data for the variables are often unavailable for the developing countries. As far as these "Rational Economists" are concerned, the result(s) must tally with the ones obtained in the developed countries. For them there is no need for negative result(s) and such result(s) must be positive and significant in all circumstances.

The problem is even worse, when one realises that the users of these statistical/econometric software have little or no knowledge of what they were made up. The software often brings forth absurd results, which they have, little or no core skill with which to question the validity of the results. On many occasions, they were deprived of such right out rightly. Consequently, the results from this statistical software are then considered absolutely perfect. At this juncture I concur with Professor Murray Rothbard (2006) when he nicknamed them "disinformation

specialists". Angus Deaton (2002) also captures this dilemma accurately in his attempt to unravel the true trend of global poverty:

Real progress has been made in reducing poverty in recent years, particularly in India and China. However, there is still much uncertainty about the numbers. Using the same data, two reports released less than two years apart by the World Bank reached apparently different conclusions on whether world poverty was going up or down. How can we know whether the world poverty counts are accurate?

Additionally, if one is to run the same data on different statistical/econometric software, one will end up getting different results. Yet, it is still considered as OBJECTIVE and SCIENTIFIC. Perhaps, **that is why we have abundance of quantitative researches without quality outcomes**. Beed, C. And Beed, C. (2000) in their paper, "The Status of Economics as a Naturalistic Social Science", highlight all these by concluding that "the practice of economics does not, and is not able to, rely on naturalistic methods."

Finally, most of the RATIONAL Thinkers of the developing countries of nowadays, fail to conduct researches based on the peculiarities and needs of their local communities, which will assist in no small measure to the economic growth and development of their respective countries.

3. Real world situations and economics. In fact, both the economic theorists and research methodologists are poles apart and at parallel with reality. Both could not come together to address economic realities.

The case of Gross Domestic Product (GDP) or National Income (NI) is sufficient enough to provide proper explanation. In most cases, the contribution of rural areas as well as the contribution of what the economists termed as underground economy is neglected, in the calculation of GDP or National Income. These economic agents are strategically neglected irrespective of their enormous level of contributions to economic growth and development. Interestingly, Joseph E. Stiglitz, Amartya Sen and Jean-Paul Fitoussi (2009) have done a very good job in exposing the concealed shortcomings of economic theories and research methodologies in addressing Real World Situations in their popular essay: "**The Measurement of Economic Performance and Social Progress Revisited**". In this economic essay the authors gave many common sense examples that left many of the "disinformation specialists" dumbfounded!

Likewise, any economic graduate who is employed in the banking industry will have to get extra training before they could work in the bank. Their knowledge of economics is rendered useless, unless and until they get additional training by the bank itself. This applies not only to the banking industry, but also to the Stock Exchange Market and also in most cases to all the sectors in the economy.

The worst part of it is that even the economists themselves could not put into practice what they have learnt in the discipline, talk less of what they have suggested

in their recommendations of how to solve the existing economic problems of their respective countries. To my little understanding, all the above have made the developing countries' economists to be true "Irrational Thinkers".

My great admiration and salutations to Prof. Abdul-Ganiyu Garba of Ahmadu Bello University, Zaria, for being courageous and brave enough to admit the fact in his inaugural lecture in 2014 that "Economics: A Discipline in Need of a New Foundation". Garba, P. Kassey of the University of Ibadan was also fair and unbiased in her inaugural lecture in 2012, where she has shown "The Impossibility of Sound Economic Outcomes without Sound Management and Leadership".

My understanding of ALL these fallacies was what made me not to conduct many researches in the conventional economics and to focus more on ISLAMIC ECONOMICS.

Wa-ma taufiqi, illa bi-Allah. Wa-bihi Nasta'inun, Basirun.
Allahumma Salli ala Muhammadin wa-Salim.

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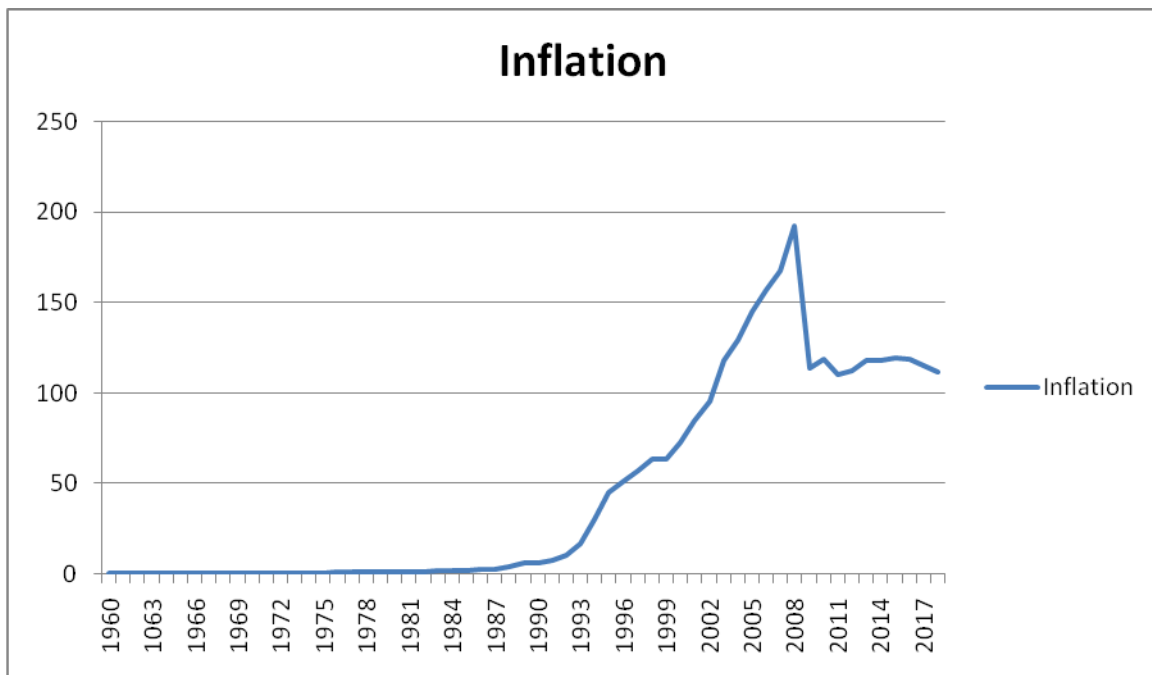
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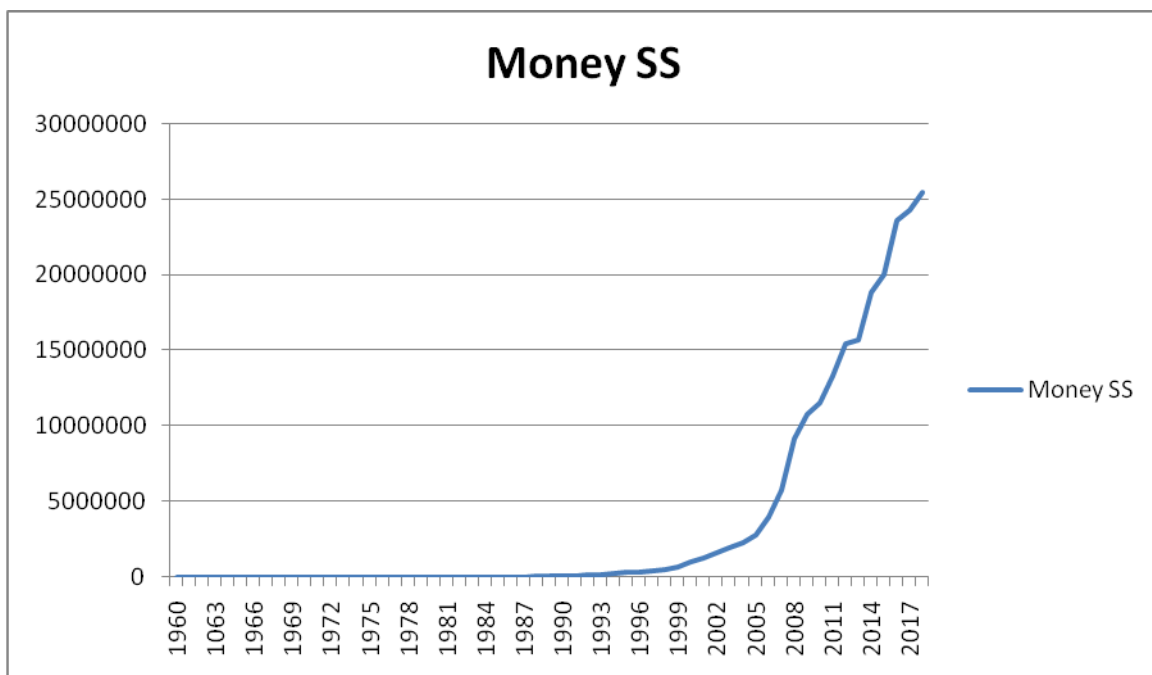
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APPENDIX – 1

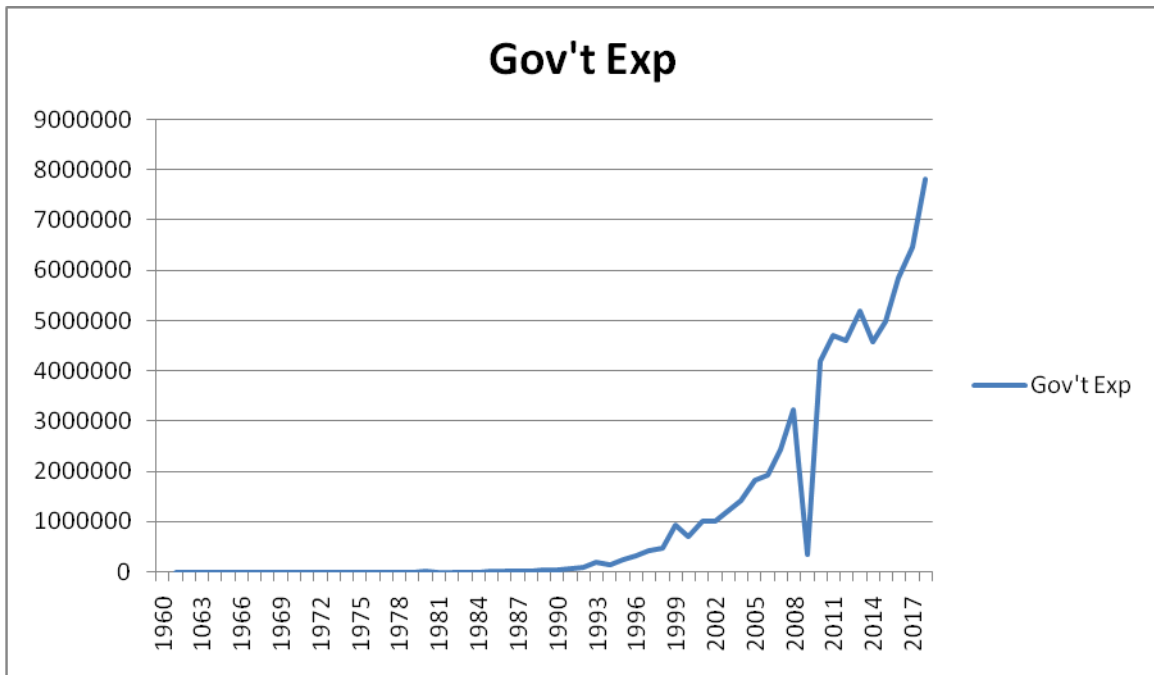
Appendix – 1a



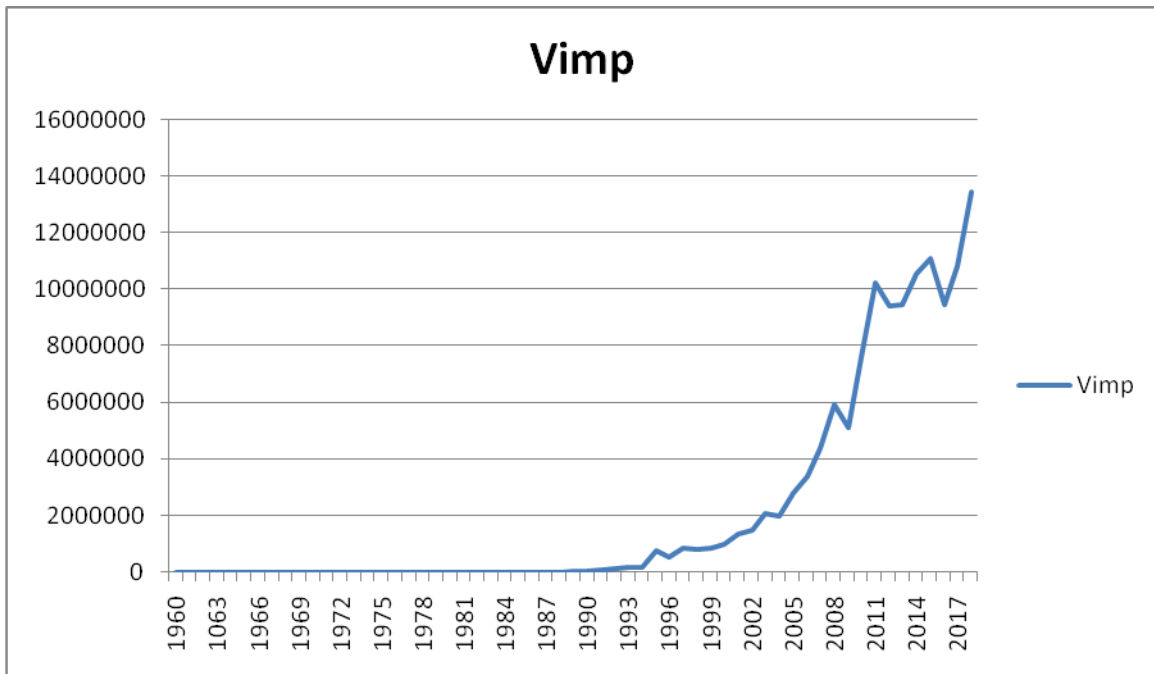
Appendix – 1b



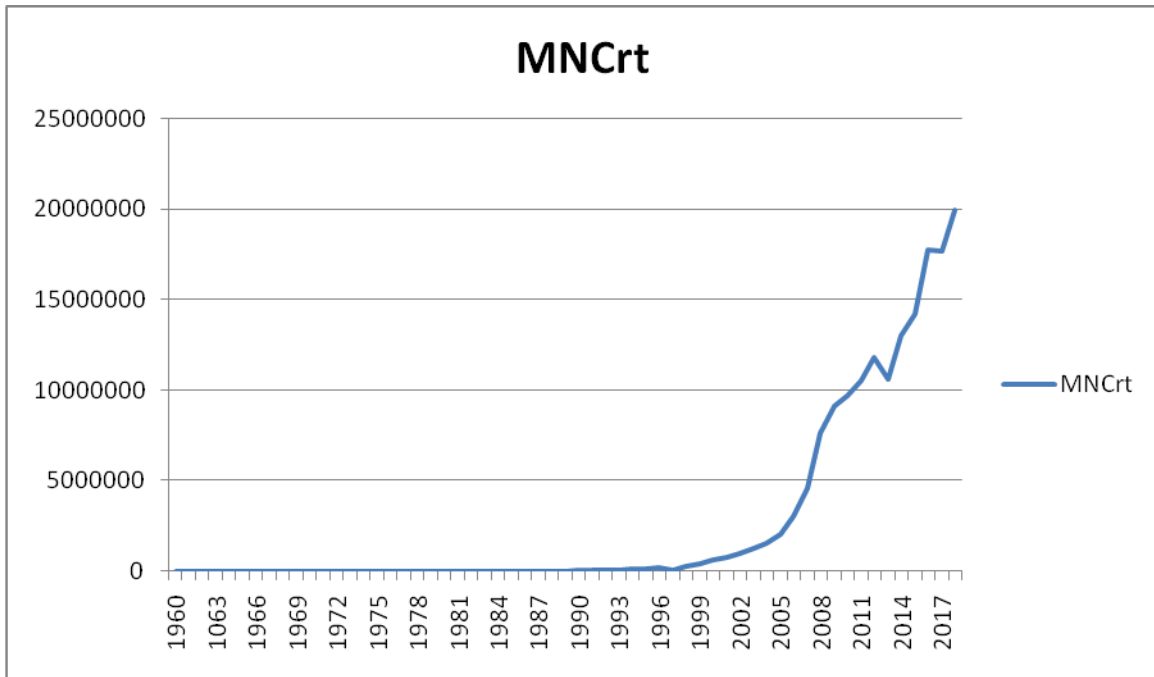
Appendix – 1c



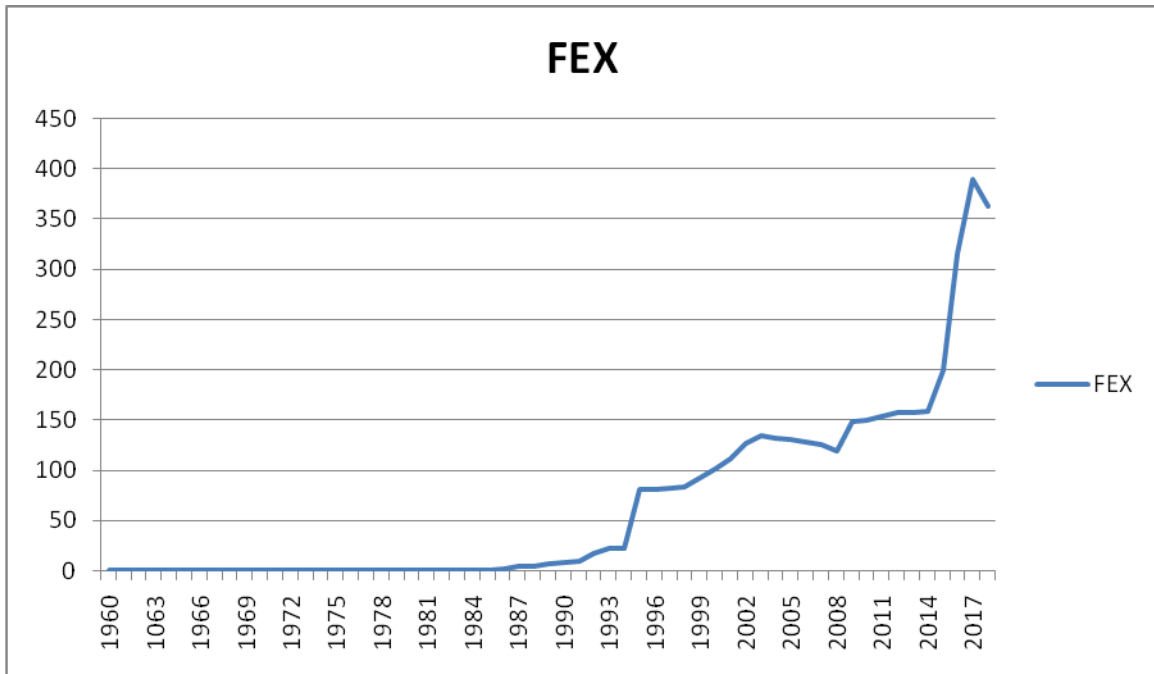
Appendix – 1d



Appendix – 1e



Appendix – 1f



Appendix - 2

Pairwise Granger Causality Tests

Date: 04/07/20 Time: 23:46

Sample: 1 59

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INFL___Y does not Granger Cause FEX___X3 FEX___X3 does not Granger Cause INFL___Y	57	2.79520 0.65271	0.0703 0.5248
MNC___X2 does not Granger Cause FEX___X3 FEX___X3 does not Granger Cause MNC___X2	57	8.40680 5.04099	0.0007 0.0100
MNS___X4 does not Granger Cause FEX___X3 FEX___X3 does not Granger Cause MNS___X4	57	6.60926 8.74439	0.0028 0.0005
TGEX___X1 does not Granger Cause FEX___X3 FEX___X3 does not Granger Cause TGEX___X1	56	4.02625 6.86829	0.0238 0.0023
MNC___X2 does not Granger Cause INFL___Y INFL___Y does not Granger Cause MNC___X2	57	6.02876 9.86944	0.0044 0.0002
MNS___X4 does not Granger Cause INFL___Y INFL___Y does not Granger Cause MNS___X4	57	6.83100 14.9503	0.0023 7.E-06
TGEX___X1 does not Granger Cause INFL___Y INFL___Y does not Granger Cause TGEX___X1	56	1.07600 20.7884	0.3486 2.E-07
MNS___X4 does not Granger Cause MNC___X2 MNC___X2 does not Granger Cause MNS___X4	57	1.27600 0.82504	0.2877 0.4439
TGEX___X1 does not Granger Cause MNC___X2 MNC___X2 does not Granger Cause TGEX___X1	56	3.64632 12.5551	0.0331 4.E-05
TGEX___X1 does not Granger Cause MNS___X4 MNS___X4 does not Granger Cause TGEX___X1	56	7.94488 10.8147	0.0010 0.0001

Date: 04/07/20 Time: 23:40
Sample (adjusted): 4 59
Included observations: 56 after adjustments
Trend assumption: Linear deterministic trend
Series: FEX__X3 INFL__Y MNC__X2 MNS__X4 TGEX__X1
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.885226	290.2556	69.81889	0.0001
At most 1 *	0.827277	169.0273	47.85613	0.0000
At most 2 *	0.518077	70.68761	29.79707	0.0000
At most 3 *	0.410247	29.80928	15.49471	0.0002
At most 4	0.004248	0.238384	3.841466	0.6254

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.885226	121.2282	33.87687	0.0000
At most 1 *	0.827277	98.33974	27.58434	0.0000
At most 2 *	0.518077	40.87833	21.13162	0.0000
At most 3 *	0.410247	29.57089	14.26460	0.0001
At most 4	0.004248	0.238384	3.841466	0.6254

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b*S11*b=l):

FEX__X3	INFL__Y	MNC__X2	MNS__X4	TGEX__X1
0.019222	-0.034390	-7.20E-07	-1.94E-07	1.17E-06
-0.047962	0.034301	-9.69E-07	-2.52E-07	4.54E-06
0.004129	-0.014053	-4.47E-06	2.77E-06	1.98E-06
-0.033563	0.009857	1.61E-06	-5.63E-07	-9.39E-07
0.013698	-0.041873	2.88E-06	-2.81E-06	4.52E-06

Unrestricted Adjustment Coefficients (alpha):

D(FEX__X3)	D(INFL__Y)	D(MNC__X2)	D(MNS__X4)	D(TGEX__X1)	
-7.412203	-0.371997	-501400.8	-462336.8	-196240.6	0.308785
1.721670	2.404532	162269.9	305138.2	-48308.05	0.392035
7.339021	2.984617	128864.5	89824.81	12336.93	-96521.84
5.889753	-5.150621	-96521.84	-75910.01	-210895.1	-22663.84
0.308785	0.392035	-22663.84	-10626.83	13482.27	-10626.83
					13482.27

1 Cointegrating Equation(s): Log likelihood -2759.594

Normalized cointegrating coefficients (standard error in parentheses)

FEX__X3	INFL__Y	MNC__X2	MNS__X4	TGEX__X1
1.000000	-1.789096	-3.74E-05	-1.01E-05	6.07E-05
	(0.11153)	(1.5E-05)	(1.1E-05)	(1.8E-05)

Adjustment coefficients (standard error in parentheses)

D(FEX__X3)	-0.142476
	(0.04088)
D(INFL__Y)	-0.007150
	(0.03071)
D(MNC__X2)	-9637.815
	(1345.55)
D(MNS__X4)	-8886.935
	(1217.15)
D(TGEX__X1)	-3772.094
	(1096.03)

2 Cointegrating Equation(s): Log likelihood -2710.424

Normalized cointegrating coefficients (standard error in parentheses)

FEX__X3	INFL__Y	MNC__X2	MNS__X4	TGEX__X1
1.000000	0.000000	5.86E-05	1.55E-05	-0.000198
		(1.6E-05)	(1.0E-05)	(1.4E-05)
0.000000	1.000000	5.37E-05	1.43E-05	-0.000145
		(1.6E-05)	(1.0E-05)	(1.4E-05)

Adjustment coefficients (standard error in parentheses)

D(FEX__X3)	-0.225051	0.313957
	(0.10916)	(0.10262)
D(INFL__Y)	-0.122477	0.095270
	(0.08061)	(0.07578)
D(MNC__X2)	-17420.62	22808.97
	(3412.91)	(3208.22)
D(MNS__X4)	-23522.01	26366.07
	(2373.12)	(2230.79)
D(TGEX__X1)	-1455.136	5091.634
	(2924.61)	(2749.20)

3 Cointegrating Equation(s): Log likelihood -2689.985

Normalized cointegrating coefficients (standard error in parentheses)

FEX__X3	INFL__Y	MNC__X2	MNS__X4	TGEX__X1
1.000000	0.000000	0.000000	5.84E-05	-0.000187
			(4.6E-06)	(1.8E-05)
0.000000	1.000000	0.000000	5.37E-05	-0.000134
			(4.4E-06)	(1.8E-05)
0.000000	0.000000	1.000000	-0.733824	-0.192230
			(0.04280)	(0.16947)

Adjustment coefficients (standard error in parentheses)

D(FEX__X3)	-0.194751	0.210826	-2.92E-05
	(0.09508)	(0.09274)	(8.5E-06)
D(INFL__Y)	-0.110155	0.053329	-1.54E-05
	(0.07779)	(0.07588)	(7.0E-06)

D(MNC___X2)	-16888.59 (3288.13)	20998.09 (3207.45)	-0.372665 (0.29384)
D(MNS___X4)	-23151.16 (2285.88)	25103.80 (2229.80)	-0.364565 (0.20427)
D(TGEX___X1)	-1404.202 (2932.51)	4918.269 (2860.56)	0.132836 (0.26206)

4 Cointegrating Equation(s): Log likelihood -2675.199

Normalized cointegrating coefficients (standard error in parentheses)

FEX___X3	INFL___Y	MNC___X2	MNS___X4	TGEX___X1
1.000000	0.000000	0.000000	0.000000	-2.79E-05 (9.3E-06)
0.000000	1.000000	0.000000	0.000000	1.17E-05 (8.9E-06)
0.000000	0.000000	1.000000	0.000000	-2.190128 (0.12372)
0.000000	0.000000	0.000000	1.000000	-2.722586 (0.19910)

Adjustment coefficients (standard error in parentheses)

D(FEX___X3)	-0.392431 (0.10065)	0.268880 (0.08396)	-1.97E-05 (8.0E-06)	1.80E-05 (4.6E-06)
D(INFL___Y)	0.062718 (0.08077)	0.002560 (0.06738)	-2.37E-05 (6.4E-06)	1.06E-05 (3.7E-06)
D(MNC___X2)	-13648.98 (3823.57)	20046.69 (3189.69)	-0.527825 (0.30359)	0.467528 (0.17606)
D(MNS___X4)	-20603.36 (2639.61)	24355.57 (2202.01)	-0.486591 (0.20958)	0.304316 (0.12154)
D(TGEX___X1)	5674.171 (2956.97)	2839.509 (2466.76)	-0.206180 (0.23478)	0.203028 (0.13616)

VAR Lag Order Selection Criteria

Endogenous variables: FEX__X3 INFL__Y MNC__X2 MNS__X4
 TGEX__X1

Exogenous variables: C

Date: 04/08/20 Time: 11:37

Sample: 1 59

Included observations: 56

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3135.010	NA	3.47e+42	112.1432	112.3240	112.2133
1	-2770.302	651.2633	1.88e+37	100.0108	101.0958	100.4315
2	-2675.080	153.0359*	1.56e+36*	97.50285*	99.49204*	98.27406*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion