Causal Analysis of Foreign Aid and Capital Flight in Nigeria

[1]Terwuah Simeon Asom, [2]David Terfa Akighir & [3]Godwin Akor Nyinya
[1,2,3]Department of Economics, Benue State University, Makurdi-Nigeria

Abstract
Nigeria as a country is faced with a paradoxical situation of increasing level of foreign aid inflows and corresponding high level of capital flight. The study assessed the transmission efficiency of foreign aid and capital flight through the public expenditure route in Nigeria. The study adopted ex-post facto design using data collected from secondary sources from 1986 to 2021. Descriptive statistics were used to describe the properties of the data set, followed by testing for the stationarity properties of the time series data used. The Structural Vector Autoregressive (SVAR) model was used to account for the transmission efficiency of the model. The findings of the study revealed that foreign aid efficiently responded to capital flight through the public expenditure route in Nigeria, which implies that public expenditure is an efficient route for the transmission of foreign aid to capital flight in Nigeria. The study therefore recommended that foreign aid should be encouraged as a model for the promotion of public expenditures in Nigeria. However, funds meant for capital expenditure should be transparently allocated and the handlers subjected to integrity test to ensure an effective strategy for the promotion of public expenditure from capital flight. Also, the Federal ministry of finance, Ministry of Economic planning and the Central Bank of Nigeria should discount the causal effect of foreign aid on capital flight and the causality between capital flight and foreign aid in Nigeria from their estimation of economic behaviour for effective economic policy.

Keywords: Capital flight, Foreign aid, Public expenditure
JEL Classification: F35, F24, H50, E62, O55

1. Introduction

The inflow of foreign aid to developing economies has become a trend, especially among Highly Indebted Poor Countries (HIPC) of Africa, Asia and Latin America. The United Nations Development Programme (UNDP) reported that between 2000 and 2016, the official development assistance (ODA) provided by OECD nations to Sub-Saharan Africa more than quadrupled in absolute terms, from USD 14.5 billion to USD 29.5 billion (UNDP, 2018). For Nigeria, statistical evidence has shown an increase in ODA from $3.3 billion in 2018 to $3.28 billion and $3.38 billion in 2019 and 2020, respectively. This placed Nigeria in fifth overall and slightly below Ethiopia in Africa, ahead of other recipients of development aid like Kenya, Egypt and Democratic Republic of the Congo (World Bank, 2020; The Global Economy, 2020). It is expected that, foreign aid provided to Nigeria would be used to bridge infrastructural deficits, solve foreign exchange problems and bridge saving-investment gaps in the country. However, rather than resolve these developmental gaps, they have instead, continued to widen unabated amidst rising trend of capital flight from Nigeria. This scenario constitutes a paradox, particularly for a needy, assisted country to rank among capital flight originating economies.

According to Akighir (2017), Nigeria is placed 7th out of the 20 funds exporters worldwide, with a total of $129billion between 2001 and 2010 (Aribisala, 2013). Boyce and Ndikumana (2012), corroborated this by estimating capital flight in 33 African countries and rated Nigeria first among the top ten countries in capital flight from 1970-2010. Also, according to estimates from Conference on Trade and Development of the United Nations (2018), about $88.6billion per year leave the African continent through capital flight with Nigeria accounting for an estimated 46 per cent of the total capital flight or $40.7billoin per year, leaving the African continent through capital outflows.

This raises the worrying possibility of rising foreign aid and rising levels of illicit outflow of capital in the nation. The concurrent flow of capital flight and foreign aid (especially ODA) in an incompatible path has raised the empirical question of whether foreign capital inflows contribute to capital outflows by making available foreign currency, which gives liquidity to support capital flight in Nigeria, and contrariwise. Available explanations have not sufficiently demystified the reasons behind the paradox. It has therefore, become pertinent to find out whether the continuous inflow of foreign aid to Nigeria has nexus with the rising trend of capital flight, or the high level of capital flight could act as a stimulant for more foreign aid inflow to the country.

2. Review of Related Literature

Conceptual Review

Key concepts elucidated in this section are foreign aid and capital flight. The term 'foreign aid' has been conceptualized by William (2021) as international transfer of capital, goods, or services from a country or international organization for the benefit of the recipient country or its population. The commonest type of foreign aid is official development assistance (ODA), defined by William (2021) as the assistance given to promote development and to combat poverty. The primary source of ODA which for some countries represents only a small portion of their assistance is bilateral grants from one country to another, though some of the aid is in the form of loans, and sometimes the aid is channeled through international organizations and nongovernmental organizations (NGOs). For example, the International Monetary Fund (IMF), the World Bank, and the United Nations Children's Fund (UNICEF) have provided significant amounts of aid to countries and to NGOs involved in assistance activities.

Williams (2021) stated that foreign aid may be used to achieve a country's diplomatic goals, enabling it to gain diplomatic recognition, to garner support for its positions in international organizations, or to increase its diplomats' access to foreign officials. The author outlined other purposes of foreign aid as promoting a country's exports and spreading its language, culture, or religion.

Capital flight is defined by Ndikumana and Boyce (2002) as residents' capital outflows, excluding recorded investment abroad. To Cooper and Hardt (2000), capital flight is the flow of financial assets resulting from the holder's perception that capital is subjected to inordinate level of risk due to devaluation, hyperinflation, political turmoil or expropriation of retained earnings at home in domestic currencies. This implies that the owner of funds in the hostile environment is seeking a safe haven for the fund. Walter (1987) defined capital flight as 'capital which flees' involving international asset redeployments or portfolio adjustments due to significant perceived deterioration in risk-return profiles associated with assets located in a particular country. Although the legality or illegality of the activity might be debatable, the

key issue is that there is a conflict between the objectives of asset holders and society (Hermes & Lensink, 2001).

Capital flight can be either legal or illegal. Legal capital flight usually takes the form of repatriation of invested capital by foreign investors. In this case, the capital outflows must be properly reported according to existing accounting standards and comply with the country's laws. Conversely, illegal capital flight generally appears in the form of illicit financial flows (IFFS). Essentially, illicit financial flows disappear from records within a country and do not return to the country. Note that illegal capital outflows are mostly associated with countries that impose strict capital control policies (Corporate Finance Institute, 2021).

The conceptual framework depicting channels of transmission is presented in Figure 1:

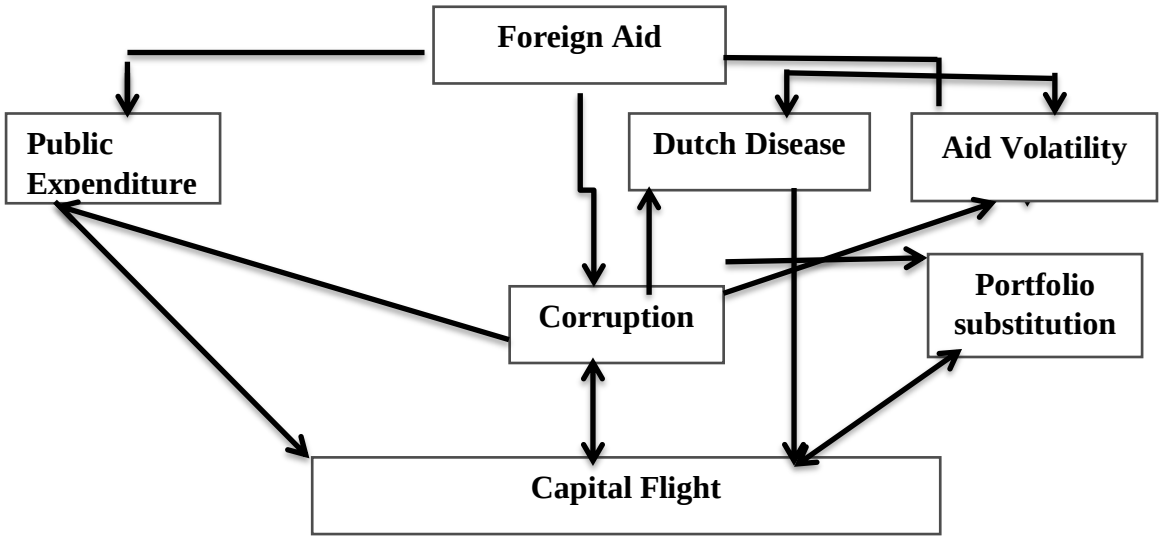


Figure 1 Schematic Model showing the channels of transmission from foreign aid to capital flight
Source: *Author's Construction*

Figure 1 shows that foreign aid is transmitted to capital flight through public expenditure, Dutch disease, volatility and corruption routes. However, corruption plays a key feed-back role in the transmission process as it oils the transmission mechanism across all the other channels of transmission. This is true for a country like Nigeria where corruption is endemic (World Bank, 2020).

The Figure has shown that through corruption and public expenditure routes, the supply of aid by foreign economies promotes capital flight in the recipient country even as foreign aids lead to capital flight via volatility route. This is supported by Bulir and Hamann (2003) who asserted that macroeconomic volatility has a tendency to raise uncertainty, which lowers risk-corrected returns on domestic investments and further raises the percentage of the wealth portfolio held outside of the country.

Capital flight as explained by Corden (1984) is another way that Dutch disease route of aids spreads. Figure 1 demonstrates how corruption affects Dutch Disease in a country. Aid has a tendency of influencing the real rate of exchange, which lowers tradable profitability by

sectors (Corden, 1984). Another channel through which foreign aids results to capital flight is through public expenditures. In the past, assistance was considered to fill savings gap and the gap of foreign exchange. Foreign exchange gap faded into the background as the potential aimed at converting tradable and non-tradable output and consumption was understood better, leaving the gap for savings to take the lead: the purpose of aid was to finance investment (Devarajan & Swaroop, 2000).

The asset allocation substitution route is another way in which foreign aid is channeled to capital flight. According to Buffie et al. (2004), the continuing inflows of assistance into "post-stabilization" nations with high levels of currency substitution point to yet another method that aid may stop capital flight.

Theoretical Framework

The study is anchored on Portfolio Choice Model, presented by Sheets in 1995 as being relevant to wealth holders' decisions to leave their country of origin to explain how wealth holders behave in an economy in terms of their portfolios. The model proposes that relative risk, return difference, and portfolio diversification incentives all affects outflow of capital. Portfolio Choice Model was built on Khan and Haque's first theoretical model of 1985 which demonstrated two-way capital flows: private capital flight occurring concurrently with private foreign borrowing. Both domestic and foreign investors experience an asymmetric risk of expropriation, which induces them to invest with foreign funds.

The model theorizes that an economic shock might increase the government's reliance on the inflation tax, which would devalue local financial assets and encourage citizens to invest in foreign assets. Also, as domestic residents sell off their domestic equities, the price decline may entice foreign investors. Capital flight results from the possibility of nationalizing private debt, which would result in increased tax obligations.

The Standard Portfolio model identifies two major factors that encourage capital flight: domestic returns that are more volatile or riskier than international returns after accounting for predicted depreciation and domestic returns that are lower after taxes than after-tax overseas returns. The model makes empirical predictions that the anticipated total degree of capital flight in a person's portfolio choice will have an impact on the projected after-tax returns on domestic investments.

Dimmock (2019) however, disputes the notion that evaluations are based on historical data that may or may not be applicable to current or future markets. Values projected from historical data do not correspond to actual circumstances. Another significant flaw is that the risk measure used in modern portfolio theory excludes downside risk. Most of the issues often identified with capital flight are more strongly linked to the size of absolute wealth held abroad than to the amount of annual withdrawals. The proportions of wealth held abroad vary greatly (Dimmock, 2019).

The areas with the worst capital flight issue have collectively been responsible for a large decline in the real capital stock per worker, with accompanying consequences on income. A more precise proposition that a sizable share of private wealth held overseas diminishes the internal tax base is that capital flight declines the internal tax base. The amount of wealth that is held abroad and how policy changes alter expectations of risk-adjusted returns, causing desired portfolio allocations to change, determine the likelihood of capital flight repatriation. Wealth kept overseas, like the decision to hold any other asset, is a portfolio choice at the level of the individual agent.

Despite these setbacks, the model is relevant to the current study due to its ability to explain how capital flight and foreign aid influence dynamics in the Nigerian economy. Thus, the flight of illicit capital from Nigeria stems from the relative risk, return differences, and portfolio diversification motivations.

Empirical Review

A plethora of studies have been reviewed to provide empirical literature on capital flight and foreign aid to compare findings and strengthen the conclusions about the current findings. Miftahu, (2021) examined how capital flight affected Nigeria's growth using yearly time series data from 1980 to 2019. The Autoregressive Distributed Lag (ARDL) model was used to analyze the acquired data. He found long and short run links between real GDP, capital flight, foreign reserves, external debt, and domestic investment in Nigeria. Also, he demonstrated how the effects of different factors showed that capital flight has a negative and significant impact while foreign reserves, external debt, and domestic investment have long-term favorable effects on economic growth. This study is relevant and has guided the current research in methodological approach. It was observed from the study that the design of economic reforms that are realistically possible can stop the growing tsunami of capital flight. This could inform policy formation and further implementation.

Girma and Tilahun (2021) looked at how foreign aid and macroeconomic policy affected economic development of Nigeria. For the period of 1985 to 2019, their study used an autoregressive distributed lag (ARDL) approach to accomplish the stated objective. According to the empirical results, foreign aid has a favourable long-term impact on economic growth despite having a negligible short-term effect. The results also showed that foreign aid predictability has a favourable impact on economic expansion. Long-term effects of the macroeconomic policy index were likewise favourable, while their short-term effects were adverse. The study made good efforts to project recent trends in macroeconomic policy relative to foreign aid. However, the authors did not examine how capital flight affects foreign policy. This is critical for sufficient comparison with the domestic economy.

Okafor and Obiajulu (2021) studied capital flight and they looked into the connection between capital flight and the rate of kidnapping in emerging nations. They concentrated on the years 2003 through 2017 and used a sample of 67 developing nations to establish a connection between kidnapping and capital flight. They discovered using the GMM technique that the rate of kidnapping has a positive and notable impact on capital flight. Estimations of the marginal differences, however, revealed that only the sample of "fragile" developing nations continued to exhibit this substantial effect. According to different metrics of capital flight, these results continue to be consistent. For a study like this, causality is important to demonstrate causation between the study variables; however, this was not well addressed in this study. For a study like this, causality is relevant to present causation amongst the study variables; this was not given sufficient attention in this study.

Researchers Amadi, Ihemeje, Hanson, Obioma, and Ogbonna (2021) examined the impact of capital flight on Nigeria's economic growth. The study used the Ordinary Least Square (OLS) regression approach for analysis between 1981 and 2019 in addition to the Augmented Dickey Fuller (ADF) unit root test, the Auto-Regressive Distributed Lag (ARDL) model, the C- integration and Bounds (long-run) tests, and Causality tests by Granger. The study's findings show significant but negative relationship between capital flight and the

economy, a positive and statistically significant relationship between foreign direct investment and economic growth, and a positive and statistically significant relationship between external borrowing and the economy. Nigeria's current account balances, foreign reserves, and economic growth had a slight but favourable correlation. The results led to the conclusion that capital flight had a negative impact on the economy, with the exodus of desperately needed financial resources resulting in a fall in economic activity. In spite of the significant of the study, the nexus between capital flight and foreign aid was not investigated.

Ahmad (2020) compared US and Chinese foreign aid effect on developing nations from 2000 to 2014 on capital displacement. Regression analysis was employed in the study to analyze Bank of International Settlements anel data as well as Chinese and American data on ODA. Using panel regression, the study investigates whether generous amounts of help given to underdeveloped nations are linked with aid leakage in form of capital flight. It also considers whether Chinese international aid results in a bigger outflow of money to Chinese locations and offshore financial hubs than American foreign aid, which sends money to developed nations. According to the findings, foreign aid from China is associated with capital flight to offshore financial hubs beginning in 2010, while foreign aid from America is positively related with capital flight back to the US. The result has implications for policy on aid conditionality, anti-corruption measures, and aid distribution in both countries. However, the study did not capture the response of capital flight to aid via public expenditure and corruption routs. In addition, the scope of the study is different from the present analysis.

In Nigeria, Effiom, Achu, and Edet ((2020) looked at how capital flight affects domestic investment. Data from time series collected between 1980 and 2017 were used by the researchers. They used an econometric model called Auto Regressive Distributed Lag (ARDL) as their technique. Especially, it appears that capital flight has a greater negative long-term impact on domestic investment than it does in the short run, showing that a consistent stream of capital flight has a negative long-term impact on domestic investment. The study may have improved the quality of its output by incorporating the variable's forced responses to support its conclusion, according to the research design. Inadequate institutions in Nigeria are another finding of the report, which deters local investment.

Also, Ani, Dauda, and Baajon (2018) used co-integration and the Ordinary Least Square (OLS) approach to examine how capital flight affected the growth of the Nigerian economy between 1981 and 2016. The researchers, exception gross fixed capital formation, other variables such as capital flight, exchange rate, inflation and trade terms had detrimental effect on the country's GDP throughout the time frame. The study was more of capital flight and economic growth, giving no attention to foreign aid in Nigeria.

An empirical study by Olufemi and Obioesio (2017) investigated whether foreign aid is effective in promoting long-term development and growth. Extended Barro style model of aid-augmented government spending and economic growth was used to develop an analytical model that explained this relationship for Nigeria between 1986 and 2015. The research used the two-stage least squares method. The findings supported the contention that foreign aid is critical to Nigeria's economic development. The researchers contributed significantly to the body of literature, but they failed to take into account how corruption and other spending paths could have an indirect impact on aiding capital flight.

Mile (2017) analyzed the relationship between foreign aid and economic growth in Nigeria from 1990 to 2015. The study used Autoregressive Distributed Lagged (ARDL), and

the findings indicated that there is, both in the short and long terms, a positive and substantial association between foreign aid and economic growth in Nigeria. This study focused on the relationship between foreign aid and economic growth in Nigeria but it has not studied the impact of capital flight as a factor that distorts the positive effect of foreign help on economic growth in a typical aid recipient country like Nigeria. Utilizing data from 1990 - 2015, the study studied Nigeria to critically looked at the link between foreign aid and growth of the economy. Foreign aid and economic growth in Nigeria have a positive and significant association over the long and short terms, according to the study's use of Autoregressive Distributed Lagged (ARDL). From the findings, the need for additional research was clearly stated. The study did not address the impact of capital flight on the Nigerian economy or the relationship between capital flight and foreign aid in Nigeria.

Abdul, Adamu, and Ogwuche (2017) investigated whether foreign assistance in the form of Net Bilateral Disbursement of Official Development Assistance (BIODA) from 8 donor countries had a significant effect on Economic Development (HDI) in Nigeria between 2003 and 2015. The investigation's findings were evaluated with linear regression. According to the findings of this research, foreign aid significantly accelerates Nigeria's economic growth. Nonetheless, the results of Finland's Net BIODA to Nigeria show that this assistance has had no impact on the country's economic development.

It is noted that the reviewed empirical studies failed to examine the causal relationship between foreign aid and capital flight in Nigeria.

3. Methodology

The study used ex-post facto design and a quantitative approach. The Central Bank of Nigeria (CBN) publications formed sources of data collected. The test for stationarity properties for the time series was conducted using Augmented Dicker-Fuller (ADF) which consisted of running a regression of the first difference of the series lagged once.

Toda-Yamamoto was used to estimate causality between capital flight and foreign aid in Nigeria because of its robustness as an alternative to Granger causality test given that the time series integration process is not the same. For I(0) and I(1), it means the two series are of different orders of integration.

The study is based on the economic relationship between capital flight ad foreign aid which suggests that capital flight is a function of foreign aid. This functional relationship is stated as:

$$CAFL = F\,(AID) \quad \text{- -} \quad 1$$

Where:

CAFL = capital flight; and

AID = foreign aid (using Bilateral Disbursement of Official Development Assistance as proxy)'
Inflation was however, included as control variable to reduce the size of the residuals and improve the explanatory powers of the model. The study model is modified as follows:

$$CAFL = f\,(AID, INF\,) \quad \text{- -} \quad 2$$

The stochastic form of equation 2 can be expressed as:

$$CAFL = \beta_0 + + \beta_1 AID + \beta_2 iNFL + \mu \quad \text{- -} \quad 3$$

Where;

β_0 = constant term,

B1-β4= parameter estimates and

μ = error term.

The Toda Yamamoto (TY) model was sated as follows:

$$Aid_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1i} Aid_{t-i} + \sum_{i=k+1}^{k+d_{max}} \alpha_{2j} Aid_{t-j} + \sum_{j=k}^{k} \alpha_{2i} inf_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_{2i} inf_{t-i} + \sum_{k=1}^{k} \emptyset_{1i} Cafl_{t-i} + \sum_{k=k+1}^{k+d_{max}} \emptyset_{2j} Cafl_{t-j} + \varepsilon_{1t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

$$Cafl_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1i} Aid_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_{2j} Aid_{t-j} + \sum_{i=1}^{k} \emptyset_{1i} Cafl_{t-i} + \sum_{j=k+1}^{k+d_{max}} \emptyset_{2j} Cafl_{t-j} + \varepsilon_{1t} \ldots\ldots\ldots\ldots 5$$

$$Cafl_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1i} inf_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_{2j} inf_{t-j} + \sum_{i=1}^{k} \emptyset_{1i} Cafl_{t-i} + \sum_{j=k+1}^{k+d_{max}} \emptyset_{2j} Cafl_{t-j} + \varepsilon_{1t} \ldots\ldots\ldots\ldots 6$$

Optimal lag length is indicate as k and determined by Akaike Information Criterion (AIC) and Schwartz Information Criterion (SIC) in the study. The maximum order of integration is $d_{\max}$. Assuming Cafl is I(0) and aid is given I(2); then, the maximum order of integration is 2 and represented as $d_{\max} = 2$. The selected lag order and the VAR models were first estimated as pre-requisites for the estimation of Toda Yamamoto causality.

4. Results and Discussion

Descriptive Statistics

The summary statistic on variables used in the study for test of normality properties of residuals in the data set is presented as Table 1.

Table 1: Summarized Descriptive Statistics for the study variables

	AID	CAFL	INF
Mean	274058.0	1922.86	18.74
Maximum	1470741	3566.00	72.84
Minimum	18.81	1003.00	5.39
Skewness	1.51	0.81	1.89
Kurtosis	3.98	2.53	5.46
Jarque-Bera	17.55	4.99	35.65
Probability	0.00	0.08	0.00
Observations	42	42	42

Source: Extract from Results of E-views 10.

From Table 1, foreign aid in Nigeria has an average value of ₦274058.0 billion and the maximum values of ₦ 1470741 billion and the minimum value of ₦18.80billion. The minimum value of aid within the period could be attributed to the continuous increase in official development assistance over time in Nigeria. Capital flight and corruption had mean values of ₦1922.85 and 15.95% in Nigeria respectively. The maximum values were ₦3566.00billion and 28%, accordingly, while the minimum values of ₦1003.00billion and 9%, respectively. The maximum capital flight is reported in 2020 which could be as a result of political or economic circumstances, such as insecurity, unstable regimes or economic recessions. Result also revealed that inflation averaged about 18.73% maximum values of 18.18% and. The minimum value of 5.38% could be attributed to the structural changes that affected prices of food items or monetary policy, while the lowest of 5.3885 in 2007 could be linked to regime effect.

Skewness measures the divergences in the distribution of random variable's probabilities and its mean. A positively skewed distribution has its mean value greater than and lying to the right side of its median implying that the bulk of larger data points in a distribution lies to the left of the median while a negatively skewed distribution has its mean value less than and lying to the left-hand side of its median implying that the majority of larger data points in distribution are to the right of its median. A skewness value of zero indicates no skewness at all and has both tails of the distribution curve equal on the left and right side in other words, it is symmetrical. Because with a normal distribution, the coefficient of skewness compares the sample distribution; thus, a larger skewness would pose a larger distribution difference compared to the normal distribution. Thus, all of the variables could be said to exhibit positively skewed distributions except portfolio investment in Nigeria which is negatively skewed. By implication, the distribution of data for the variables is identified with large values except for fiscal deficit in Nigeria.

Kurtosis is 3 for a distribution that is normal. Its distribution measures the peakedness of a distribution that is usually assumed to be normal. As shown in Table 1, the series values were close to 3 except that of corruption. The series do not exhibit characteristic of a distribution with a high peak and flat tails called leptokurtic (k>3).

Kurtosis measures the degree of outliers in a distribution and shows if the data is profusion of outliers (heavy-tailed) or lack of outliers (light-tailed) relative to a normal distribution. A kurtosis value which equals 3 is mesokurtic, greater than 3 is leptokurtic while less than 3 is platykurtic. The peakedness of the aid, fiscal deficit, inflation rate and public

expenditure are extremely steep as compared to the distribution of all other variables as they possess kurtosis of 3.98,7.66, 5.46, 13.10, 4.29and 13.70 implying extreme positive kurtosis with leptokurtic shapes. The distribution of capital flight, corruption and foreign direct investment exhibits platykurtic shapes because as their values less than 3 implying that the the variables distribution is spread widely with flat slopes from their mean values.

The Jarque-Bera test presents goodness-of-fit test, showing whether skewness and kurtosis of sample data matches a normal distribution. Its test statistic is always non-negative. Null hypothesis (H_0) states that the data distribution is normal and the decision rule is to reject the H_0 when the probability value is less than 5% level of significance; if otherwise, accept. In this study, the Jarque-Bera test of aid, fiscal deficit, inflation rate, interest rate and public expenditure are less than 5% level of significance implying an abnormal distribution of their data set. Also, the study did not reject that corruption, capital flight and foreign direct investment data in Nigeria are normally distributed. However, the raw data were transformed after which they exhibited a distribution that could be considered normal. Thus, the series were examined to check the distribution patterns and possibly understand the likely causes.

Trend Analyses of the Study Variables

This section focuses on the trend analyses of the study variables.

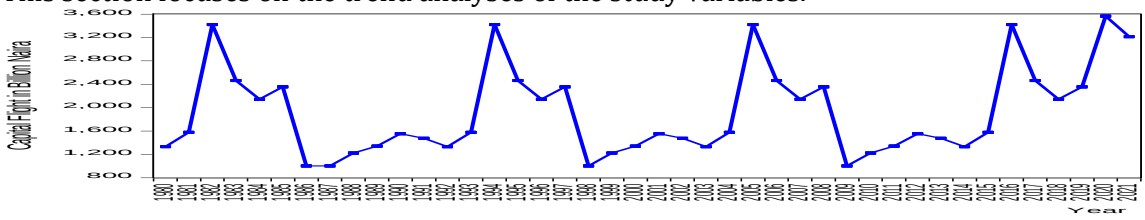


Figure 1: Trend of Capital Flight in Nigeria

Figure 1 present results of trend analysis on capital flight. It shows that capital flight exhibits volatile trend throughout the study period. The trend had ups and downs between 1980 to 1985 before precipitating at a low ebb from 1986 to 1990. A little upward jerk was witnessed between 1989 and 1990 beyond which the trend turned downwards until 1998. Another little upward jerk occurred between 1999 and 2004 beyond which the rates assumed an accelerated upward trend in 2005, peaking in 2006.The trend returned to low trend till 2019 with an upward jerk between 2010 and 2014. The rates assumed a resurgence in 2015, reaching its peak in 2018 before witnessing another decline in 2019. There were signs of another resurgence in 2020. This suggests that efforts to curtail capital flight from Nigeria have not been successful.

Capital flight presented a minimum value of ₦1003 billion which could be attributed to a more stable economy; less of insecurity and economic recessions, a more stable exchange rate and less corruption practices in the year 1986. The maximum value is found at ₦3566 billion. The high aid received in foreign currencies to fight the global health crisis in the year 2020 could be responsible. This created avenue for illegally flight of capital without exchange challenge. Also, political and/or economic circumstances, such as insecurity and economic recessions could be influencing factors. Within the year 2020, investors became more afraid of losing their money/investments and turned to withdraw their investments and moved their money to a safer location.

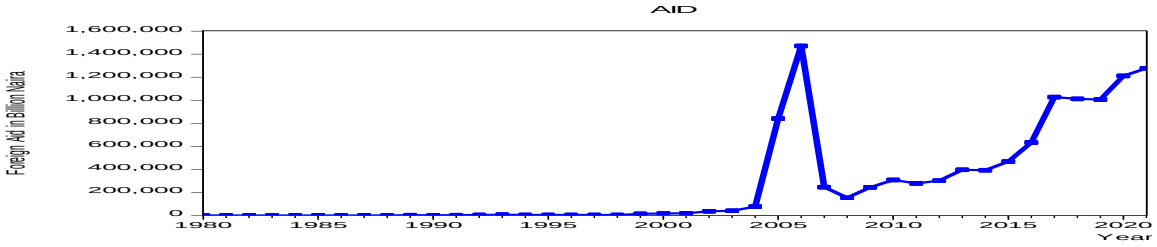


Figure 2: Trend of Foreign Aid in Nigeria

The rates of foreign aid to Nigeria as depicted in Table 2 rallied at insignificant levels between 1980 and 1999 with a mild increase between 1999 and 2013. It skyrocketed steeply in 2004, peaking in 2005, followed by a drastic decline in 2007. Thereafter, the trend resumed a gradual increase which persisted till 2020. It indicates that the country started benefiting from official development assistance from the return of democratic dispensation and the continued upward trending in recent years could be attributed to assist in combating the recent health Global Crisis.

The minimum value of foreign aid was observed at ₦18.809billion, while the maximum was ₦1470741 billion. The year 1980 was a more stable period with less economic distortions and crime. Economic stability and more favorable exchange rate. However, in the year 2006 there was a major shock that attracted higher foreign aid. Nigeria retrogressed so badly that international organizations, developed economies, and some philanthropists had to make demands for adequate infusion of aid to Nigeria for development. The Nigeria Economic and Financial Crimes Commission (EFCC) reported that US $500 billion was received by military dictators; this was the equivalent of all aid to Western Africa for the previous 40 years (Okon, 2012).

The co-movement of capital flight and foreign aid is presented thus;

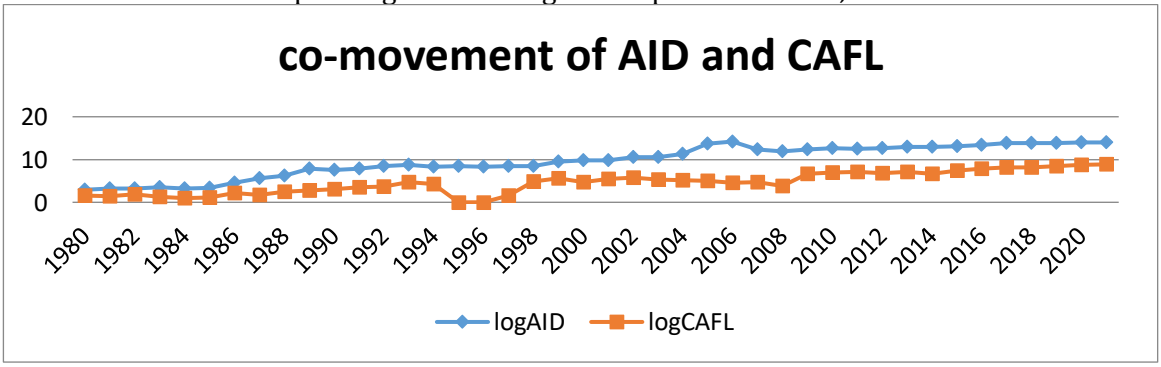


Figure 3: The co-movement of capital flight and foreign aid

Figure 3 displays the movement of capital flight alongside foreign aid in Nigeria within the study period. The trend showed an irregular movement of capital flight and foreign aid within the period. However, it was observed that a co-movement existed between the two variables since both of the trended in a perpendicular direction. This posed a paradox since increase in foreign aid was not expected to be accompanied by a corresponding increase in capital flight.

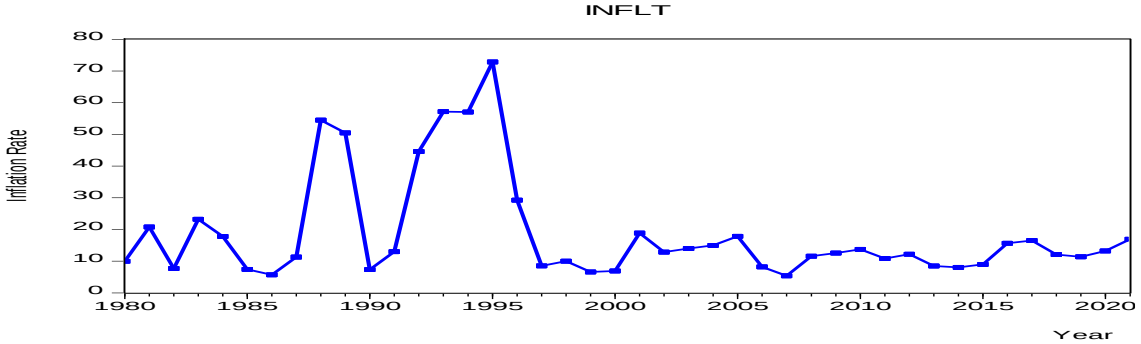


Figure 4: Inflation Rates in Nigeria

As shown in Figure 4, inflation trended at low ebb between the period of 1980 and 1985 which coincides with the pre-SAP era. Thereafter, a peak-and-trough fluctuation ensued until the year 1996. The period of 2001 and 2020 witnessed unsteady increase in inflation rate and relatively based on the data. Inflation rate was minimum at 5.38% in 2007 and at maximum in 1995 with a rate of 72.83%. This was because the general price level had declined and prices of consumer got deepened; this is deflation. The drastic increases in price are no longer on average as comparing with some other countries. This is usually a sign of economic and political turmoil.

Table 3: Stationarity Test Results

Variable	**ADF**		**PP**		**KPSS**		**Inte-gration**	**Decision**
	t-Statistic	Critical Value @5%	t-statistic	Critical Value @5%	LM-Statistic	Critical Value @5%		
CAFL	0.01 0.81	-2.93	0.01	-2.93	0.00	0.46	I(0)	Accept H_0
AID	0.83	-2.93	0.51	-2.93	0.10	0.46 0.46	I(1)	Reject H_0
INFL		-2.93	0.75	-2.93	0.17		I(1)	Reject H_0

Source: *Extract of Author's Computations from E-views 9.*

Results from Table 2 show the level of stationarity from ADF, PP and KPSS for each research variable. It was observed that two of the series failed to attain stationarity at levels, except CAFL. Thus, the series have shown mixed order of integration. Thus, the appropriate method of estimation was the ARDL method. The study proceeded to find out if series were co-integrated in the long-run using ARDL Bounds test. ARDL lag length selection and the residual tests are therefore conducted to select the appropriate lags and examine the behaviour of the residuals. The study also estimated the transmission responses between foreign aid and capital flight in Nigeria through the corruption and public expenditure routes

Table 3: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1239.49	NA	4.27e+25	73.20	73.43	73.28
1	-1151.47	144.97	1.07e+24	69.49	70.84*	69.95*
2	-1123.00	38.52*	9.64e+23*	69.29*	71.76	70.13

Source: *E-views 10 Output.*

Table 3 shows that LR, FPE and AIC suggest a maximum lag length selection at 2 while SC and HQ suggests the selection of a maximum lag length of 1. Since the highest order of integration was 2, when estimating the CAFL model, an additional lag of 2 was added to the selected lag of 2, thus, making it 4 lags for the Toda Yamamoto model.

Table 4: ARDL Bound Testing for Co-Integration Result

Test Statistic	**Value**	**K**
F-statistic	2.716010	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.08	3.00
5%	2.39	3.38
2.5%	2.70	3.73
1%	3.06	4.15

Source: E-views 10 Output.

From the result of co-integration in Table 4, it was observed that F-statistic value of 2.716010 was higher than lower bound [I(0)] bet lower than the upper bound [I(1)] critical values of 2.39 and 3.38 respectively at 5% level of significance. Therefore, it was inferred that the values are co-integrated. As such, the long-run equilibrium relationship between foreign aid and capital flight was established.

In view of the co-integrating relationship between foreign aid and capital flight in Nigeria, the study proceeded to use the ARDL-ECM to estimate the error correction and long-run models. Clarke's (2014) general-to-specific Modelling Approach was utilized to derive a satisfactory parsimonious result for the foreign aid – capital flight transmission. The result of the reduced short-run model is presented in Table 5.

Table 5: Results of ARDL Error Correction

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.572410	0.140482	-4.074609	0.0003
R-squared	0.282938			
Adjusted R-squared	0.282938			
S.E. of regression	220304.4			
Sum squared resid	1.94E+12			
Log likelihood	-562.0837	.		
Durbin-Watson stat	1.727493			

Source: *E-views 10 Output.*

Table 5 shows the short run dynamics of series. The table shows value of ECM at -0.572 which fulfills all the ECM conditions of being negative, significant at 5% and less than one in absolute terms. This implies that variables included in the model have the ability of returning to long-run equilibrium after short-run oscillations experiencing at adjustment speed of 57.2%. This indicates an average adjustment speed to long-run equilibrium. Therefore, the long-run estimates of the relationship between foreign aid and capital flight is presented in Table 6.

Table 6: Long-Run Coefficients of the Model

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LOGAID(-1)*	-0.572410	0.162082	-3.531605	0.0012
INFL**	-6.57E-28	5.70E-27	-0.115219	0.9089
C	14231.33	51347.10	0.277159	0.7833

Source: E-views 10 Output **NB:** ** = significance at 5%; * = significance at 10%

Table 6 presents results of long-run ARDL coefficients of CAFLT model. The table reveals that a significant negative long-run relationship was observed between foreign aid and capital flight in Nigeria but this relationship is not significant at 5% level (p,0.0022<0.05). This suggests that foreign aid in itself does not contribute to capital flight in Nigeria significantly in the long run. The table shows that a negative long-run relationship exists between inflation and capital flight in Nigeria; an increase in inflation rate by 1% leads to 6.57% reduction in capital flight. However, this relationship is not significant at 0.05 level (p, 0.85>0.05), thus, inflation rate also does not contribute to capital flight in Nigeria.

Table 7: Toda Yamamoto Granger Non-causality Test

Causality	Chi-sq.	df.	Prob.	Decision
LOGAID →LOGCAFL	8.53	2	0.01	Relationship exists
LOGCAFL→LOGAID	3.80	2	0.14	No relationship exists
LOGINT → LOGCAFL	4.96	2	0.08	No relationship exists
LOGCAFL → LOGINF	0.88	2	0.40	No relationship exists
LOGINF → LOGAID	7.57	2	0.02	Relationship exists
LOGAID → LOGINF	3.67	2	0.04	No relationship exists

Source: *E-views 10 Output*

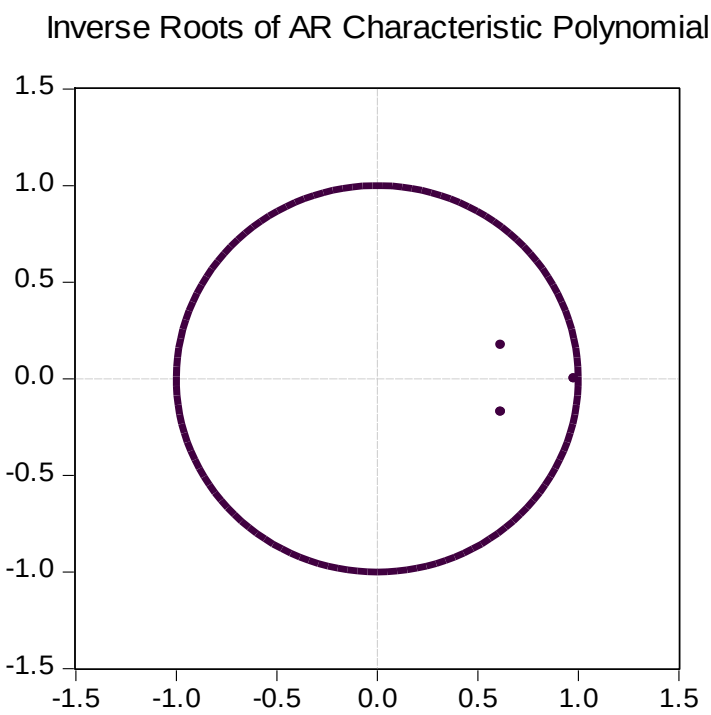
Findings from Toda Yamamoto Granger non-causality test in Table 7 reveals there is one - way causation from foreign aid to capital flight in Nigeria. Thus, Chi-square value of causality from LOGAID to LOGCAFL was 8.53% which was significant at 0.05 level (p, 0.01<0.05). However, Chi-square value of causality from LOGCAFL to LOGAID was 3.80% which was not significant at 0.05 level (p, 0.14>0.05). This suggests that foreign aid responds to public expenditure in Nigeria as aid are earmarked for public expenditures in Nigeria. It was observed that there was unidirectional causative relationship between capital flight and inflation in Nigeria. Thus, inflation is a driver of capital flight in Nigeria.

Table 8: Residual Test for Toda Yamamoto Results

Test Statistics	**Probability**	**Decision**
Serial Correlation CHSQ =	0.36	No serial Correlation
Heteroskedasticity CHSQ =	0.16	There is constant variance
Normality (Jarque-bera) =	0.00	Data set not normally distributed

Source: E-views 10 Output. (*) means significant at 5%

The residual serial correlation test presented in Table 8 shows no serial correlation (as the probability values were found to be above 0.05). Thus, the null hypothesis was accepted, implying no serial correlation. The Breausch-Pagan-Godfrey Heteroskedasticity Test indicate that the residuals are homoscedastic (that is, they have constant variance). The normality result reveals non-normally distribution of the data set. According to Salisu, (2015) serial Correlation test is the most important post-estimation test for Multivariate models. The result shown above suggests no serial correlation and there is constant variance of the residuals. Thus, non-normality of the residuals has no implication of the reliability of the results.



Source: *E-views 10 Output.*

Figure 4 Graph of Inverse AR Characteristic Polynomial

This study applied inverse roots of AR characteristic Polynomial analysis to examine how stable the variables entered the SVAR model on the corruption route. Results satisfy the VAR stability condition since all the roots displayed less than 1 and were within the unit circle as shown in Figure 5. This means the series are stable.

Table 5: Residual Test for Toda Yamamoto Results

Test Statistics	Probability	Decision
Serial Correlation CHSQ =	0.55	No serial Correlation
Heteroskedasticity CHSQ =	0.28	There is constant variance
Normality (Jarque-bera) =	0.00	Data set are not normally istributed

Source: E-views 10 Output**.** (*) means significant at 5%

The residual serial correlation test result presented in Table 5 shows no serial correlation (as the probability values were found to be above 5%). Thus, the null hypothesis of no serial correlation was accepted. The Breausch-Pagan-Godfrey Heteroskedasticity Test results shows that the residuals are homoscedastic (that is, they have constant variance). The Normality result reveals the data set are not normally distributed. However, the lack of normality of the residuals has no implication of the reliability of the results. Thus, the estimates are reliable and can stand statistical inferences.

5. Conclusion and Recommendations

There is a causal relationship between foreign aid and capital flight in Nigeria. This suggests that the incident of foreign aids inflow in Nigeria is a cause of capital flight from the country. It also increases the amount of capital taken out of the nation. As a causal effect, this could mean capital flight from Nigeria influences foreign aids from donor agencies and countries negatively.

Based on the research findings, the following recommendations were made:

1. The commitment of donor agencies like the International Monetary Fund (IMF), the World Bank and others towards developing economies like Nigeria should be sustained with critical monitoring. This is in view of foreign aid's significant effect on capital flight as found in the study
2. The Federal ministry of finance, Ministry of Economic planning and the Central Bank of Nigeria should discount the causal effect of foreign aid on capital flight and also the causality between capital flight and foreign aid in Nigeria from their estimation of economic behaviour for effective economic policy.

References

Abdul, Z. H; Adamu, A. & Ogwuche, I. P. (2017). Effect of Foreign Aid on Economic Development in Nigeria.*AE-FUNAI Journal of Accounting*.www.fujabf.org.

Ahmad, T. (2020). Students Reflect on the Role of Ethics in Business Management", *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(2), 71-79.

Akighir, D. T. (2017) Impact of Capital Flight on The Nigerian Economy: A Macro Econometric Analysis. Lambert Academic Publishing, Beau Bassin.

Amadi, C. O., Ihemeje, J. C., Hanson, U. E., Obioma, I. F.,& Ogbonna, C. I. (2021). Empirical Investigation of Capital Flight on Economic Growth in Nigeria. *International Journal of Science and Management Studies 4*(3), 32 – 43

Ani,C., Dauda, M.I & Baajon, M.A. (2018) Capital Flight and Economic Growth in Nigeria: An Empirical Analysis. *International Journal of Humanities, Art and Social Studies* (IJHAS), 3,(3).

Aribisala, F. (2013). Money-Laundering: Nigeria's Future. *The Vanguard* Tuesday, 12th November.

Boyce, J. K. & Ndikumana, L. (2012). Is Africa a net Creditor? new Estimates of Capital Flight from Severely Indebted Su-Saharan African countries. *Journal of Developing Studies*, 2 (38). 1-12

Cooper, H. W. & Hardt, J. P. (2000). Russian Capital Flight, Economic Reforms in U.S.An Analysis. Congressional Research Service (CRS), Report for Congress updates, March 10.

Corporate finance institute, (2021). Capital Flight- Overview, Impact and Prevention. https://corporatefinanceinstitute.com.

Effiom, L., Achu, A.C., & Edet, S.E. (2020). Capital Flight and Domestic Investment in Nigeria: Evidence from ARDL Methodology. *International Journal of Financial Research, 11*(1), 348-36037

Girma, T. & Tilahun, S. (2021). Policy Studies in Predictability of Foreign Aid and Economic Growth in Ethiopia.*Cogent Economics & Finance, 10* (1), 23-34

Miftahu, I. (2021). Impact of Capital Flight in Developing Countries: A Threat to National Solvency and Economic Growth in Nigeria. *Journal of Economics and Finance,* 12(2) 2321-5925

Mile, B.N. (2017). Foreign Aid and Economic Growth in Nigeria: *Journal of Economic And Social Research*, 7(1), 225-283.

Okafor, G and Obiajulu, E. (2021). The Relationship Between a Kidnapping Rate and Capital Flight: Empirical evidence from developing countries. International journal of finance and Economics, 1(2), 322-443.

Olufemi S. & Obioesio, F. (2017). Foreign Aid, Fiscal Optimality and Economic Growth in Nigeria. *Journal of Economics and Business, 67* (4), 85-99

The Global Economy (2020). Nigeria: Foreign Aid. Business and Economic Data for 200 countries. The Global Economy.com

UNDP. (2018). The United Nations Development Strategy Beyond 2015.Economic and Social Affairs.https://www.un.org/en/development/desa/policy/cdp/cdpcdppolicynote.pdf

World Bank. (2020). *World Bank Annual Statistical Bulletin*