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Reinvestigating Foreign Direct Investment and Poverty Nexus: any Difference with the Nigerian Human Development?

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Abstract

This study examined the relationship between FDI inflows and poverty reduction vis-à-vis Human Development Index in which majority of past studies have not fully explored in Nigeria. Data were extracted from secondary sources with application of ARDL and Bounds test technique. The major findings that came up in this study are as follows; FDI net inflows had an insignificant negative relationship with GDP per capita that measures welfare of the people in terms of the socio-economic benefits in Nigeria. Similarly, net FDI inflows had a negative but insignificant relationship with literacy rate, which measures welfare of the people in terms of educational attainment. Whereas, net FDI inflows had an insignificant positive relationship with life expectancy which measures welfare of the people in terms of health. Consequently, steaming from the principal findings that emerged in this work, the following recommendations are therefore made for the policy makers in Nigeria. When the Nigerian policy makers want to address poverty holistically in the country, the human development variables should be targeted. Also, policy measures that would stimulate FDI inflows into the country should be encouraged, and FDI inflows in the country should be utilized maximally in order to bring poverty reduction in the country in the short run.

Keywords: *FDI; poverty reduction; HDI; ARDL; Nigeria*.

JEL Classification: *F21; F23; F62; D60*.

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Introduction

Currently, the Nigerian economy is bewildered with various socio-economic problems ranging from unemployment, insecurity of lives and properties, outbreak of corona virus-COVID 19 and high level of poverty (WHO, 2020; Peter *et al.,* 2018: Kolawole *et al*., 2015). Poverty is a very critical issue in Nigeria steaming from the 2018 report of World Poverty Clock which categorized Nigeria as country which has the highest number of people living in extreme poverty in the globe (Adebayo, 2018). As a result of this, the world`s poverty headquarters was relocated from India to Nigeria in 2018, which is now a burning issue in the country (Aderemi *et al.,* 2020).

However, an attempt to combat poverty menace in developing countries, made poverty reduction to occupy the number one position of the Sustainable Development Goals (SDGs) initiated by the United Nations. This policy has redirected the concerns of every developing economy towards achieving sustainable economic growth and employment generation. Meanwhile, the need to increase economic growth and create more productive employment as a means of reducing poverty is even critical for countries in Sub Saharan Africa, particularly Nigeria where population is growing at an alarming rate (West Africa Economic Outlook, 2019).

Consequently, in Nigeria, many people are deprived of basic necessities of life which are food, clothing and shelter. This has made some of the Nigerian households to be perpetually held in poverty circle (Okosun *et al*., 2012; and Kolawole *et al.*, 2015). The critical level of poverty in Nigeria, in the recent time has reflected in its value of HDI for 2014 and 2015, showcasing Nigeria in low development category among the nations of the world (UNDP, 2015).

However, in the past two decades, some countries were able to address poverty related issues through the implementation of Millennium Development Goals (MDGs). This statement was reinforced in the assessment of MGDs in 2015 which showed that poverty reduction has been achieved in a few emerging economies. Nevertheless, Nigeria is still lagging behind with high degree of poverty (United Nations, 2015; UNDP, 2015). It is evident that governments of various newly emerging markets are constantly strategizing for means of reducing poverty in their respective countries by utilizing domestic revenue and donor support. Unfortunately, Nigeria is locked down in multiple constraints of low domestic revenue, inadequate donor financial and low private sector capital and investment. Against this backdrop, foreign direct investment (FDI) becomes an indispensable source of private finance in Nigeria (UNCTAD, 2015). FDI inflows have started to structurally transform economies of the world (World Bank, 2013). This is due to the numerous benefits in which FDI projects bring to the host countries. It has been argued that FDI augments the deficiencies of inflows of capital and technology in the host country (Olusanya, 2013). In the same vein, FDI creates a platform for domestic firms to take the advantage of resources from foreign firms especially those firms in an intra-industry setup (Meyer, 2004). The local firms could also benefit from the products of technological transfer from foreign firms especially local firms which are operating under the same frequency but at different levels of technological advancement (Falore and Winkler 2012). However, Nigeria is one of the countries in Africa experiencing low wage levels, abject poverty, high unemployment rates and significant dependency on the informal sector (West Africa Economic Outlook, 2019). Therefore, it is imperative to explore whether FDI has the capacity to address one of the critical developmental challenges-poverty confronting Nigeria. Meanwhile, it has been established in the literature that FDI reduced poverty in some newly emerging markets. For instance, Mucuk and Demirsel (2013) established that FDI reduced poverty through employment generation in Thailand. Similarly, FDI reduced poverty in Pakistan (Shamim *et al*., 2014: Mahmood and Chaudhary, 2012; Zaman, Khan and Ahmad, 2012). However, studies regarding the impact of FDI on poverty reduction in Nigeria remain controversial, largely due to

measurement and methodological problems. For instance, economic aspect of welfare is measured by GDP per capita, whereas, wellbeing of a country could be measured comprehensively by poverty incidence. The main setback associated with poverty incidence is lack of complete data set and different methods of estimation across countries. However, in improving poverty measurement, the United Nations Development Programs (UNDP) introduced Human Development Index (HDI) which is globally employed as human development variables, and there are data for all countries as well. Consequently, few studies are available focusing on the relationship between FDI and poverty reduction while utilizing HDI. Among these few studies are the works of Gohou and Soumare (2012) focusing on Africa, while Sharma and Gani (2004) focused on middle and low income countries, while Fayyaz, Muhammad, Lijuan, Ilhan, and Shahid (2019) examined the relationship for ASEAN and SAARC economies. However, to the best of our knowledge, no study in the recent times using HDI has been carried out in Nigeria. In view of the above, further study about the impact of FDI on poverty reduction becomes very imperative in the country. Therefore, the study seeks to provide answers to the following research questions. What is impact of FDI on poverty reduction in Nigeria in the Post SAP era?

Furthermore, the study covers the period of 1990 to 2018. The study considered 1990 as the base year because Nigeria fully opened up its economy in the late 80s due to the adoption of the popular Structural Adjustment Program (SAP). It is believed that the openness of the economy would give rise to more inflows of FDI in this country than the previous years. It is worth of note that the paramount reason for this study lies in the compelling need to discover feasible and sustainable economic variable that can serve as a catalyst for combating poverty in the developing countries of Nigeria, Africa and the world by extension.

Literature Review

Theoretical Review

The Benign Model of FDI

In 1998, Moran put forward the argument surrounding the Benign Model of FDI as capital tool that could be utilized to provide a solution to the vicious circle of poverty theory developed by Ragnar in 1953. The major proposition of the Benign Model is that what is responsible for poverty in an economy is lack of capital. This theory is an offshoot of the Harrod-Domer Model (HMD) that emphasizes investment as a function of savings, capital and output. When investment rises, output and savings rise as well. The moment investment is on the increase in an economy, it is expected that economic growth, employment and poverty reduction will be the experience of such country.

Furthermore, this model has a link with Prebisch (1951), who identified FDI as a means for developing economies to have access to management skills, markets and technology for their development of industrial sector. For instance, the economy of the US grew sporadically in the 20th century because of the inflows of resources in terms of human and physical capital from the European countries, particularly the Great Britain (Sackey, Compah-Keyeke and Nsoah 2012).

Meanwhile, the vicious cycle of poverty posits that the major reason why developing countries are in perpetual poverty is as a result of low income (Ogbuabor, Malaolu and Elias 2013; Rohima *et al*. 2013). The low income of consumers in developing countries makes the countries to be held in poverty cage which is very difficult to breakthrough. Low income of consumers implies that the consumers` disposable income is not enough to consume and their savings ability is limited in the same vein. The aftermath effect of this is low purchasing power and low demand on the supply-side. The firms will consequently experience high inventory which leads

to low profits for producers, households and companies. And as such, there will be low capacity for all relevant economic agents to save, metamorphosing into deficiency in capital and low productivity. Hence, poverty cage continues in the economy.

In view of the above, Moran (1998) argued in the Benign Model that FDI would be the most suitable weapon to utilize in breaking the vicious cycle of poverty, because FDI eliminates poverty when saving gap is bridged. This increases the capital base and production in an economy. As production increases, labour demand rises alongside the wage rate, which in turn leads to increment in household incomes and profits of firms.

Empirical Review

This section of the study provides details past empirical works regarding FDI and other macroeconomic nexus across the globe.

Fowowe and Shuaibu (2014) estimated how FDI affected poverty in Africa between 1981 and 2011. The authors used Generalized Methods of Moments (GMM) as technique of estimation to conclude that FDI led to poverty reduction in Africa. While conducting similar study in Pakistan from 1973 to 2003, Mahmood and Chaudhary (2012) employed technique of Autoregressive Distributed Lag (ARDL) model to submit that FDI and poverty deduction had an inverse relationship in the country. In another perspective, Mohammadreza and Arash (2014) employed a panel data technique to estimate how FDI generate employment from 2002 to 2010 in D8 group, with a sample of six countries as follows: Turkey, Pakistan, Malaysia, Egypt and Bangladesh. It was discovered from the study that FDI generated significant employment in the countries under consideration. Gross capital formation generated employment as well but reverse was the case of inflation rate in the country. In another related work, Huang and Ren (2013) examined how sixteen (16) enterprises belonging to Chinese in Johannesburg generated employment in South Africa. It was submitted that both the unskilled and skilled workers got jobs in the country as a result of Chinese firms in the country.

However, Soumare (2015) assessed FDI and welfare nexus from 1990 to 2011 in North Africa within a framework of dynamic panel analysis and Granger-causality. The author posited that FDI inflows and improvement in welfare in North Africa have a direct and strong relationship. Meanwhile, Gohou and Soumare (2012) carried out a similar study in Africa with the application of a panel data technique and using a 2-stage least square to account for endogeneity issue. It was inferred from the study that FDI led to a significant reduction in poverty in Africa. In a related study in Nigeria, Akinmulegun (2012) analyzed linkage between FDI inflows and welfare within VAR framework from 1986 to 2009. The study reported that inflows of FDI could only cause non-significant effect on welfare. Similarly, Ogunniyi and Igberi (2013) corroborated that FDI caused a non-significant effect on poverty reduction in Nigeria while employing Ordinary Least Squares in their work from 1980 to 2012. But Israel (2014) argued that FDI inflows resulted in direct relationship with poverty reduction from 1980 to 2009 in Nigeria. In another related in Africa, Ucal (2014) looked at how FDI and poverty level were related in twenty six (26) developing economies from 1990 to 2009. The author used an unbalanced panel data to assert that FDI and poverty were inversely related in the selected economies.

Consequently, Aderemi *et al.* (2019) applied techniques of Cointegration, Dynamic Ordinary Least Square and Granger causality to estimate how regulation affected inflows of FDI in Nigeria between 1990 and 2016. The authors identified the rule of law, effectiveness of governance and inflation rate spurred the inflows of FDI significantly in Nigeria. While quality of regulation has an insignificant impact on FDI inflows in the country. Meanwhile, causality runs from FDI inflows to quality of regulation likewise a unidirectional causality runs from the rule of law to effectiveness of governance. Kariuki (2015) utilized fixed effects estimation

model to investigate factor that propelled FDI inflows in thirty five (35) African nations between 1984 and 2010. The author asserted that infrastructural development, commodity price index, trade openness and stock market performance constituted significant factors that encouraged inflows of FDI in Africa. Aderemi (2019) assessed the linkage that exists between FDI inflows and economic growth in the Africa`s three biggest countries in terms of GDP spanning from 1990 to 2017. It was discovered that FDI contributed an insignificant positive impact to economic growth in the countries.

In summary, despite the fact that studies regarding FDI and other macroeconomic variables nexus, especially poverty has been well pronounced in the literature in the recent times, yet studies employing HDI as poverty variables in Nigeria are very scanty or not in existence. Hence, the subject matter of this work.

Data and Methodology

Secondary data from 1990 to 2018 would be used for this study. However, FDI inflows data would be sourced from UNCTAD investment report of the World Bank. In the same vein, other macroeconomic data would be extracted from World Development Indicator and International Labour Organization databases respectively. However, the study adopts an ex-post facto research design. The ex-post facto research design is appropriate for this study because its main interest is to explore the viable relationship and describe how the explanatory variable predicts variation in the dependent variable.

Model Specification

This study is anchored on two (2)-gap theory which enunciates that skill limit, investment gap and foreign exchange gap limit as a constraint to development. If this gap is closed, development is inevitable in the economy (Chenery and Strout, 1966). Therefore, development should automatically bring about poverty reduction. It is worth of note that FDI inflows can bridge skill, saving and foreign exchange gaps in an economy. If these gaps are bridged, poverty reduction is imminent in the country. Meanwhile, Human Development Index is employed as poverty variables in this study because majority of recent past studies that focus on Nigeria have ignored these variables.

Consequently, a quantitative technique is the most common approach among studies focusing on FDI and other macroeconomic variables nexus. See Olaoye *et al*. (2020), Aderemi *et al*. (2019), Aderemi *et al.* (2019:2), Soumare (2015), Fowowe and Shuaibu (2014), Israel (2014), Olayiwola and Okodua (2013). In spite of this, some studies like Hanna *et al*. (2014) and Ronan Patrick Coy (2012) have employed qualitative technique. However, quantitative approach was utilized to sufficiently address the objectives of this study. In extending the theoretical framework in accounting for FDI inflows and poverty reduction in Nigeria, this study adapted model from the works of Nathapornpan (2015), Mohammadreza and Arash (2014). The model is therefore modified by eliminating some variables that are not relevant to the study focus.

$$\mathrm{HDI_t} = \mathrm{f(Kt, FDIt, RGDPt, INFLt, OPENt)} \qquad (1)$$

The models could be linearized as follows:

$$\mathrm{HDI_t} = \alpha 0 + \beta 1 \ln K + \beta 2 \ln FDI + \beta 3 \ln RGDP + \beta 4 INFL + \beta 5 OPEN + ui \qquad (2)$$

This study follows Pesaran, Shin and Smith (2001); Pesaran and Pesaran (1997) in adopting an ARDL and Bounds test model due to the outcomes of the stationarity properties of the data employed for this work. The ARDL model could be specified as follows:

$$\Delta HDI_t = \beta_1 + \sum_{i=1}^{p} \beta_2 \ \Delta HDI_{t-1} + \sum_{i=0}^{p} \beta_3 \Delta LnGFCF_{t-1} + \sum_{i=0}^{p} \beta_4 \Delta \ LnRGDP_{t-1} + \sum_{i=0}^{p} \beta_5 \Delta \ INFL_{t-1} + \sum_{i=0}^{p} \beta_6 \Delta \ OPEN_{t-1} + \mu i \quad (3)$$

Measurement of Variables

Table 1 shows how the variables of interest are measured, the units of measurement and the various sources of the data employed in the work.

Table 1. Variable Description

Abbreviation	Description	Units of Measurement	Source
FDI	FDI net inflows	Million dollars	UNCTAD
GFCF	Gross fixed capital formation	Billion dollars	WDI
OPEN	Trade Openness; this is addition of imports and exports as percentage of GDP	Percentage	WDI
HDI	Human Development Index, this comprises of literacy rate, life expectancy and GDP per capita. It should be noted that there is paucity of HDI data in Nigeria, therefore, this study utilized literacy rate, life expectancy and GDP per capita data in lieu of HDI	Percentage, years	WDI
RGDP	Real Gross Domestic Product	Billion dollars	WDI
INFL	Percentage change in the GDP deflator or consumer price index	Percentage	WDI

Source: Authors` compilation (2020).

It is expected that $\beta_2 \ \beta_3 \ \beta_4 \ and \ \ \beta_6 > 0$. However, $\beta_5 < 0$.

Result and Discussion

The need to provide information about the description of the data employed in this study led to the estimation of the descriptive statistics in which its results were presented in Table 2 below. The Table 2 shows the descriptive statistic distribution of the variables in this study. This distribution becomes imperative because econometric analysis is premised on the normal distribution assumption of the dataset. Log of FDI in Nigeria, from 1990 to 2018 has maximum and minimum values of 22.91100 million and 20.72626 million respectively. The mean value of log of FDI is 21.73571 million which has the standard deviation of 0.717024 million. This data is moderately dispersed owing to the fact that the value of mean of this variable is greater its standard deviation. Also, it has a positive skweness with value of Kurtosis which is not far from 3. Therefore, log of FDI agreed with the symmetrical distribution assumption. Meanwhile, log of gross fixed capital formation in Nigeria in the last 29 years has a minimum value of 2.651037 billion and maximum value of 3.972595 simultaneously, whereas the mean value of the data is greater than its standard deviation. This suggests that the data is moderately dispersed from its mean. However, the data is negatively skewed with kurtosis value far from 3. This implies that log of gross fixed capital formation does not agree with the symmetrical distribution assumption.

Furthermore, log of real GDP in Nigeria between 1990 and 2018 has maximum and minimum values of 346.1660 billion and 26.87467 billion concurrently. The log of RGDP data is largely dispersed from the mean because the mean value of the data is less than its standard deviation.

The data is positively skewed with standard deviation greater than 3. This implies that this data does not agree with the symmetrical distribution assumption. In the same vein, inflation rate in Nigeria between 1990 and 2018 possesses a minimum value of 5.380000% and a maximum value of 72.84000%. Inflation rate data is moderately dispersed because its mean value is greater than its standard deviation. The data is positively skewed with kurtosis value greater than 5, this makes the data to violate the symmetrical assumption.

Table 2. Descriptive Statistics of Annual Data Series (1990-2018)

Descriptive Statistics	LnFDI	LnGFCF	LnRGDP	INFL
Mean	21.73571	3.252719	41.90371	18.48862
Median	21.50762	3.264480	31.26468	12.22000
Maximum	22.91100	3.972595	346.1660	72.84000
Minimum	20.72626	2.651037	26.87467	5.380000
Std. Deviation	0.717024	0.433362	58.52535	17.15360
Skewness	0.211350	-0.013514	0.100427	0.016217
Kurtosis	1.635048	1.603113	7.002209	5.896723
Jargue-Bera	2.467138	2.358695	823.0179	29.78726
Probability	0.291251	0.307479	0.000000	0.000000
Sum	630.3355	94.32885	1215.208	536.1700
Sum. Sq. Deviation	14.39544	5.258465	95906.07	8238.891
Observation	29	29	29	29

Source: Authors` compilation (2020).

Table 3 shows the literacy rate in Nigeria from 1990 to 2018 has a minimum value of 35.74462% and a maximum value of 62% respectively. The mean value of the data is greater than its standard deviation, as a result of this it could be concluded that the data is moderately dispersed from the mean. This data is positively skewed with kurtosis value close to 3. This justifies the fact that the data agrees with the assumption of symmetry. However, life expectancy in Nigeria has a minimum value of 35.7 years and a maximum value of 56.2 years concurrently. The series has a mean value which is greater than its standard deviation. This shows that the data is moderately dispersed from its mean. The values of both kurtosis and skewness imply that this series agrees with the symmetrical assumption.

Similarly, the log of GDP per capita in Nigeria from 1990 to 2018 has a minimum value of -4.200000 and a maximum value of 30.40000 at the same time. The mean value of the series is less than its standard deviation. This implies that the data is largely dispersed from the mean, though the series is positively skewed but its kurtosis value is far bigger than 3. This implies that the distribution of the series does not agree with the symmetrical assumption. On the other hand, trade openness data has a maximum value of 42% and a minimum value of 22% respectively. The standard deviation of the series is less than its mean value. This shows that the series is moderately dispersed from its mean value. The series is positively skewed with kurtosis value of 3. This shows that the series is in agreement with the assumption of symmetry.

In summary, the larger bulk of the dataset is in agreement with the symmetrical assumption. This suggests that the distribution of this data set is close to normal. And as such, it could be further used for econometric analysis.

Table 3. Descriptive Statistics of Annual Data Series (1990-2018)

Descriptive Statistics	LIT	LIFE	LnGDP/Ca	TRO
Mean	45.26161	48.90224	2.532143	27.51351
Median	44.95675	38.73815	1.650000	28.41212
Maximum	62.00000	56.19980	30.40000	42.27010
Minimum	35.74462	38.30223	-4.200000	22.34010
Std. Deviation	6.204874	7.058423	6.364779	7.009124
Skewness	0.528589	0.463233	0.095979	0.221320
Kurtosis	2.974557	2.854202	14.33384	3.140512
Jargue-Bera	1.351244	2.623523	194.5956	0.313497
Probability	0.508840	0.269345	0.000000	0.810838
Sum	1312.587	112.8165	70.90000	1215.040
Sum. Sq. Deviation	1078.013	0.095570	1093.781	1537.212
Observation	29	29	29	29

Source: Authors` compilation (2020).

Table 4 shows the pre-estimating results of the various data employed for the analysis in this study. Test of stationarity properties of data is one of crucial pre-estimations required for time series data in order to overcome the problem of spurious results in econometric analysis. Against this backdrop, this study employed the standard Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests as techniques to verify whether unit roots exist in the data. As presented in the above table, it could be inferred that the variables such as log of FDI, log of gross fixed capital formation, inflation rate, literacy rate and life expectancy were stationary after first differencing. This implies that this set of series possesses a unit root. However, variables such as log of RGDP, log of GDP/Ca and trade openness are stationary at level. This implies that this set of series does not possesses a unit root. Hence, this study utilized dataset that comprises the combination of I(1) and I(0) variables. In this type of arrangement, Pesaran, Shin and Smith (2001); Pesaran and Pesaran (1997) argued that an ARDL and Bounds test technique should be employed for the estimation of such variables of interest.

Table 4. Unit Root Test

Variables	ADF Test				
	Level	Probability	1st Diff	Probability	Remark
LnFDI	-2.971853***	0.4429	-2.976263***	0.0001	I(1)
LnGFCF	-2.971853***	0.4540	-2.976263***	0.0032	I(1)
LnRGDP	-2.971853***	0.0002			I(0)
INFL	-2.976263***	0.1390	-2.976263***	0.0025	I(1)
LIT	-2.971853***	0.9808	-2.976263***	0.0171	I(1)
LIFE	-3.004861***	0.2747	-3.004861***	0.0430	I(1)
Open	-2.971853***	0.0436			I(0)
LnGDP/Ca	-2.976263***	0.0325			I(0)
Variables	**PP Test**				
	Level	**Probability**	**1st Diff**	**Probability**	
LnFDI	-2.971853***	0.4130	-2.976263***	0.0001	I(1)
LnGFCF	-2.971853***	0.4422	-2.976263***	0.0042	I(1)
LnRGDP	-2.971853***	0.0002			I(0)
INFL	-2.971853***	0.1910	-2.976263***	0.0028	I(1)
LIT	-2.971853***	0.9963	-2.976263***	0.0171	I(1)
LIFE	-2.971853***	0.9997	-2.976263***	0.0592	I(1)
Open	-2.971853***	0.0436			I(0)
LnGDP/Ca	-2.976263***	0.0326			I(0)

Note: ADF and PP probability values were selected at 5% level of significance.

Source: Authors` compilation (2020).

In selecting the appropriate and optimal number of lags for ARDL model, an attempt was made to estimate Unrestricted Vector Autoregression (VAR). As presented in the Table 5, the information criteria suggested that the optimum lag length of ARDL model in this study is lag 2.

Table 5. VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-444.4640	NA	9063.731	37.21525	37.40558	37.29886
1	-364.2869	228.2944	428.5250	33.81694	35.84825	34.30217
2	-296.7498	78.64822*	57.83748*	31.38091*	35.16520*	32.47787*

Note: * indicates lag order selected by the criterion.

Source: Authors` compilation (2020).

Examination of the long run relationship between FDI and poverty variables becomes very imperative while employing ARDL model, this is done within the framework of ARDL Bounds test. It could be deduced from the above results in Table 6 that no long run relationship exists between FDI and poverty reduction in Nigeria because the value of F-Statistic is less than the upper and lower Critical Value Bounds at all levels of significance, hence, the estimation of short run model.

Table 6. ARDL Bounds Test

Sample: 1991 2018
Included observations: 28
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	0.727933	5

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Authors` compilation (2020).

Table 7 presented the estimated ARDL results of nexus between FDI and GDP per capita in Nigeria. Only lag of GDP per capita and trade openness follow the aprori expectation. The R-Square is 0.75 implying that the explanatory variables explained about 65% variation in the dependent variables and left 25% unaccounted for owing to random chance.

Consequently, GDP per capita in the previous year had a positive but insignificant relationship with GDP per capita in the current year. Meanwhile, LnFDI net inflow had an insignificant negative relationship with LnGDP/Ca. A unit change in LnFDI net inflow leads to 1.1% reduction in LnGDP/Ca in Nigeria. Log of gross fixed capital formation and LnGDP/Ca had a significant negative relationship with each other. A unit change in Log of gross fixed capital formation reduces LnGDP/Ca by 40%. In the same vein, LnRGDP and LnGDP/Ca had a significant inverse relationship with each other. A unit change LnRGDP brings about 0.05%

reduction in LnGDP/Ca in the country, whereas, LnGDP/Ca and trade openness possessed a significant positive relationship. A unit change in trade openness increases GDP/Ca by 43%.

Table 7. Impact of FDI on Poverty Reduction Variable (GDP per Capita)

Dependent Variable: log of GDP Per Capita

Selected Model: ARDL

Short Run	Coefficient	t-Statistic	Prob
DLnGDP/Ca	0.207835	0.995410	0.3353
DLnFDI	-1.174294	0.355409	0.7272
DLnGFCF	-40.80481	2.490932	0.0249
DLnRGDP	-0.051863	2.043648	0.0590
DOPEN	0.431137	2.490932	0.0249
R-Squared	0.756981		
Durbin-Watson stat	2.208763		

Source: Authors` compilation (2020).

Table 8 presented the estimated ARDL results of nexus between FDI and literacy rate in Nigeria. It is important to state that FDI and gross fixed capital variables in log form did not follow the apriori expectation. The R-Square of model is 0.75, implying that the explanatory variables explained about 75% variation in the dependent variables and left 25% unaccounted for owing to random chance. Literacy rate in the previous year had a significant positive relationship with literate race in the present year. Meanwhile, FDI inflows in log form had a negative but insignificant relationship with literacy rate. A unit change in FDI in its log form leads to a reduction in literacy rate by 0.015%. In the same vein, Log gross fixed capital formation and literacy rate had a negative relationship which is significant at 10% level of significance. A unit change in gross fixed capital formation leads to 0.11% reduction in literacy rate in the country.

However, real GDP in its log form and literacy rate have a significant positive relationship. A unit change in real GDP leads to 0.00024% increment in literacy rate. Trade openness and literacy rate possessed an insignificant direct relationship with each other. If trade openness changes by a unit, literacy rate will increase by 0.07%. However, inflation rate and literacy rate had an inverse relationship, which is significant at 10% percent level of significance. A unit change in inflation rate causes a reduction in literacy rate by 0.06%.

In summary, having examined the relationship between FDI inflows and poverty reduction vis-à-vis Human Development Index in Nigeria, the major findings that came up in this study are as follows; FDI net inflows had an insignificant negative relationship with GDP per capita that measures welfare of the people in terms of the socio-economic benefits in Nigeria. Similarly, net FDI inflows had a negative but insignificant relationship with literacy rate, which measures welfare of the people in terms of educational attainment, whereas, net FDI inflows had an insignificant positive relationship with life expectancy which measures welfare of the people in terms of health in the country. In the light of the above findings, this study concluded that FDI inflows failed to contribute to poverty reduction in Nigeria. This finding is in tandem with the submission of Mahmood and Chaudhary (2012). However, the finding contradicts the arguments of Fowowe and Shuaibu (2014), Soumare (2015), Gohou and Soumare (2012) in related studies.

Table 8. Impact of FDI on Poverty Reduction Variable (Literacy Rate)

Dependent Variable: Literacy Rate

Selected Model: ARDL

Short Run	Coefficient	t-Statistic	Prob
LIT (-1)	0.689768	3.367274	0.0042
DLnFDI	-1.528874	1.491105	0.1567
DLnGFCF	-11.37175	1.796913	0.0925
DLnRGDP	0.024493	2.947954	0.0100
OPEN	0.076427	1.185903	0.2541
INFL	-0.067819	1.794540	0.0929
R-Squared	0.935659		
Durbin-Watson stat	2.124959		

Source: Authors` compilation (2020).

Table 9 presented the estimated ARDL results of nexus between FDI and life expectancy in Nigeria. Only RGDP in log form did not follow the apriori expectation. The R-Square of model is 0.98, implying that the explanatory variables explained about 98% variation in the dependent variables and left 2% unaccounted for owing to random chance. Life expectancy in the previous year had both positive and significant relationship with life expectancy in the current year. FDI in log form had a positive but insignificant relationship with life expectancy. A unit change in log FDI inflows leads to 0.1% increment in life expectancy in the country. Consequently, gross fixed capital formation in its log form and life expectancy had a significant direct relationship in Nigeria. A unit change in log gross fixed capital formation causes life expectancy to rise by 0.057%. However, log RGDP has an insignificant negative relationship with life expectancy. A unit change in RGDP leads to a reduction in life expectancy by 34%. However, life expectancy and trade openness have positive but insignificant relationship. Meanwhile, the relationship between life expectancy and inflation rate is negative and insignificant.

Table 9. Impact of FDI on Poverty Reduction Variable (Life Expectancy)

Dependent Variable: Life Expectancy

Selected Model: ARDL

Short Run	Coefficient	t-Statistic	Prob
LIFE(-1)	1.121839	6.876724	0.0000
DLnFDI	0.001337	0.304025	0.7644
DLnGFCF	0.059698	2.783241	0.0118
DLnRGDP	-0.34E-05	1.037854	0.3124
OPEN	0.000451	1.673262	0.1107
INFL	-7.67E-05	0.563181	0.5799
R-Squared	0.981574		
Durbin-Watson stat	1.804746		

Source: Authors` compilation (2020).

Conclusion and Policy Recommendation

The relationship between FDI and poverty reduction from 1990 to 2018 has been examined within the framework of ARDL model. The major findings that came up in this study are as follows; FDI net inflows had an insignificant negative relationship with GDP per capita that measures welfare of the people in terms of the socio-economic benefits in Nigeria. Similarly, net FDI inflows had a negative but insignificant relationship with literacy rate, which measures welfare of the people in terms of educational attainment. Whereas, net FDI inflows had an insignificant positive relationship with life expectancy which measures welfare of the people in terms of health in the country.

Consequently, steaming from the principal findings that emerged in this work, the following recommendations are therefore made for the policy makers in Nigeria. When the Nigerian policy makers wants to address poverty holistically in the country, the human development variables should be targeted. Also, policy measures that would stimulate FDI inflows into the country should be encouraged, and FDI inflows in the country should be utilized maximally in order to bring poverty reduction in the country in the short run.

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