

## **Hypotheses Testing: Capital Flight and Human Development Index in Nigeria**

**BY**

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### **Abstract**

This study examined Capital Flight and human development index in Nigerian. Capital Flight was proxied by foreign direct investment abroad, external debt servicing, external reserves and capital and financial account deficits. Based on the study objectives, relevant literature were reviewed and evaluated. Relevant data were extracted from the annual Statistical Bulletin of the Central Bank of Nigeria and the National Bureau of Statistics. Unit root test was conducted using Augmented Dickey Fuller method which revealed that the variables were integrated at level and **first difference: necessitating the use of autoregressive distributive lag/bonds test** to explore the long run relationship existing among the variables in the model and the result showed that the variables in the model were co-integrated thus we proceeded in evaluating the long run as well as the co-integrating form in the model. **From the result of the various tests, it was revealed that capital and financial account deficit, external debt servicing and external reserve were positively related to human development index while foreign direct investment outflows was negatively related to human development index. Also, capital and financial account deficit, external reserve and foreign direct investment outflow were significant while external debt servicing was not significant.** Based on the findings from the analysis, the study recommended amongst others, that external debt acquired should be judiciously used for infrastructural development that would encourage

investments which would ultimately bring about economic growth as well as enhance human development in Nigeria.

**Keywords:** Capital Flight; Human Development Index rate; Foreign direct investment outflow; external debt servicing; External reserves; Capital and financial account deficits.

## 1. Introduction

### 1.1 Overview

Numerous developing nations across the globe including those countries within Sub-Saharan Africa, have overtime, suffered various situations of financial losses which have manifested as a result of the indiscriminate movement of investable financial resources from these developing countries, to other countries that are most often developed, this experience has been counterproductive to these developing nations and the economic growth and development of such countries have been seriously jeopardized (Forson, Obeng & Brafu-Insaidao, 2017).

Aderaju (2017) posits that the sluggish economic growth and development, as well as the persistent balance of payment deficits experienced in most developing countries can be traceable to the high level of illegal capital overflow from those countries to advanced countries of the world. These unreported outflows of financial resources are what ordinarily constitute capital flight. The challenges of capital flight has been a major concern for policy makers especially in the less developed and developing nations to which Nigeria belongs, as there is a persistent issue of inadequate supply of financial capital considered necessary for sustained economic growth and development (Ifedayo & Olawale, 2015).

Compared with past few years, it is difficult to state categorically that the macroeconomic environment of Nigeria is stabilizing – judging from the rate of corruption, upward movement of inflation resulting in high cost of goods and services, low level of technological advancement poor human development indices, low investment/ GDP rates, low standard of living resulting to low per capital income, youth social vices, militancy in the Nigeria's Niger Delta region, overdependence on foreign institutions, poor infrastructural facilities, erratic power supply and above-all low level of capital inflow. Hence it is believed to be a high risk market for investment due to the mono-culture nature of the Nigerian economy (Akani, Uzobor & Madume, 2009).

In addition, capital flight has adverse consequences for developing countries. First, the loss of capital through capital flight erodes the domestic tax base and therefore affects income redistribution. Most importantly; capital flight contributes to the distribution of income from the poor to the rich, (Kolapo & Oke, 2012). That is, capital flight is viewed as diversion of domestic savings away from financing domestic real investment and in favour of foreign financial investment. As a result, the pace of growth in the economy is retarded from what it

otherwise would have been. Capital flight thus, is a short term private capital outflow that responds not only to political crisis but also to economic policy failure.

However, in Nigeria, since the 1980's, the problem of capital flight has received substantial attention given the downward side of the economy and with the global financial crisis during the period, in March 2010 capital outflow from the Nigerian economy rose to \$1.740 billion, also in the year 2013 alone by records available to CBN (2014) between January 22nd to 5th May 2013 the total of \$1.383 billion went out in a week as capital flight.

## **1.2 Statement of the Problem**

Poor level of capital inflows reduces the level of economic growth and can be a disincentive to economic development in any economy, High level of capital inflows encourages capital formation, which is very essential for economic growth and development, which in turn, enhances substantial level of investment and encourages high level of returns. When there is capital outflow, it is money that is "fleeing" from the country. As a matter of fact, increase capital outflow implies a potential lost for economic growth especially in a country that is heavily dependent on external financing and/or international aids or support. The Nigerian government in the past has initiated policies and programmes aimed at boosting foreign capital inflows and harness its proper contribution to the overall economy.

In spite of every efforts made by the government to attract foreign capital inflows, these inflows have not played its expected role in economic transformation in particular and economic growth and development of the nation in general. Also, there are numerous empirical studies with conflicting claims concerning the effect of capital flight on the economy of a country, while some researchers argue that capital flight has a negative impact on the economy (Ajayi, 2012; Olugbenga & Alamu, 2013; Lawal, et al, 2017; Uddin, Yousuf & Islam, 2017) , others had maintained an opposite view arguing that capital flight do not impact negatively on an economy ( Adaramola & Obalade, 2013; Adedayo & Ayodele, 2016; Gunter, 2017), thus the researchers here seem to be caught in the web of confusion concerning which group to agree with. It is against this backdrop that this study conducted to find out the macroeconomic effects of capital flight on the human development index in Nigerian.

## **1.3 Aim and Objectives of the Study**

The overall aim of this research was to critically examine the impact of capital flight on Unemployment in Nigerian. The specific objectives included to;

1. Examine the effect of foreign direct investment outflow on human development index in Nigerian.
2. Evaluate the effect of external reserves on human development index in Nigerian.
3. Assess the effect of external debt servicing on human development index in Nigerian.  
and

4. Investigate the effect of capital and financial account deficits on human development index in Nigeria.

## 2. Synopsis of Theoretical, Conceptual and Empirical Literature

### 2.1 Theoretical Framework

This study was anchored specifically on two relevant theories, these include;

#### (i) The Investment Diversion Theory

This theory proposed by Cuddington (1986), postulates that due to the macroeconomic and political uncertainty in developing country and the simultaneous existence of better investment opportunities in advanced countries like high foreign interest rate, wide array of financial instruments, political and economic stability, favourable tax climate and secrecy of accounts. Some, unscrupulous, corrupt leaders and bureaucrats usually siphon scarce capital resources from their countries to advanced countries. These funds are therefore, not available for investment at home leading to decline in aggregate investment, low economic growth, hence declining the employment, increase in dependency ratio and high death rate. These negative macroeconomic effects on these countries sometimes motivate the necessity to borrow from abroad to reactivate the domestic economy, which is sometimes further siphon thereby perpetrating external dependency and indebtedness. The liquidity constraint or crowding – out effect may result to depreciation of the domestic currency if the authorities are operating a floating exchange rate system (Ajayi, 1992). An attempt to defend the exchange rate at this time leads to loss of international reserves. The investment diversion thesis provides one of the well-known negative consequences of capital flight in the countries involved.

#### (ii) The Debt Driven Capital Flight Thesis

This is the continuation of the investment diversion thesis, proposed by Boyce (1992). This thesis postulates that given the heavy external debt of a country, residents of these countries are motivated to move their resources outside the country to foreign countries. Borrowed money is sold to domestic economic agents who transfer these funds partly or completely abroad. According to this thesis, external debt is one of the propellants or fuel to capital flight. The debt-driven thesis also called debt overhang thesis states that capital flight reduces the incentive to save and invest. The assumption here is that with large foreign debt, there are the expectations of exchange rate devaluation, fiscal crisis, and the propensity of the crowding out of domestic capital and expropriation of assets to pay for the debt. The debt driven thesis and the investment driven thesis taken together suggest interdependency between capital flight, growth and external debt with the linkages being mutually reinforcing. Capital flight leads to poor growth, which calls for the necessity to borrow in order to promote growth. Further borrowing or indebtedness promotes capital flight, which in turns leads to poor economic growth, and the cycle continues.

### 2.2 Conceptual Framework

### **2.2.1 Concept of Capital Flight**

Capital flight is related to the existence of high uncertainty and risk with respect to returns on domestically held assets. Therefore, residents choose to invest their money outside in order to avoid extremely high-expected losses on their asset holdings. It is sometimes argued that capital outflows based on this consideration should be viewed as abnormal, and should therefore be distinguished from normal capital outflows, since normal outflows are based on considerations of portfolio diversification of residents, and/or activities of domestic commercial banks aiming at acquiring or extending foreign deposit holdings (Adaramola & Obalade, 2013).

Consequently, the following three main methods of measuring capital flight can be distinguished in the literature. First, several studies have measured capital flight indirectly from balance of payments statistics by comparing the sources of capital inflows (Net increases in external debt and the net inflow of foreign investment) with the use of these inflows (the current account deficit and additions to foreign reserves). If the sources exceed the uses of capital inflows, the difference is termed as capital flight. This is the so-called residual method. It has been the most widely used measure in the available literature.

Also, some authors measure capital flight by adding up net errors and omissions and non-bank private short-term capital outflows (Francis & Chukwuemeka, 2014). This measure reflects the idea that capital flight goes unrecorded, due to the illegal nature of these capital movements. It is argued that the unrecorded capital movements appear in the net errors and omissions. Moreover, by concentrating on short-term flows, medium and long-term outflows are excluded, which according to the author are more normal in character (Onwioduokit, 2007).

Similarly, the capital flight measure proposed by Dooley (1986) also aims at measuring abnormal or illegal capital outflows. Dooley defines capital flight as all capital outflows based on the desire to place assets beyond the control of domestic authorities, excluding normal outflows. Consequently, this measure includes all capital outflows that do not receive and/or register interest payments. However, Sheets (2005) shows that the calculation of capital flight as proposed by Dooley (1986) is partly based on the residual approach, although he uses a different concept of capital flight. Therefore, the Dooley method gives rather identical magnitudes of capital flight as compared to those for the residual method.

### **2.2.2 Dimensions of Capital Flight**

#### **(i) Foreign Direct Investment Outflow**

The International Monetary Fund's Balance of Payments Manual (2010) defines Foreign Direct Investments as "an investment that is made to acquire a leading interest in an enterprise operating in an economy other than that of the investor, the investor's purpose being to have effective voice in the management of the enterprise". Foreign Direct Investments (FDI) as its name suggest refers to an overseas investment made by an entity based in one country. Foreign Direct Investments can be set up through a number of ways,

such as through a subsidiary, joint venture, merger, acquisition, or through a foreign associate partnership (Ayanwale, 2007).

Foreign direct investments represent a phenomenon resulting from globalization, which involves the integration of the domestic economic system with global markets. It is accomplished through opening up of the local economic sector as well as domestic capital for foreign investors to establish business, within the economy. Foreign direct investments should not be confused with indirect investments such as when a foreign entity invests funds in another country's stock market. When a direct investment is made by an entity based in one country into another entity that is based in another country, it helps to enhance globalization and cut trade barriers (Feridun & Sissoko, 2011).

A foreign entity that engages in foreign direct investments will have a substantial amount of control over the company or operations into which the investment is made. The lasting interest in a direct investment enterprise typically involves the establishment of manufacturing facilities, bank premises, warehouses, and other permanent or long-term organizations abroad. This may involve the creation of a new establishment or investment (Greenfield investments), joint ventures, or the acquisition of an existing enterprise abroad (cross-border mergers and acquisitions).

Once foreign direct investments is established, increases in FDI can take the form of injections of additional equity capital, the reinvestment of earnings not distributed as dividends by subsidiaries or associated enterprises and undistributed branch profits, and various intercompany claims, such as the extension of suppliers' credits or loans, all of which represent foreign direct investment capital. These transactions cover only one aspect of financing available to direct investment enterprises that can also expand their operations by borrowing in local markets and in international capital markets (with or without the guarantee of direct investors).

## **(ii) External Reserves**

External reserve can also be called foreign reserve or international reserve and it is defined according to IMF as consisting of official public sector foreign assets that are readily available to, and controlled by the monetary authorities, for direct financing of payment imbalances, and directly regulating the magnitude of such imbalances, through intervention in the exchange markets to affect the currency exchange rate and/or for other purpose (IMF, 2007). The components of foreign reserves include monetary gold, reserve position at the International Monetary Fund (IMF), holding of special drawing right (SDRs) and foreign exchange which are convertible currencies of other countries (CBN, 2017). The major currencies that Nigeria holds as reserves are US dollar, pound sterling, Euro and yen. Prior to 1959 when Central Bank of Nigeria(CBN)was established the Nigeria external reserve was been manage by West Africa Currency Board.

The recent trend of accumulation of external reserve was as a result of the Asian financial crises of the 1990's. This marked the beginning of the era of financial globalization(Krušković & Maričić, 2015).The crises instigated the Asian countries to

increase their external reserves as a result of precautionary demand, reflecting the desire for self-insurance against sudden restrictions in their ability to borrow funds from other countries (Allen & Hong, 2011). Mendoza (2004), stated two motives of holding reserves as transactionary and precautionary while Aizenman and Lee (2007) added the third which is mercantilist motive.

External reserves accumulation has much benefit among which are: Enhances foreign debt service and international trade activities, serves as self-insurance against external shocks, serves as a tool for maintaining low exchange rates, promotes trade and international competitiveness, shows the creditworthy in the eyes of other countries, creditors and donors payments, supports monetary policy operations, enhances transaction needs, fosters confidence in the government policy framework and its capacity to meet external obligations (Elhiraika & Ndikumana, 2007; Kashif, Sridharan & Thiyagarajan, 2017; Aizenman & Lee, 2005; World Bank, 2019; Drummond, Mrema, Roudet, & Saito, 2009; Nugee, 2000; Soludo, 2005).

### **(iii) External Debt Servicing**

External debt is simply what is owed by the government. The external debt levels of Sub-Saharan African countries have been on the rise in the past two decades, generating concerns among analysts and policy-makers about a looming debt distress threatening the region. Despite recent tightening of concessionary terms associated with bilateral and multilateral loans, Sub-Saharan Africa countries to which Nigeria belongs still continue to rely heavily on external borrowing for fiscal sustainability in order to accelerate economic growth. The impacts of the global economic downturn in the 1980s on developing economies, including the debt crisis, were such that the 1980s is often referred to as the “lost decade” for Africa (Iyoha, 1999). Even though many countries in the developing regions have managed to restore growth fortunes after the global economic distress of the 1980s, stagnation persisted in Sub-Saharan Africa into the first half of the 1990s as the burden of external debt lingered. Thus, the regional growth rate averaged 0.8 per cent per annum between 1990 and 1995, with many countries in the region experiencing negative growth. Growth improved in the years that followed, and stood at 3.4 per cent in 2000, rising further to 5.3 per cent by the end of 2010 (World Bank, 2015). UNCTAD (1998) attributes the protracted low growth of the region to the negative impact of external and internal developments, external debt burden, and structural and institutional setbacks and policy slippages.

The causality between external debt and capital flight has many facets, though all the possible relationships results in capital flight. Ajayi (1995) and Boyce (1992) distinguish four possible linkages between the two: debt-driven capital flight, debt-fuelled capital flight, flight-driven external borrowing and flight fuelled external borrowing. Beja (2006) analysed the relationship between the two using what he termed ‘revolving door model’. Beja’s model posits direct and indirect linkages between external debt and capital flight. One of the linkages posits a direct causal effect, whereby external debt provides the fuel and/or motivation for capital flight, and vice versa. Thus, external borrowings are transformed sometimes instantaneously from capital inflow to capital flight, ultimately ending up abroad,

usually in a private foreign account. Consequently, external debts are serviced annually, and when these interests are much, it deprives economy investable resources for meaningful development.

#### **(iv) Capital and Financial Account**

The Capital Account registers the acquisitions or disposal of non-financial and non-produced assets (Yalta & Yalta, 2012). This includes the exploitation of natural resources, such as mineral, forest, or airspace. Notice that to be registered on the capital account, there should be a change in the ownership of the right to exploit. If the use is temporary, the registration is made on the secondary income account of the current account. Also registered on the capital account are marketing assets transactions, such as brand names, trademarks, and contracts that give exclusive rights over future goods and services, such as the amount paid by a foreign soccer club for a player.

The recent financial account transactions are very interesting from an economic viewpoint. In general, one can see that globalization is evident in the sharp increases in the overall size of the transactions. In most years the US direct investment abroad has exceeded the direct investment by foreigners in the United States. Note also that even throughout the banking crisis, the direct investment continued. Early observations suggest that most countries have shown a clear preference for maintaining their capital accounts open during the crisis. Only a small number of countries have resorted to policies to restrict cross-border movements of capital despite the turmoil in global financial markets (Kunieda, Okada & Shibata, 2014).

#### **2.2.3 Human Development Index (HDI)**

HDI is a composite indicator that measures the extent to which a country has developed in three broad areas including per capita income, health (life expectancy) and education. It is also used to mirror the degree of poverty in a nation. The scale of measurement ranges from 0 (no development) to 1 (complete development) and is based on three equally weighted components – Longevity (life expectancy at birth), knowledge (adult literacy and the number of years enrolled in school) and Standard of Living (measured by real GDP per capita at purchasing power parity).

The wealth of a state is made up of people. The primary goal of development is the creation of such an environment that will enable people for a long, healthy, and creative life (UNDP, 1990). Human development is the extending process of people's choices. One can say this is a process of increasing the significance of human values. Naturally, it is a complex phenomenon that has been seen in different aspects (demographic, cultural, political–legal, and socio-economic). Based on this phenomenon, some estimates are made of its impact on the economic and national development of the country. The national event is in correlation with human potential. The complexity of this relationship best illustrates the view that there is no simple answer to the simple question of whether nations are rich because they are better educated or better educated because they are rich (Bakare, 2011).

The human development paradigm emphasizes two simultaneous processes: The building of human abilities and how people use them to function in society and make choices between options that they have in all aspects of their lives (UNDP, 2018). The phenomenon of human development, which takes into account the close links between economic, social, cultural, spatial, educational, and healthcare, encompasses a safe economy, adequate nutrition, environmental protection, personal safety, community security, and broader political security. Current and future generations must be aware of their responsibilities when it comes to development. Personal and social security should be sought if it enables a decent life, in an economy where profit is distributed equally to all and not only to a few and the environment whose fruits and pleasure can be used without fear. This concept provides a long and healthy life people.

Since 1990, the United Nations Development Program (UNDP) has been implementing a human development program by applying an approach that is not confined to national income alone but is focused on people and their ability to achieve the full potential to lead a healthy, productive and creative life. The first human development report published in 1990, “People are the real wealth of nations,” began a new approach to thinking about development (Ferjan, 2014). To date, 26 Human Development Reports (HDRs) have been published, which are the result of the calculation of the Human Development Index (HDI) for each country, based on which the ranking of countries in the world is carried out. The HDI is a widely cited statistic that is commonly used as a measure of well-being in different countries (Engineer, King & Roy, 2008)

The first HDR correctly recognized that ‘development is much more than just the expansion of income and wealth’ and defined human development as ‘the process of enlarging people’s choices’ (UNDP, 1990). This report also stressed that, ‘in principle, the choices available to people can be infinite and change over time. But at all levels of development, the three essential ones are for people to lead a long and healthy life, to acquire knowledge and have access to resources for a decent standard of living’ (UNDP, 1990). This report made its most distinctive contribution to the larger development discourse by highlighting these dimensions as being basic to human development and in asserting that all three are ‘essential.’ Based on this framework, the report then constructed the HDI of a country as a measure of its human development along these three dimensions.

For each dimension, it selected a suitable indicator to represent and capture the essence of the dimension with the attempt to “balance the virtues of broad scope with those of retaining sensitivity to critical aspects of human development” (UNDP, 1990). In the latest versions of the HDRs, adult literacy and combined enrolment ratios have been selected as indicators for the knowledge dimension, life expectancy at birth as the indicator for a healthy life and an adjusted GDP as the indicator for the standard of living. For each dimension, the value of the index is computed on a scale of 0 – 1 where 0 corresponds to the minimum, and 1 to the maximum assigned value for the corresponding indicator. The overall HDI is then determined as the arithmetic average of the three indices.

The ranges are graded as follows according to the United Nations Development Report (2012):

- (i) An Index of 0 – 0.49 means low development
- (ii) An Index of 0.5 – 0.69 means medium development
- (iii) An Index of 0.7 – 0.79 means high development
- (iv) An Index above 0.8 means very high development

### **2.3 Empirical Review**

Ajayi (2012), conducted a comprehensive study of capital flight and Nigerian economic growth over the period 1970 and 2009. He analysed the relationship between gross domestic product, external debt, foreign direct investment, external reserves and current account balance. The study revealed that capital flight and its assessments are significant factors for explaining economic trends in Nigeria. Also capital flight has negative impact on the economy. He recommended that funds from foreign sources in form of loans, gifts, grants and aids should be judiciously used for economic development of Nigeria.

Adaramola and Obalade (2013), conducted a research on the impact of capital flight on the Nigerian economy over the period of 30 years (1981- 2010). Secondary data were predominantly used in this study. The residual approach was employed in the computation of capital flight. Gross Domestic Product (GDP), foreign direct investment (FDI) and Current account balance were obtained while the change in external debt (DEXTD), FDI and capital flight (Kf) were computed from the Central Bank of Nigeria Statistical bulletin. The dynamic relationship between capital flight and economic growth was investigated using the Johansen co-integration test the data been time series and the avoidance of spurious regression result. From the result of the Ordinary Least Square estimation used, they found out that change in external debt (DEXTD), Current account balance (CAB) and foreign direct investment (FDI) are positively related to Gross Domestic Product (GDP). However, in contrast to other research on capital flight, their findings showed that capital flight is not statistically significant in the short run as far the GDP of Nigeria is concerned.

Ayodele (2014), examined the impact of capital flight on the Nigerian economy over the period 1991 and 2010. The simple linear regression model was used to analyse the data. It was discovered from the analysis that there exists a very high positive correlation between GDP in Nigeria and capital flight from the country. It was also found that capital flight has a significant impact on the GDP in Nigeria.

Olawale (2015), investigated capital flight and the short and long run analysis of the Nigerian economy over the period 1981 and 2010 using the Engel granger two steps procedure for estimation. The study found that the explanatory variables: defence expenditure, interest differentials and investment are individually affecting the capital flight. It was confirmed by the study that not only would the country loose substantial amounts of funds that could be otherwise used for development and further stabilization, capital flight also hinders long term

economic growth. The study revealed that defence expenditure affects capital flight both in the long and short run.

Adebayo and Ayodele (2016), conducted an empirical analysis of the impact of capital flight on Nigeria economy using secondary data covering the period 1980 to 2014. The Ordinary Least Square (OLS), Augmented Dickey-Fuller unit root test and Co-integration tests were adopted to carry out an extensive analysis of the adopted variables which include Gross Domestic Product, capital flight and exchange rate. The result revealed that the variables have a significant effect in the positive direction. The implication is that as capital flight inflow increases into the economy, it in turn increases the exchange rate causing a positive influence on the Nigerian economy.

Liew, Mansor and Pua (2016), carried out an empirical investigation on the macroeconomic causes of capital flight in the Malaysian economy between the period 1980-2010. Using the autoregressive distributed lag (ARDL) model, the study found that political risk and financial crisis positively and significantly influence capital flight in the long-run.

Anaya, Hachula and Offermanns (2017), used a structural global VAR model to analyse the impact of US unconventional monetary policy shock as defined by changes in the central balance sheet. It was on the financial and economic conditions of emerging market economies. It also investigated whether or not international capital flight flows were an important channel of shock transmission. They observed that an expansionary policy significantly increased portfolio flows from the US to emerging economies for the periods studied. This was accompanied by a persistence movement in real and financial variables in the receiving emerging economies.

Bredino, Fiderikuma and Adesuji (2018), studied the impact of capital flight on economic growth in Nigeria using an econometric approach over the period 1980 to 2012 using the Ordinary Least Square (OLS) and co-integration/error correction methods of analysis. The research findings showed that capital flight have adverse impact on the cross domestic product, while exchange rate impacts positively on GDP in Nigeria

Salandy and Henry (2018), examined the determinants of capital flight from Trinidad and Tobago between 1971 and 2011. Using the OLS and the Generalized Method of Moments (GMM) techniques of estimation, the study noted that the major causes of capital flight include the lagged external debt, lagged capital flight, external debt, GDP growth, interest rate differential, and excess liquidity.

Anetor (2019), carried out a study on macroeconomic determinants of capital flight; evidence from the sub-Saharan African countries between the periods 1981-2015; the data for the study were obtained from the World Bank development indicators (WDI), and the autoregressive distributed lag (ARDL) model techniques was used to determine the macroeconomic factors influencing capital flight from the sub-Saharan African region. The results of the study showed that economic growth had a significant negative relationship with capital flight in both the long run and short run.

Makwe and Oboro (2019), examined capital flight and economic growth in Nigeria between 1990 and 2017, using ordinary least square analysis, augmented dickey fuller test, granger causality test and co-integration test. The study revealed that net foreign investment abroad, external debt servicing and external reserves being proxies for capital flight; all have an impact on economic growth proxied by gross domestic product.

## 2.4 Research Hypotheses

The following hypotheses guided the researchers in this study:

H<sub>01</sub>: There is no significant relationship between foreign direct investment outflow and human development index in Nigerian.

H<sub>02</sub>: There is no significant relationship between external reserves and human development index in Nigerian.

H<sub>03</sub>: There is no significant relationship between external debt servicing and human development index in Nigerian.

H<sub>04</sub>: There is no significant relationship between capital and financial account deficits and human development index in Nigerian.

## 3.0 Methodology

The study adopted the *ex-post facto* design. This is adopted because the data for this study was based on the use of **secondary time series data**. This design was also adopted because the study aimed at exploring the effect of the proxies for capital flight on human development index. Nwankwo (2013) has it that the ex-post factor analysis allows for the evaluation of the effect of independent variable(s) on a dependent variable. The major source of data used in this study was the secondary source. Thus, the data for this study was obtained from various issues of the Central Bank of Nigeria Statistical Bulletin and the National Bureau of Statistics Summary of Abstract (1990 to 2020). These data covered information on Foreign Direct Investments outflow, External Debt servicing, external reserves and capital and financial **account deficits serving as the dimensions of Capital Flight, and human development index.**

### 3.1 Models Specifications

The analysis was based on multiple linear regression models. Therefore, the model used for the purpose of this study is stated below:

#### 3.1.1 Human Development Index Model

Liew, Mansor and Puah (2016) made an attempt to find out the nexus between capital outflows and HDI. They specified their model as  $HDI = f(FDI, EXD, INF, ERR)$ . Adopting this and disaggregating Capital Flight into FIA, EXR and EXD we have as our Human Development Index Model:

$$HDI = f(FIA, EXR, EXD, CFA) \text{-----} (3.7)$$

Stating the exact or mathematical form of (7) above we had:

$$HDI = \delta_0 + \delta_1(FIA)_t + \delta_2(EXR)_t + \delta_3(EXD)_t + \delta_4(CFA)_t \text{-----} (3.8)$$

Economic relationships are inexact therefore stating (8) above in econometric form we had:

$$HDI = \delta_0 + \delta_1(FIA)_t + \delta_2(EXR)_t + \delta_3(EXD)_t + \delta_4(CFA)_t + U \text{-----}(3.9)$$

### ***Apriori Expectation***

Capital flight will have a negative effect on an economy as a result of loss of potential investable capital resources which are legally or illegally moved out of the economy. Capital flight will decrease the productive capacity of a country; this will in turn reduce individual capacity utilization and thus reduce the ability of citizens to attain standard levels of development. The justification of the use of human development index is premised on the fact that there are some variables in the human development index model that are not captured in any other model in this study.

The relationship between foreign direct investment abroad and human development index is expected to be negative *apriori*, this assertion is anchored on the welfare and economic growth literature which argues that the inflow of foreign direct investment will contribute to skills development and technological improvements of a country. Consequently, in Nigeria, foreign direct investment outflow will have a counterproductive effect on human development index. Thus, we expect;

$$\frac{HDI}{FIA} < 0$$

The *apriori* expectation of the relationship between external reserve and human development index is expected to be negative, that is the higher the depletion of external reserve, the lower the human development index. This is premised on the Austerity theory or Thesis which stipulates that the government is compelled to pay for debt obligations to international banks which depletes the stock of external reserves of the country causing a decline in adequate resources for human development. In this case we have;

$$\frac{HDI}{EXR} < 0$$

The relationship between **external debt servicing** and human development index is expected to be inverse *apriori*, that is, the high the debt servicing of Nigeria, the lower the human development index. This stand is anchored on the debt driven thesis which emphasizes that debt and its subsequent servicing is one of the propellants of capital flight, it states that debt servicing and repayment reduces the incentive to save and invest and thus can hinder effective development of human capital. Thus we expect;

$$\frac{HDI}{EXD} < 0$$

The relationship between capital and financial account deficit and human development index is expected to be negative *apriori*, this means that the higher the deficit in the capital and financial account of Nigeria, the lower the human development index indicators. This position is premised on the neo-classical theory which advocates that reduction in a country external stock of resources will result in declined capital stock which will starve the economy

of resources for meaningful investment and reduce the human development potentials of that country. Thus, we expect;

$$\frac{\text{HDI}}{\text{CFA}} > 0$$

Thus in the human development index model, we expect an inverse relationship between human development index and capital flight. Therefore,

$$\delta 1 < 0; \delta 2 < 0; \delta 3 < 0; \delta 4 < 0.$$

Where;

FIA	=	Foreign Direct Investment Outflow
EXR	=	External Reserves
EXD	=	External Debt Servicing
CFA	=	Capital and Financial Account Deficits
HDI	=	Human Development Index

### 3.2 Methods of Data Analysis

This study adopted the econometric technique. According to Theil (1971), cited in Gujarati and Sangeetha (2007), econometrics is concerned with the empirical determination of economic laws. It is a combination of economic theory, mathematical economics and statistics, but is completely distinguished from each of these three branches of science (Koutsoyianis, 1977).

For the purpose of our analysis here, the Autoregressive Distributive Lag (ARDL)/bond test approach developed by Pesaran, Yongcheol & Richard,(2001) was adopted as our data sets consisted of variables integrating both at level (0) and at first difference (order I).

The Autoregressive Distributive Lag (ARDL)/bonds test approach was used to establish a long run relationship between the variables in the model. This approach was adopted at this instance because it is suitable for use with a mixture of variables integrated at level I (0), variables integrated at first difference I (1) or variables that are fractionally integrated (see Pesaran, Yongcheol & Richard, 2001).

However, for the avoidance of having any variables integrated at order 2, we made use the Augmented Dickey Fuller (ADF) test to formally explore the stochastic properties of each individual series. Another reason for the suitability of the ARDL approach is because it involves a single equation setup, making it simple to implement and interpret. Also, different variables can be assigned different lag lengths as they enter the model. And finally, because of its extra robustness and better performance for small sample size such as this study period (see Peseran & Shin, 1997).

The bonds test is based on the f-test which has a non-standard distribution and with two sets of critical bounds provided by Pesaran, Yongcheol & Richard,(2001). The lower critical bound assumes that all the variables are integrated at level I (0), while the upper bound assumes all the variables to be integrated at first difference I (1).

#### 4.0 Results and Analysis

In this section, pre-estimation, estimation and post estimation tests were carried out and presented in an orderly manner to address the objective of this study, where necessary, tables and figures were used to buttress the point of the researchers.

**Table 1: Descriptive statistics**

STATISTIC	CFA	EXD	EXR	FIA	HDI
Mean	-325.8476	1.85E+05	2.42E+10	0.371715	0.47004
Median	-201.9711	6.14E+04	2.80E+10	0.252235	0.466
Maximum	1932.2530	1.17E+06	5.36E+10	1.919487	0.55
Minimum	-2496.880	-4.08E+0	1.20E+09	-0.07816	0.328
Std. Dev.	978.2561	3.22E+05	1.88E+10	0.401732	0.057512
Skewness	-0.062590	1.980029	0.109755	2.248782	-0.68169
Kurtosis	4.121626	7.042764	1.347289	8.520115	2.960352
Jarque-Bera	1.645215	41.36692	3.590364	65.48717	2.402986
Probability	0.439285	0.000000	0.166097	0.000000	0.300745
Sum	-10101.28	5.74E+06	7.49E+11	11.52316	14.57125
Sum Sq.Dev.	2.87E+07	3.11E+12	1.06E+22	4.841668	0.099229
Observations	31	31	31	31	31

**Source: Author's Computation using Eviews 10**

From table 1 above, it can be seen that both the human development index variable and capital flights variables have witnessed noticeable disparities over the period under consideration. From the results, Capital and Financial Accounts Deficits (CFA) has mean value of -325.8476, median value of -201.9711, maximum value of 1932.253, minimum value of -2496.880, Standard deviation value of 978.2561, Skewness value of -0.062590, Kurtosis value of 4.121626, Jarque-Bera value of 1.645215 with its associated probability value of about 0.43. The result of the skewness statistic which measures symmetric nature of the data around its mean suggests that the data has a negative tail as its reported statistic is less than zero. The value for kurtosis which measures the flatness of the data suggests that the distribution of the data is relatively leptokurtic as the reported statistic is greater than 3. The Jarque-Bera which measures the normal distribution of the data suggests that the data is normally distributed as the test statistic and its associated probability value of 0.43 is greater than the conventional 5% significance level.

A further look at Table 1 reveal that External Debt servicing (EXD) has a mean value of 185188.6, median value of 61418.27, maximum value of 1165895, minimum value of -408091.5, standard deviation value 321774.4, skewness value of 1.980029, kurtosis value of 7.042764, Jarque-Bera value of 41.36692 and its associated probability value of 0.000000. The skewness statistic which measures the symmetric nature of the distribution of the data suggest that it has a long positive tail while kurtosis statistic that measures the peakedness or flatness of the distribution of the data suggest that it is leptokurtic (peaked) and the Jarque-Bera statistic and its associated probability value suggest the null hypothesis of the variable been normally distributed was rejected.

Again, Table 1 revealed that External Reserves (EXR) has a mean value of 2.42E+10, median value of 2.80E+10, maximum value of 5.36E+10, minimum value of 1.20E+09, standard deviation value of 1.88E+10, skewness value of 0.109755, kurtosis value of 1.347289 and Jarque-Bera value of 3.590364 and its associated probability value of 0.166097. The skewness value indicates that the distribution of the data on the variable has a positive long tail and the kurtosis value suggest that the distribution of the data on the variable is leptokurtic (peaked) while the Jarque-Bera statistic value and its associated probability value suggest that the null hypothesis of the variable been normally distributed could not be rejected.

The descriptive statistics for Foreign Direct Investment Abroad (FIA) on Table 1 shows that the variable has a mean value of 0.371715, median value of 0.252235, maximum value of 1.919487, and minimum value of -0.078157, standard deviation 0.401732, skewness value of 2.248782, kurtosis value of 8.520115 and Jarque-Bera value of 65.48717 and its associated probability value of 0.000000. The skewness statistic suggests that the distribution of the data on the variable is leptokurtic (peaked) and finally, the Jarque-Bera statistic and its associated probability suggest the rejection of the null hypothesis that the distribution of the data on the variable follows the normal distribution was rejected.

Going further, Table 1 also shows the descriptive statistics for Human Development Index (HDI). It has a mean of 0.470040, median of 4.631193, maximum value of 0.550000, minimum value of 0.328000, standard deviation of 0.057512, skewness value of -0.681690, kurtosis value of 2.960352 and Jarque-bera value of 2.402986 and its associated probability value of 0.300745. The Skewness statistic value indicates that the distribution of the data on the variable is negatively skewed while the kurtosis statistic value of 2.960352 indicates that the distribution is platykurtic (flat) and finally, the Jarque-Bera Statistic and its associated probability value indicates accepting the null hypothesis that the distribution of the variable follows the normal distribution.

**Table 2: Unit Root test result at Level and First Difference using Augmented Dickey-Fuller (ADF) Technique**

VARIABLE	LEVEL	FIRST DIFFERENCE	DECISION
CFA	-3.34*	-	I(0)
EXD	-2.74	-5.4*	I(1)
EXR	-1.04	-4.74*	I(1)
FIA	-3.16*	-	I(0)
HDI	-1.44	-3.98*	I(1)

\*Indicates significance at 5%

*Source: Author's Computation using Eviews 10*

The unit root test conducted using the Augmented Dickey-Fuller (ADF) technique gave the result presented in table 2 above. It shows that Current and Financial Account Deficits (CFA), and Foreign Direct Investment Abroad (FIA) were all stationary at level. That is, their test statistic is more negative than 5% significance level. This implies that these variables

have no unit roots at level or they became stable without differencing. Therefore the null hypothesis that there is unit root in CFA and FIA is rejected. However, the result shows that External Debt servicing (EXD), External Reserve (EXR) and Human Development Index (HDI) were all stationary at first difference. This implies that these variables have no unit roots at first difference or they became stable after differencing once. Base on this result, the null hypothesis of unit root is rejected at 5% significance level after differencing the variables once.

**Table 3: Bound test Result for Human Development Index model**

ARDL Bounds Test  
Date: 08/29/21 Time: 04:38  
Sample: 1994 2020  
Included observations: 27  
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	6.538203	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
5%	2.86	4.01

Source: Author's Computation using Eviews 10

Table 3 shows the long run equilibrium relationship between the dependent variable and independent variables in the Human Development Index model. The Autoregressive-Distributed lag (ARDL) bound test for long run dynamics suggest that long run equilibrium exists between the variables given that the F-statistic of 6.538203 is greater than the critical value at 5%. Thus, the null hypothesis that 'No levels relationship exists' among the variables in the Human Development Index model is rejected. The confirmation of long run relationship is a pre-condition for estimating the long run coefficients and error correction model (ECM) for the human development index equation.

**Table 4(a): ARDL long run result for Human Development Index Model. Selected model: ARDL (4,4,4,3,4)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	-1.973849	1.240588	-1.591059	0.2098
HDI(-2)	-0.928490	0.885701	-1.048311	0.3715
HDI(-3)	0.683636	0.568118	1.203335	0.3151
HDI(-4)	-1.039986	0.661312	-1.572610	0.2139
CFA	5.39E-05	2.58E-05	2.093063	0.1274
CFA(-1)	6.23E-05	3.14E-05	1.983293	0.1416
CFA(-2)	7.86E-05	4.42E-05	1.777024	0.1736
CFA(-3)	3.36E-05	2.27E-05	1.477284	0.2361
CFA(-4)	8.10E-06	9.52E-06	0.850470	0.4576

<b>EXD</b>	9.08E-09	1.56E-08	0.580077	0.6026
<b>EXD(-1)</b>	9.66E-09	1.30E-08	0.741249	0.5123
<b>EXD(-2)</b>	4.79E-08	3.36E-08	1.423900	0.2497
<b>EXD(-3)</b>	4.40E-08	3.41E-08	1.291953	0.2869
<b>EXD(-4)</b>	-7.11E-08	3.52E-08	-2.021390	0.1365
<b>EXR</b>	8.09E-12	3.28E-12	2.463905	0.0906
<b>EXR(-1)</b>	2.11E-12	2.00E-12	1.053729	0.3694
<b>EXR(-2)</b>	5.23E-13	1.76E-12	0.297765	0.7853
<b>EXR(-3)</b>	-3.67E-12	2.56E-12	-1.434625	0.2469
<b>FIA</b>	-0.158946	0.085871	-1.850981	0.1613
<b>FIA(-1)</b>	-0.024086	0.025789	-0.933953	0.4192
<b>FIA(-2)</b>	-0.104855	0.073463	-1.427323	0.2488
<b>FIA(-3)</b>	0.031613	0.031719	0.996668	0.3924
<b>FIA(-4)</b>	-0.088728	0.057263	-1.549498	0.2190
<b>C</b>	2.013184	1.050207	1.916940	0.1511

Source: Author's Computation using Eviews 10

**Table 4(b): Long run coefficients with restricted constant and no trend for Human Development Index model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>CFA</b>	0.000056	0.000004	13.821324	0.0008
<b>EXD</b>	0.000000	0.000000	0.932138	0.4200
<b>EXR</b>	0.000000	0.000000	27.786657	0.0001
<b>FIA</b>	-0.081011	0.005923	-13.677257	0.0008
<b>C</b>	0.472724	0.002400	196.958991	0.0000

$$EC = HDI - (0.000056 * CFA + 0.000000 * EXD + 0.000000 * EXR - 0.081011 * FIA + 0.472724)$$

Source: Author's Computation using Eviews 10

Table 4 (a&b) shows the summary of the long run result of Human Development Index model. Capital and Financial Account balance (CFA) is positively related to Human Development Index (HDI). This runs contrary to theoretical expectation. Neoclassical theory advocates that increase in the country's external stock of resources would result to decline in capital stock which would starve the economy of resources for meaningful investment and reduce the human development potentials of that country.

External Debt Servicing (EXD) is positively related to Human Development Index (HDI) as suggested by the coefficients. This negates the theoretical expectation. The Debt Driven thesis emphasized that debt and its subsequent servicing and repayment reduces the incentive to save and invest which can hinder effective development of human capital.

External Reserve (EXR) is positively related to Human Development Index (HDI). This finding runs contrary to theoretical expectation. The Austerity theory stipulates that the payment of debt obligations to international banks depletes the stock of external reserves of the country which tend to reduce resources for human capital development.

Foreign Direct Investment Abroad (FIA) is inversely related to Human Development Index (HDI). This is in consonance with the welfare and economic growth literature. Increased

inflow of foreign direct investment has the potentials of stimulating skills development and technological improvements whereas outflow of foreign direct investment hamper skills development and technological improvement.

**Table 5: ARDL Error Correction (ECM) Result for Human Development Index model with Selected Model: ARDL (4, 4, 4, 3, 4)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HDI(-1))	1.284840	1.039462	1.236062	0.3044
D(HDI(-2))	0.356350	0.306703	1.161872	0.3293
D(HDI(-3))	1.039986	0.661312	1.572610	0.2139
D(CFA)	0.000054	0.000026	2.093063	0.1274
D(CFA(-1))	-0.000079	0.000044	-1.777024	0.1736
D(CFA(-2))	-0.000034	0.000023	-1.477284	0.2361
D(CFA(-3))	-0.000008	0.000010	-0.850470	0.4576
D(EXD)	0.000000	0.000000	0.580077	0.6026
D(EXD(-1))	-0.000000	0.000000	-1.423900	0.2497
D(EXD(-2))	-0.000000	0.000000	-1.291953	0.2869
D(EXD(-3))	0.000000	0.000000	2.021390	0.1365
D(EXR)	0.000000	0.000000	2.463905	0.0906
D(EXR(-1))	-0.000000	0.000000	-0.297765	0.7853
D(EXR(-2))	0.000000	0.000000	1.434625	0.2469
D(FIA)	-0.158946	0.085871	-1.850981	0.1613
D(FIA(-1))	0.104855	0.073463	1.427323	0.2488
D(FIA(-2))	-0.031613	0.031719	-0.996668	0.3924
D(FIA(-3))	0.088728	0.057263	1.549498	0.2190
CointEq(-1)	-0.258688	0.103185	-2.507031	0.0204
R- Square – 0.99 Durbin-Watson – 2.56 AIC – 7.06 SC – 5.91				

**Source: Author's Computation using Eviews 10**

Table 5 above shows the Error Correction Model (ECM) for Human Development Index model. It shows that the contemporaneous effect component of Capital and Financial Account balance (CFA) is positively related to Human Development Index (HDI) whereas, its lag 1, 2 & 3 appeared with negative signs suggesting that the lags of capital and financial account balance is inversely related to Human Development Index. However, the contemporaneous effect component and the respective lags are not significant. This implies that Capital and Financial Account balance has not significantly influenced Human Development Index in the short run.

The contemporaneous effect component of External Debt Servicing (EXD) and its lag 3 appeared with positive sign while its lag 1 and 2 appeared with negative sign. This implies that the contemporaneous effect component of EXD and its lag 3 has positive relationship with Human Development Index (HDI) whereas; its lag 1 & 2 has negative relationship with Human Development Index. However, the contemporaneous effect component and the respective lags are not significant. This implies that external debt servicing has not significantly influenced Human Development Index in the short run.

A further look at table 5 shows that the contemporaneous effect component of External Reserve (EXR) and its lag 2 coefficients has positive signs whereas, it lag 1 has a negative sign. This suggests that the contemporaneous effect coefficient and lag 2 coefficient are positively related to Human Development Index while the lag 1 coefficient is negatively related to human development index. However, the contemporaneous effect component and the respective lags are not significant. This implies that external reserve has not significantly influenced Human Development Index in the short run.

The first difference coefficient for Foreign Direct Investment Abroad (FIA) and its lag 2 appeared with a negative sign while lag 1 & 3 appeared with positive sign. This is an indication that the contemporaneous component of foreign direct investment abroad and its lag 2 are inversely related to human development index while lag 1 & 3 are positively related to human development index. However, all coefficients of foreign direct investment abroad are not significant.

The Error Correction Mechanism (ECM) appeared with a negative sign; it is less than one in absolute term and is significant. This is theoretically plausible as it is expected to be negative, less than one and significant. The error correction term corroborates the result of the bound test that the variables in the human development index model have cointegrating relationship. Specifically, the error correction mechanism shows that disturbances to the long run path of the human development index model are reconciled annually at a speed of 25%.

**Table 6: Model Diagnostic test for Human Development Index model**

<b>Diagnostic test</b>	<b>F-statistic</b>	<b>Probability</b>
Jarque-Bera test for normality	1.324	0.167
Breusch-Godfrey serial correlation LM test	80.950	0.071
Breusch -Pagan Godfrey Heteroskedasticity test	0.494	0.861
Ramsey RESET test for specification error	0.044	0.852

**Source:** *Author's Computation using Eviews 10*

The results of the diagnostics tests on the residual as reported in table 6 reveal that Jarque-Bera test for normality shows that the error term is normally distributed around the mean as the null hypothesis of normal distribution is accepted. The Breusch-Godfrey serial correlation LM test statistic of 80.950 and its associated probability of 0.071 suggest the absence of autocorrelation. Furthermore, the Breusch-Pagan Godfrey test for heteroscedasticity of 0.494 and its associated probability of 0.861 revealed that heteroscedasticity is absent in the model as we accept the null hypothesis of homoscedasticity. The Ramsey RESET test indicated that no variable is missing in the model as the null hypothesis is also accepted. The adherence of the model to the basic assumptions of ordinary least squares estimation affirms that the model is good for prediction and forecast hence the best linear estimator (the BLUE).

## 5.0 Conclusion and Recommendations

### 5.1 Conclusion

The result of this analysis revealed that capital and financial account deficit is positively and significantly related to human development index in the long run while it is negatively related to human development index in the short run. Thus, capital and financial account deficit has improved human development index in the long run. The result also showed that external debt servicing is positively and insignificantly related to human development index in Nigeria. This negates the Debt Driven thesis that emphasized that debt and subsequent servicing and repayment reduces the incentive to save and invest. It was also found out that, external reserve is positively and significantly related to human development index in both short and long run period. Thus, external reserve has stimulated the development of human capital in Nigeria. This study also revealed that foreign direct investment outflow is inversely related to human development index. Thus, increased inflow of foreign direct investment has the potentials of stimulating skills development and technological improvements whereas, outflow of foreign direct investment hamper skills development and technological improvement in Nigeria.

From the analysis, capital and financial account deficit, external debt servicing and external reserve are positively related to human development index while foreign direct investment outflow is negatively related to human development index. Capital and financial account deficit, external reserve and foreign direct investment outflow are significant while external debt servicing is not significant. The general implication here is that, in the long run capital flight will have a negative effect on the human development capacity of Nigeria.

### 5.2 Recommendations

Based on the results and findings in this study, the following recommendations are proffered:

- i. External debt acquired should be judiciously used for infrastructural development that would encourage investment that would ultimately bring about economic growth as well as enhance human development in Nigeria.
- ii. There should be concerted efforts by government through positive macroeconomic policies geared towards encouraging the inflow of capital as well as financial resources into the Nigerian economy which would reduce the deficit experienced in the capital and financial account as well as spur economic growth.
- iii. There should be incentive for investors to keep their resources in Nigeria. This incentive can be in form of providing investment friendly environment for businesses to thrive. Provision of social overheads as well as formulating and implementing consistent policies that would serve as the needed incentive.

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