

External Capital flows and Health Sector Development in Nigeria

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Abstract

The growing concern on the poor state of health facilities in Nigeria necessitated the investigation of how external capital flows helped in supporting healthcare development in the country. The specific objectives are to examine the effects of FDI, official development assistance (ODA), workers' remittances, external debt servicing and domestic investment on investment in the health sector. The data for the variables were obtained from the CBN Statistical Bulletin and World Development Indicators, and analyzed using descriptive statistics, ADF unit root test, bounds cointegration test and ARDL method. The unit root test showed evidence of mixed integration in the variables and the bounds cointegration test showed long run relationship among the variables in each of the models. The result showed that FDI is positively related to health sector investment in Nigeria. This finding explains the important role external resources play in the process of health care development. At the same time, the results showed that ODA and workers' remittances impacted positive on health sector investment. The implication of this finding is that increased inflows of migrants' remittances support the efforts of the government in development the Nigeria's health sector. The results further revealed that the short term impacts of domestic investment on healthcare expenditures are positive and significant. Given the findings, this study recommends among others that government should provide an enabling environment through improvement in the ease of doing business to ensure that Nigeria remains choice destination of FDI to create opportunities for the development of the health sector in Nigeria.

Keywords: External capital, health sector, development, FDI, ODA, workers' remittances

1. INTRODUCTION

The developing economies such as Nigeria as opined by Ezirim, Anoruo and Muoghalu (2006), have been bedeviled by the twin economic crises of mounting debt burden and foreign investment inadequacies as well as the debt problem which appears to have no remedy at the moment. It is also argued that investment in human capital development is far below minimum requirement in many developing countries due to the saving gap. Thus, external capital flows is often considered as an alternative instrument for the attainment of economic growth. In the growth process of these countries, emphases have been often placed on human capital development as the most robust source of economic growth. Ewubare (2019) argues that the developing countries need to have reached a certain threshold of development to be able to fully

absorb new technologies. There is a widespread concern among international investors to promote rapid economic development in developing economies such as Nigeria, however, despite these attempts; these developing economies are still lagging behind as compared to developed economies.

Rahman (2008) documented that foreign capital and aid was effective in the countries such as Uganda and Vietnam in the 1990s, Bolivia and Ghana in the 1980s, Indonesia in the 1970s, and Botswana in the 1960s. At the opposite end of the arguments are those who believe that foreign capital and aid has not been effective in helping poor countries to transform their economies and that it has rather led to the dependency of the recipients from developed countries. These foreign capital and aid measures are not specific enough; perhaps this may be the reason for the stark contrast in the researchers' conclusions and policy suggestions. Notably, human capital plays a prime and an indispensable role in the process of economic growth and development and thereby it improves the social welfare of people. The status of human capital is theoretically and practically apparent, as the human capital appears more important comparing to the factors of production.

The importance of human capital with reference to production function is explained by Rashid (2000), revealing that it is clear that the resources are generally explained by the human knowledge for the reason that the central and primary source of all wealth is human labor. They differ in the relative effects on earnings and consumption, in the amount of resources typically invested, in the size of returns, and in the extent to which the connection between investment and return is perceived. But all improve the physical and mental abilities of people and thereby raise real income prospects. Nkoro and Furo (2012) posit that the growth experience of many of the economies such as Nigeria has not been very satisfactory and as a result, they accumulate huge external debt in relation to gross domestic product and face with serious debt servicing problems in terms of foreign exchange flow and also walloping in abject poverty. In the bid to overcome stagnation, financial repression, external disequilibrium and achieve increase in capital flows, successive governments in Nigeria have adopted various measures to attract more capital, open up the economy to overcome shortage of funds to meet investment and development needs. It, therefore, becomes imperative to investigate how the capital inflows impacted on healthcare investments in Nigeria.

2. Literature Review

2.1 Mac-Dougall-Kemp hypothesis

Mac-Dougall (1958) propounded a theory on capital inflows and this theory was later expanded by Kemp (1964), hence the name of the theory "Mac-Dougall-Kemp hypothesis. The theory assumes two-country models – one for the foreign country that is investing and the other being the for the domestic country, they also assume that the price of capital is equal to the marginal productivity of capital, capital moves freely from a capital abundant country to a capital scarce country and in this way the marginal productivity of capital tends to equalize between the two countries. This leads to improvement in efficiency in the use of resources that leads ultimately to an increase in welfare. Despite the fact that the output in the investing country decreases in the wake of foreign investment outflow, national income does not fall in so far as the country receives returns on capital invested abroad, which is equivalent to marginal productivity of

capital times the amount of foreign investment. So long as the income from foreign investment is greater than the loss of output, the investing country continues to invest abroad because it enjoys greater national income than prior to foreign investment. The host country too witnesses increase in national income as a sequel to greater magnitude of investment, which is not possible in the absence of foreign investment inflow.

2.2 Empirical Literature Review

Ogbuagu and Ifionu (2015) studied the causality between capital flows, human capital development and economic growth using Nigeria as a case study. They analysed the relationship using pairwise granger causality and dynamic autoregressive model. Their results show that there is no causal relationship between capital flows, human capital development and economic growth. They recommended that the Nigeria government should proffer solutions to the political, cultural and social-economic issues hindering growth in the economy.

Uwubamwen and Omoruyi (2018) in their study on international capital flows and development observed that capital flow indicators that were used for analysis had a positive and significant relationship with development except for trade openness that had a significant but negative relationship with development. The study recommends liberalisation of the financial sector of the economy and huge investment in human capital as a way to increase economic development in Nigeria. Tressel, Reinhardt and Ricci (2010) investigated the relationship between international capital flows and development. In their analysis, it was observed that less developed economies tend to experience capital inflows more than developed economies which is in line with the neo-classical theory. Alfaro, Kalemli-Ozcan and Vadym (2008) in their study of why doesn't capital flow from rich to poor countries? drew conclusions that foreign investment serves as the link through which institutions affect long term investment.

Fasanya and Onakoya (2012) analyzed the role of foreign aid in stimulating economic growth in Nigeria during the period of 1970-2010. The empirical analysis relied on the neo-classical modelling analytical framework and combined several procedures in modern econometric estimation techniques. It was uncovered from the analysis that aid flows has significant impact on economic growth in Nigeria. Specifically, the result shows that increase in domestic investment is associated with increase in flows of international aid. The positive impact of aid on domestic investment is a confirmation of the aid-policy growth hypothesis in the Nigerian economy. The findings necessitated the recommendation that donor governments and institutions should ensure the necessary political and economic machineries are in place in order to guarantee the effectiveness aid in the recipient countries.

Mohamed and Mzee (2017) appraised the impact of foreign aid on human development as measured by the human development index (HDI) in 124 developing economies spanning through the period 1980-2013. The study applied Quantile regression for analyzing the data sourced from the sampled countries. The results reveal in general, aid is positively associated with the human development index. The result also revealed that countries with low level of human development show greater impact of international aid on human development index. Following the significant positive impact of aid human development index, the study concluded that after all aid is an important source of human welfare.

3. METHODOLOGY

3.1 Research Design

Considering the nature of this study, an ex-facto research design was adopted. The adopting of this research design is based on the fact that the data required for the analysis are historical in nature as they are documented over the period 1980-2020.

3.2 Model specification

The functional form of the model is provided as follows:

$$HEXP = f(FDI, ODA, EXDS, DINV, WREM) \quad (1)$$

Where; HEXP= Health Expenditure as a proxy to the quality of health services received by citizens.

FDI= Foreign Direct Investment as proxy for investment carried out by foreigners in another country. It is the inflows of investment from citizens of another country into the domestic economy.

ODA= Official Development Assistance as proxy for international aid given to Nigeria

EXDS = External Debt Servicing as proxy for Nigeria's external debts

DINV = Domestic Investment as proxy for investment undertaken by citizens in a country.

WREM = Workers Remittances as proxy for transfers sent by Nigerians abroad to their relatives living in Nigeria. It forms part of the financial inflows into the country.

The econometric form of the model is stated below:

$$HEXP = \lambda_0 + \lambda_1 FDI + \lambda_2 ODA + \lambda_3 EXDS + \lambda_4 DINV + \lambda_5 WREM + Ut \quad (2)$$

Where: Ut = Error term

λ_0 = constant parameter

$\lambda_1 - \lambda_5$ = coefficients of the explanatory variables.

3.3 Method of Data Analysis

The error correction model (ECM) was adopted in this study. The ECM was used to examine the length of time it will take to adjust from short run disequilibrium to long run equilibrium. The order of integration of the variables and the result of the co-integration tests are what help to determine if ECM can be used for estimation. Only when there is long run relationship between variables and if they are of the same order of integration can ECM be used. The coefficient of the ECM is expected to be negative and significant at 5 percent level of significance. It is the parsimonious ECM that was used for the interpretation. In addition, the Phillips and Perron (1988) popularly known as Phillips-Perron unit root test procedure was applied in testing the null hypothesis of non-stationarity against the alternative hypothesis of stationarity at the conventional 5 percent level. The Johansen efficient maximum likelihood test was applied to

examine the existence of a long-term relationship among the variables which is distinct from the bounds cointegration test applied by Ewubare and Ezekwe (2017).

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The descriptive statistics was utilized to deepen the understanding of the descriptive characteristics of each of the variables in the model. The results are reported in Table 1.

Table 1: Basic descriptive statistics for the variables

	HEXP	FDI	ODA	EXDS	DINV	WREM
Mean	2.374	1.532	0.653	2.663	35.67	2.625
Median	2.128	1.129	0.471	2.026	32.529	1.645
Maximum	5.549	5.791	4.939	6.5213	89.380	8.312
Minimum	0.976	0.257	0.024	0.103	14.900	0.005
Std. Dev.	1.116	1.225	0.929	2.108	19.223	2.556
Jarque-Bera	9.725	38.14	382.38	3.870	8.634	3.872
Probability	0.008	0.000	0.000	0.144	0.013	0.144
Observations	40	40	40	40	40	40

Source: Researcher's computation using E-views 10

The descriptive statistics revealed that health expenditure averaged 2.37 per cent of the GDP. The mean values of FDI and ODA are 1.53 and 0.65 per cent respectively. This explains that FDI, on the average, surpassed ODA inflows during the study period. The external debt servicing averaged 2.66 per cent of the GNI whereas domestic investment and workers' remittances have mean values of 35.67 per cent of GDP and 2.62 per cent of GNI respectively. The standard deviations for the variables revealed that the observations for all the variables except ODA clustered around their respective mean values. This is because they are associated with standard deviations which are less than the corresponding mean values. Furthermore, the results revealed that the residuals of external debt servicing and worker's remittances are normally distributed given that the associated probability values of their Jarque-Bera statistics are greater than 0.05. However, the residuals of the other variables in the models do not follow normal distribution as indicated in the low probability values of their respective Jarque-Bera statistics.

4.2 Unit Root Test Results

The unit root test was performed at 5 per cent level using ADF method and the results are presented in Table 2.

Table 2: Summary of ADF unit root test results

Variable	ADF stat./p-value for levels test	ADF Stat./p-value for first difference test	Order of integration
HEXP	-2.372 (0.388)	-6.3132 (0.000)	I(1)
FDI	-3.881 (0.022)	NA	I(0)

ODA	-4.454 (0.005)	NA	I(0)
EXDS	-3.545 (0.048)	NA	I(0)
DINV	-3.497 (0.054)	NA	I(0)
WREM	-2.792 (0.209)	-6.157 (0.000)	I(1)

Source: Researcher's computation using E-views 10

Note: Figures in parenthesis are the corresponding probability values of the adjusted t-stat. while NA denotes not applicable given the evidence of stationary process at levels

The ADF unit root test result shows that FDI, ODA, external debt servicing and domestic investment are stationary at levels. This is because the corresponding probability values of the ADF statistics for each of these variables are less than 0.05. This implies that the null hypothesis of no unit root for each of these variables is accepted. In other words, they are considered to be integrated of order zero [I(0)]. However, health expenditures and workers' remittances are not stationary at levels. This finding prompted further investigation into their stationary properties by conducting a first difference and they are found to be stationary upon first differencing. With evidence of stationary at first difference test, these variables are integrated of order one [I(1)]. Based on the outcomes of the ADF unit root test, the variables in the models are mixed integrated, thereby necessitating the application of bounds cointegration method to determine if they have long run relationship.

4.3 Cointegration Test Results

The results of the bounds cointegration tests are reported in Table 4.

Table 4: Bounds cointegration results

Series: HEXP FDI ODA EXDS DINV WREM		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	7.434	5
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

Source: Researcher's computation using E-views 10

NB: K denotes number of explanatory variables in the model

The bounds cointegration test for the health expenditure shows that the computed F-statistic (7.434) is greater than the upper bound critical bound value (3.79) at 5 per cent level of significance. This finding provides enough empirical evidence for rejecting the null hypothesis

of no cointegration. It, therefore, follows from the result that long-run relationship health sector expenditure has long run relationship with the underlying explanatory variables.

4.4 Model Estimation

The evidence of cointegration in the model provided the required condition for fitting the ARDL model to capture the dynamic relationship between the dependent and independent variables. The results are reported in Table 5.

Table 5: ARDL estimates

Dependent Variable: HEXP				
Short run results				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI)	1.447766	0.281032	5.151607	0.0006
D(FDI(-1))	0.174431	0.132777	1.313711	0.2214
D(FDI(-2))	1.584736	0.302987	5.230378	0.0005
D(ODA)	0.111096	0.340853	0.325935	0.7519
D(ODA(-1))	2.701330	0.564656	4.784030	0.0010
D(EXDS)	-0.608958	0.234735	-2.594232	0.0290
D(EXDS(-1))	0.809917	0.184914	4.379960	0.0018
D(DINV)	0.113163	0.049538	2.284385	0.0482
D(DINV(-1))	0.170984	0.053491	3.196514	0.0109
D(WREM)	0.568269	0.240043	2.367358	0.0421
D(WREM(-1))	1.862567	0.357310	5.212752	0.0006
CointEq(-1)	-1.373169	0.260381	-5.273687	0.0005
Long run results				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	3.126995	0.422580	7.399775	0.0000
ODA	0.296677	0.090200	3.389101	0.0014
EXDS	-2.718172	0.322859	-8.419056	0.0000
DINV	0.015036	0.032263	0.466046	0.6523
WREM	1.876851	0.237503	7.902436	0.0000
C	8.953238	1.141782	7.841458	0.0000
R-squared	0.834245		Prob.(F-stat.)	0.0085

Source: Researcher's computation using E-views 10

The results in Table 5 revealed that the short and long term effects of FDI on healthcare expenditure positive and statistically significant at 5 per cent. This implies that increase in net FDI inflows have the potential of promoting healthcare development for improved human capital development. Similarly, the first lag of ODA is positively linked to healthcare expenditure in the short run. Again, the long run effect of ODA on healthcare expenditure is also positive and statistically significant at 5 per cent level. This finding explains the increasing focus aid to the health sector to life expectancy and overall health status of the Nigerian population. Both the contemporaneous and lagged values of domestic investment are also positively and significantly related to healthcare expenditure in the short run. This finding suggests that increased domestic

capital formation provides a pathway for developing the stock of human capital in Nigeria. Additionally, the short run effects of external debt servicing on healthcare spending is mixed. While the contemporaneous value is positively linked to healthcare expenditure, its one period lag has a significant positive effect on healthcare expenditure in the short run. At the same time, there is a significant negative effect of external debt servicing on healthcare expenditure. This further authenticates the adverse implications of external debt servicing on human capital development in Nigeria. Interestingly, the workers' remittances have a significant positive effect on healthcare expenditure in both short and long run. This finding also explains the imperativeness of external capital flows for healthcare development, and in so doing enhance human capital development. The error correction coefficient (-1.373) is negative and statistically significant at 1 per cent level. The implication of this finding that for any short-run disequilibrium in the system, approximately 100 per cent of it is corrected each year, which attests to the high speed of adjustment in the system. More so, the R-squared value (0.834) implies that 83.4 percent of the total changes in healthcare expenditure are attributed to variations in the explanatory variables. It is also evident from the probability value (0.008) of the F-statistic that the explanatory variables are collectively significant in explaining changes in healthcare expenditure in Nigeria.

Table 6: Post-estimation diagnostics test results

Test type/Null Hypothesis (H_0)	Test-statistic	Prob. value	Decision
Breusch-Godfrey Serial Correlation test H_0 :No serial correlation in residuals	Chi-square stat. (1.382)	0.5011	Accept H_0
White's heteroscedasticity test H_0 :Residuals are homoscedastic	Chi-square stat. (4.273)	0.748	Accept H_0
Ramsey's RESET H_0 : No functional form misspecification	F-stat. (2.614)	0.102	Accept H_0

Source: Researcher's computation using E-views 10

The evaluation of the estimated model was undertaken through the conduct of post-estimation tests. As observed from the Breusch-Godfrey LM test result, probability value (0.5011) of the Chi-square statistic (1.382) is above 0.05. This finding implies that the residuals are not autocorrelated. In addition to the serial correlation test result, the White's heteroscedasticity test result reveals that the variance of the residuals is constant over the study period. This is because the probability value (0.339) of the Chi-square statistic (4.273) is greater than 0.05. This finding implies that the null hypothesis that the residuals are homoscedastic is maintained. The Ramsey RESET test result also provides enough empirical evidence for accepting the null hypothesis that the model is properly specified at 5 per cent given that probability value (0.102) of the F-statistic (2.614) is greater than 0.05. Overall, the post-estimation test results offered enough empirical basis for relying on the estimated for both policy and long term prediction.

5. Concluding Remarks

The centrality of this study is on the empirical relationship between external capital flows and healthcare investment in Nigeria. It offered empirical evidence on the channels through which external capital flows influenced the process of health sector development. The findings showed

that FDI is outstanding in driving the process of health sector development in Nigeria. Additionally, ODA, migrants' remittances and domestic investments contributed meaningfully to healthcare development in Nigeria. However, external debt servicing was identified to generate adverse implications on investment in the health sector. Given the findings, this study concludes that FDI inflow is the most pronounced channel of external capital flows which drive the process of human capital development in Nigeria. Another conclusion from the findings is that ODA, migrants' remittances and domestic investments are important for the improved investments in the health sector. Therefore, the study recommended that government should provide an enabling environment through improvement in the ease of doing business to ensure that Nigeria remains choice destination of FDI to create opportunities for the development of the health sector in Nigeria. It is also recommended that policymakers should leverage good governance and improved institutional quality to attract ODA to boost general budget support, especially in the Nigerian health sector.

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