# The Impact of Foreign Investments on Domestic Inflation in Nigeria: A Disaggregated Analysis

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Abstract: The need to draw foreign capital in non-debt constituting ways is one of the reasons emerging economies wish to encourage foreign investments. Thus there has been a dramatic increase in the magnitude of foreign investments from the North to emerging economies across the South where the need is high. However, the nature and source of foreign investments play critical role in determining its impact on domestic inflation. It is against this background that this paper attempts to investigate the impact of foreign investments on domestic inflation in Nigeria from 1987 to 2012. Using a three-step statistical technique: ADF, OLS and Granger causality; FDI, FPI and export were used as independent variables while inflation rate is the dependent variable. The results reveal that FDI and FPI have positive and non-significant impact on inflation rate while export has a negative and significant impact. Since export has inverse relationship with inflation, we suggest that the government should employ various means of encouraging foreign investors to invest in the manufacturing sector which will lead to increase in the exportation of finished products.

Keywords: FDI, FPI, export, inflation, Nigeria.

# I. Introduction

According to Keynesian terminology, investments mean real investment which adds to capital equipment. Through increase in production and purchase of capital goods it leads to rise in level of income and production. Investment refers to addition to capital, such as when a new building or factory is built. Thus, investment includes new plants and equipments, construction of public amenities like roads, dams, buildings etc (Ogumuyiwa, 2013). There are two types of investment: induced and autonomous investment. Induced investment is motivated or driven by profit or income. Variables such as prices, wages, and interest changes which influence profit effect induced investment. Again, demand also influences it because when income increases, consumption demand also goes upward and to accommodate this increase investment rises. Autonomous investment does not put income into consideration and so is income inelastic rather it is driven by exogenous factors such as innovations, inventions, growth of population and labor force etc.

After the Second World War foreign investment started to gain an essential role in the international economy, however international production was a small part of international affairs, while the focus was directed towards those factors, like international trade, which had an important stake. After the 1960s the aspect of international corporations and foreign direct investment (FDI) has started to achieve relevance, and significant progress in technology was also witnessed.

So foreign investment emanated from international trade and the initial attempt to analyze foreign investment was thought to be Ricardo's theory of comparative advantage. Still foreign investment cannot be defined by this theory, which is established on two countries, two products and a perfect movability of factors at local level. The theory however did not even support foreign investment. So, as the comparative advantage theory of Ricardo did not fall through, other models were applied to analyze the growing portion of foreign investment among which is portfolio theory. This effort also fell short because it explains that as far as there is no risk of obstacle in the flow of capital movement, the capital will go from countries with lesser interest rates to the countries with higher interest rates. However, these claims cannot be actualized because the involvement of risks and obstacles to capital movements invalidates the authenticity of the model, again capital can be transferred readily to any area (Hosseini, 2005). He went further to assert that even the recent theories of international trade, still cannot explain the whole complexity of foreign investment, and other forms of international investment.

Japanese researchers Kojima and Ozawa (1944) went further to develop and improve a model to analyze both international trade and FDI, following the model of international trade by Robert Mundell which involves two countries, two products, two production factors in both countries in which production of a product needs a higher fraction of a factor than the other (Mundell, 1957). All the same this model could not resolve international

production through FDI, being that foreign investment acquired then were portfolio investment or shot term investment so the Japanese came up with a model that FDI occurs, if a country has comparative disadvantage in producing a product, while international trade is based on comparative advantage (Kojima and Ozawa, 1944). It is bankruptcy in markets that lure multinational corporations to invest in various foreign markets and give them leverage over them. Foreign investors believe that advanced technology and knowledge will afford them the chance to acquire market share (Denisia, 2010).

Notwithstanding, that many researchers have made efforts to explain foreign investment, there has been no generally accepted theory. Foreign investment from a microelectronics point of view is a specific form of capital flows across borders, from countries of origin to host countries which are found in the balance of payments. The significance here is capital flows and stocks and returns acquired from investment. The microeconomic perspective endeavors to analyze the reason for foreign investment from the aspect of the investor. It also examines the significance to investors, country of origin and host country of the operations of the multinational corporations (MNCs), rather than capital flows and stocks (Lipsey, 2001). There is no generally accepted definition of FDI because most of the definitions are based on probably the different established theories of FDI that these authors adopt.

In the analysis of Dunning (2001) FDI involves acquiring management control over some form of business enterprises in another country, meaning that it is not just investing in host country but further holding large control of such investments. These enterprises could be in form of subsidiaries, branch plant, joint venture and, or a subsidiary headquarters with a number of branch plants in some or a number of host countries.

# **II. Review Of Related Literature**

# 2.1 Conceptual Framework

Mwillima (2003) sees FDI as investment made to obtain a lasting management interest (usually at least 10% of voting stock) and obtain at least 10% of equity share in an enterprise operating in a country of the investor. IMF (1999) described FDI as a long term investment reflecting a lasting interest and control, by a foreign direct investor (parent enterprise) of an enterprise entity situated in an economy other than that of the foreign investor. Lasting interest here indicates the presence of a long term relationship between the direct investor and the direct investment enterprise and a relevant level of influence by the investor on the administration of the enterprise. On the part of Mallampally and Sauvant (1999), they view investment by MNCS in foreign countries as way to control assets and manage production activities in these countries, they stress that MNCS do not just obtain a little percentage of ownership in a foreign country but that they invade a new market with the intention of fully controlling their investments there. Nowadays, the subject of foreign direct investment is receiving more attention at national and international level. Caves (1996) was of the opinion that different countries try to draw FDI because of the promising positive result that this would have on the economy .FDI would raise technology transfer, productivity, international production networks, know how access to external market and reduce unemployment.

Summarily, FDI involves investing a new enterprise by a parent company in a foreign country in order to maximize profit through the control and expansion of its market of that enterprise. This involves both ownership and control which distinguished it from international portfolio management.

Inflation is an essential issue for any economy and that is why several empirical and theoretical studies have been carried out on it in different time periods. Inflation simply means a continuous increase in price level. Inflation has positive as well as negative impacts on an economy and investment is mostly effected. If capital inflows increase, the local currency tends to increase in value, thereby reducing the effectiveness of export industrials and possibly leading to rise in inflation. Inflation has some economic benefit which is based on three main arguments that favour positive inflation. First, there is trade-off between inflation, tax and other indirect taxes so that government tax optimization translates to positive inflation (Ehimare, 2011). Second, a commitment by policy makers to keep the inflation rate low limits the central bank's ability to respond to unfavourable supply shocks. This limitation may have been a major issue resulting to stagnation of the Japanese economy during the deflation of 1990 (Krugman, 1998). Third and perhaps the most important, inflation serves as a lubricant that makes nominal price wages more flexible (Lucas, 1990).

Policy makers have been increasing interested in the potential connection between globalization and inflation (Ihrig, et al, 2007). This is so because globalization brings about a continuous entry of lower -cost production from emerging market countries into the global trading system, this shows reduced market power for domestic producers (Bernanke, 2007) and acts to frustrate central bank's effort to lower inflation. The old structuralist and Philips curve views that inflation up to some point is good for growth have been replaced by the belief that higher inflation will tend to retard economic growth and some recent studies have found empirical

evidence for this view. In an economy where nominal prices are fixed through government policies, the interaction of inflation with such policies results to adverse economic performance. An example is nominal ceilings on interest rate with high rate of inflation often lead to negative real interest rate. Another common distortion is the maintenance of fixed nominal exchange rate which becomes increasing over valued as inflation continues. Such over valuation specifically, results to an increasing trade deficit and reducing reserves which often induce the increased use of exchange control and import barriers. Over valuation may also generate capital flight and retard investment inflows (Ahn, *et al*, 1998).

The widely accepted view is that inflation is a monetary phenomenon (Mc candles and Weber 1995) ultimately determined in the long run by monetary policy (Ball 2006). This suggests that institutional change leading to better monetary policy frame works may be the main reason behind world-wide reduction in inflation over the past decade. Vega and Winkerlried (2005) show that the adoption of inflation -targeting regimes has significantly reduced the mean inflation rate in a sample of developed and developing economics.

Foreign portfolio investment depicts dormant holding of securities such as foreign stock, bond, or other financial assets, none of which involves active management or administration of the securities purchased by the investor. For an emerging economy, FPI can bring about fast development, helping the economy to move rapidly to take advantage of the economic opportunity, creating many new jobs and significant wealth. Nevertheless, when a country's economic situation declines, sometimes failing to meet the anticipations of foreign investor, the large flow of investment into the country might take to flight from it. As increasing numbers of developing countries receive more of these flows, they risk becoming much more vulnerable to financial shocks.

In Nigerian, since the internalization of the Nigerian Stock Exchange (NSE), there has been an increased flow of FPI into the Nigerian economy through the capital market. Still, from the middle of the last two decades, Nigeria observed an apparent change in the composition of foreign capital inflows to Nigeria. FPI seems to have surpassed the other types of foreign inflow and its share of private capital flows to Nigeria has been on the upsurge that by 2007 FPI has exceeded every other type of capital inflow into Nigeria with official flows and bank loans declining in actual terms (CBN, 2009).

From a historical perspective, the rate of inflation of 11.5 percent in Nigeria is at all times low. However, some scholars have recommended the inflation threshold 8 percent for Nigeria (Salami and Kelikume, 2010). As pointed out in the of literature review section, such a low threshold of inflation is overtly ambitious, unrealistic and counterproductive to job creation and poverty alleviation efforts in the country. Recent monetary policy frameworks have helped to reduce inflation in Nigeria to about six times below the rate of 73 percent where it was in 1995 (Mordi and Nwawudu, 2009).

However, in recent years the inflation level which is also an indicator of macroeconomic performance was averaging about 28.94 percent per annum, but has fallen to 10.3 percent in 2011 while slightly increasing to 12.3% in 2012. Nevertheless, in an assessment following a visit of its officials to Nigeria in November 2010 to conduct the 2010 Article IV Consultation, the IMF expressed concerns over what it called "Nigeria's stubbornly high rate of inflation" (IMF, 2010).. Given that inflation in the country hovers around 11 percent a rate considered sustainable by the standard and dynamics of a developing economy, the concern expressed by the IMF may give an excuse to the Nigerian monetary authorities to mount a more vigorous contractionary monetary policy through a single digit inflation control regime. Despite the good performance of the Nigerian economy at the wake of the global economic recession, the Fund "recommended that the CBN conduct monetary policy with a view to reducing inflation to a single-digit level" (IMF, 2010). This is no doubt an indirect pressure on monetary policy authorities in Nigeria to implement stricter monetary policy through the inflation target framework.

# 2.2 Empirical Review

Mojon and Ciccarelli (2007) show that inflation is a global phenomenon by citing that inflation rate in the OECD countries have moved together over the last 45 years. This co-movement, on average, accounts for 70% of the variability of country inflation. They specify a multiple regression model trying to explain the determinants of global inflation. Many common determinants were tested and they concluded that looking at the 1971-2004 samples only a few variables contain explanatory power with regards to global inflation. Cost variables, including commodity prices, wage and real GDP, as well as monetary policy developments have been all proven to have a positive (though not always significant) impact on global inflation. Then they investigate how much impact global inflation has on domestic inflation and found long term response of domestic inflation to global inflation. They conclude that this response to global inflation is lower in countries with tight commitment price stability.

Romer (1993) finds that closed economies tend to have higher inflation. He argues that central banks in economies more open to trade find currency fluctuations caused by money surprises more painful and so exercise more restraint than their closed economy counterpart. Several studies have tested Romer's argument in different ways and have supported the conventional view of the negative relationship between trade openness and inflation. Thus, empirical findings of Kim and Beladi (2004); Aaron and Mvellbaver (2007); and Badinger (2007) all validate Romer's argument. Finally, Rower (1993) also finds no significant openness -inflation relationship among OECD economies.

Nazir, *et al*, (2012) in a recent study of the impact of capital inflows on domestic inflation of Pakistan using variables such as export ,FDI, remittances and inflation finds that there is positive relationship between FDI, remittances, export and inflation.

Rashid, *et al*,(2010) also investigated the effect of capital inflows on domestic price level, monetary expansion and exchange rate volatility by employing variable such as real GDP growth, national saving, inflation, fiscal deficit credit to private sector, public debt, weighted average leading rate, and current balance using the linear and non linear co- integration and granger causality tests, they find that during the last 7 years there is a significant inflationary impact of capital inflow. The study suggests that there is a requirement to achieve capital inflow in such a way that they would neither induce inflationary pressure in the economy nor enhance exchange rate volatility.

Kim, *et al*, (2008) employed the VAR model to examine why an increase in capital flow can offset asset price increase by using output, price level, capital inflow or portfolio inflows (as ratio of GDP) stock price and land price as variables. The result shows that capital inflows have actually contributed to asset price appreciation while capital inflow shocks explain a relatively small portion of the asset price fluctuations.

Balderas, *et al*, (2005) focused on examining how remittances affect the distribution of relative consumer price changes and the overall inflation by using vector auto regression (VAR). They arrived at a significant positive effect of remittances after 1994.

Ercakar (2011) showed that foreign direct investment, inflation and trade surplus have positive and statistically significant effect on GDP growth, and import coverage of export also has effect on growth in the study of the long -run relationship among GDP growth, foreign direct investment, foreign trade, inflation and also the long-run relationship between GDP and microeconomic variables. The ARDC and VECM were used to analyze the long-run relationship.

From a historical perspective, the rate of inflation of 11.5 percent in Nigeria is at all times low. However, some scholars have recommended the inflation threshold.

Allard (2007) investigates to what extent the inflation in Poland is determined by global factors and globalization. She analyzes empirically the relationship between inflation and globalization at the aggregate, macroeconomic level for Central and Eastern European (CEE) countries with CPI inflation explained by trade openness defined as the ratio of imports of GDP and output gaps derived with Hodrick Prescott filters for GDP. The results provide evidence that the sensitivity of prices to domestic economic conditions in the eight CEE countries has been falling in the wake of higher trade integration. Allard evaluates the effects of globalization in Poland only, and she discovers that globalization would have lowered domestic prices by between ½ and 1 percentage point per year since the middle of the 1990s, mainly through lower mark-ups on prices. Allard's model, therefore, provides clear empirical evidence of a negative relationship between globalization and inflation.

# **III. Research Methodology**

Time series data will be used for this study. An econometric model will be developed to examine the relationship foreign investments have with Nigeria's inflation rate. The variables to be used include the inflation rate, foreign direct investment (FDI), foreign portfolio investment (FPI) and export (EXP). Models will be developed to analyze the exact relationship among these variables.

# 3.1 Model specification

This study is based on the assumption that the inflow of FDI, FPI and EXP affect inflation in Nigeria. Hence the model:

INF	=	f (FDI, FPI, EXP)	-	-	-	-	-	-	(1)
Equation	n (1) ca	in be expanded thus;							

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INF = \alpha + \beta 1FDI + \beta 2FPI + \beta 3EXP + \mu - - - (2)
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Where:

INF	=	Inflation rate			
α	=	equation constant			
FDI	=	foreign direct investment			
FPI	=	foreign portfolio investment			
EXP	=	export			
$\beta_1$ , $\beta_2$ and $\beta_3$ are coefficients of explanatory variables.					

The a priori stance is that we expect total foreign investment inflows to be negatively correlated with inflation following Romer's (1993) hypothesis that inflation is lower in small and open economies.

# 3.1.1 Estimation Procedure

The ordinary least squares equation technique is the estimation procedure chosen for this study. It will be used for estimating the equation specified. As a justification for this method, Maddala (1977) identified that ordinary lest squares is more robust against specification errors that many of simultaneous equation methods, and also that predictions from equation estimated by ordinary least squares, often compare favourably with those obtained from equations estimated by the simultaneous equation method. Among other reasons is the simplicity of its computational procedure in conjunction with optimal properties of the estimates obtained and these properties are linearity, unbiased and minimum variance among a class of unbiased estimators.

The econometric method is the approach employed for the research. There is no doubt that the method will facilitate the model specification, parameter estimation and appropriate econometric tests.

# 3.1.2 Sources Of Data For The Study

Annual time-series data on the variables under study covering twenty-six year period 1987-2012 are used in this study for estimation of functions. FDI FPI and EXP are the relevant explanatory variables. Data were collected from various editions of the various issues of Central Bank of Nigeria Economic and financial Review; and Central bank of Nigeria Statistical bulletin.

# 3.2 Diagnostic Test

# 3.2.1 Unit Root Test

Spurious and unreliable results will abound if time series data are not stationary. Therefore, in order to check against this problem, we carried out unit root test on all the variables. Hence, below is the Augmented Dickey Fuller unit root, which was employed to test for the stationarity of the time series data.

INF				
	ADF Test Statistic	-5.034729	1% Critical Value*	-4.4167
			5% Critical Value	-3.6219
			10% Critical Value	-3.2474
	Durbin Watson			1.820443
EXPORT				
	ADF Test Statistic	-5.060007	1% Critical Value*	-4.4167
			5% Critical Value	-3.6219
			10% Critical Value	-3.2474
	Durbin Watson			1.876933
FDI				
	ADF Test Statistic	-5.445110	1% Critical Value*	-2.6649
			5% Critical Value	-1.9559
			10% Critical Value	-1.6231
	Durbin Watson			1.918616
FPI				
	ADF Test Statistic	-6.59518	1% Critical Value*	-4.4415
			5% Critical Value	-3.6330
			10% Critical Value	-3.2535
	Durbin Watson			1.880665

*Table 1*: Augmented Dickey-Fuller Unit Root Test (after detrending and differencing)

Source: Researchers' E-views Result

Table 1 shows results of tests for stationarity and autocorrelation after transformation of the time series data. After 1st differencing and detrending of the time series data, the series became stationary. The results in table 1 shows that the computed ADF test-statistics for all the variables are smaller than the critical values at 1%, 5% and 10% significant levels and the Durbin-Watson statistics are very significant and close to 2 which means there is no autocorrelation problems in the time series data.

# 3.3 Data Analysis And Result Presentation

This section focuses on the analysis and interpretation of the results generated from the regression analyses. The regression analysis was conducted at 5% significance level. After running the relevant regressions, the following results were obtained and are presented below:

# Estimated results

results					
Summary Results of Estim	ation Model:				
DLINF = f(DLFPI, DLFD)	I, DLEXPORT)				
	· · · ·				
Table2					
Dependent Variable: DLO	G(INF(-1))				
Method: Least Squares					
Included observations: 24	after adjusting end	ooints			
White Heteroskedasticity-	Consistent Standard	l Errors & Covariance			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
С	0.255180	0.301586	0.846126	0.4075	
DLOG(FPI(-1))	0.384000	0.195515	1.964039	0.0636	
DLOG(FDI(-1))	0.535875	0.293160	1.827928	0.0825	
DLOG(EXPORT(-1))	-1.863662	0.636009	-2.930246	0.0083	
R-squared	0.227814	Mean dependent var		0.004519	
Adjusted R-squared	0.111986	S.D. dependent var		1.514732	
S.E. of regression	1.427401	Akaike info criterion		3.700599	
Sum squared resid	40.74946	Schwarz criterion		3.896941	
Log likelihood	-40.40719	F-statistic		1.966827	
Durbin-Watson stat	2.020678	Prob(F-statistic)		0.000463	
	•	·	•		

Source: Researchers' E-views Results

# **Model Summary**

Log INF =				U	875LogFDI-1.8636 (t = -2.930246)	562LogEXP
		(p = 0.06	536)	(p = 0.0	0825)	(p = 0.0083)
$r^2$	=	0.2278				
$\mathbf{R}^2$	=	0.1119				
F	=	1.9668				
Prob. (F – statistics) =			=	0.000463		

As revealed from table 4.8, the impact of foreign portfolio investment is positive and insignificant (coefficient of FPI = 0.384, t - value = 1.9640). This shows that foreign portfolio investment has positive and non-significant impact on inflation rate in Nigeria. The probability of 0.06 > 0.05 confirms the non-significant impact. Again, as shown by the table the impact of foreign direct investment was also positive and non-significant (coefficient of FDI = 0.536, t - values = 1.8279). This indicates that foreign direct investment has positive and insignificant impact. The coefficient of determination as shown by r-square ( $r^2$ ) indicates that 22.8% of the variations observed in the dependent variable were explained by variation in the independent variables. The test of goodness fit of the model was properly adjusted by the adjusted R – square of 0.112. On the whole, the overall probability (F – statistics) is 0.000463 which is less than 0.05 properly explains the significance of the overall regression.

The result above show, that both foreign portfolio investment and foreign direct investment have positive and non-significant impact on inflation rate while export has a positive and significant (P = 0.008 < 0.05) impact on inflation rate.

#### **IV. Recommendation And Conclusion**

Policy makers have been increasingly interested in the potential connection between globalization and inflation (Ihrig, *et al*, 2007). This is so because globalization brings about a continuous entry of lower-cost production from emerging market countries into the global trading system, this leads to reduced market power for domestic producers (Bernanke, 2007) and acts to frustrate central banks' efforts to lower inflation.

Romer (1993) hypothesized that inflation is lower in small and open economies but studies on larger economies show positive relationship between foreign investments and inflation (Samini, *et al*, 2012).

According to Nazir, *et al*, (2012) the impact of capital inflows on domestic inflation in Pakistan is positive. The findings of this study also suggest a positive but non-significant effect of both foreign portfolio investment and foreign direct investment on inflation rate in Nigeria. This was confirmed by Rashid, *et al*, (2010), Balderas, *et al*, (2005) and Ercakar (2011). Kim, *et al*, (2010) employed the VAR model to examine why an increase in capital flow can offset asset price increase by using output, price level, capital inflow or portfolio inflows (as ratio of GDP), stock price and land prices as variables. Their results show that capital inflows have actually contributed to asset price appreciation while capital inflow shocks explain a relatively small portion of the asset price fluctuations. The study of Shalizad and Zahid (2012) on foreign direct investment and inflation rate among other variables show a positive and insignificant relationship.

In contrast to our expectation of a negative relationship between total foreign investment inflows and inflation rate as proposed by Romer (1993), the positive correlation is probably because Nigeria is an import dependent economy. Though the positive impact is not significant, we have to build and aggressively enhance our manufacturing sector by encouraging our foreign investors to invest in the manufacturing sector to produce tradable goods. This follows Samimi, *et al*, (2012) who find a positive relationship between trade openness and inflation for Middle East and North African countries (MENA).

The Central Bank of Nigeria (CBN) has been using monetary policy tools to fight inflation through Inflation Targeting (IT) with a view to reducing inflation to a single – digit level. Such success however comes at the cost of an unsustainable high rate of unemployment since the measures will be contractionary. Therefore, foreign direct investment needs to be made to contribute to reducing inflation by directing and encouraging investments in non-oil real sectors of the economy that will generate jobs and export finished goods because export-oriented multinational corporations are often very mobile and sought after by host countries, so they can move relatively easily between countries and generate jobs (World Bank, 1997).

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