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DOMESTIC INVESTMENT AND STANDARD OF LIVING: EVIDENCE FROM NIGERIA

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Abstract
Investment is one of the key variable use in any kind of development of the country, therefore the prime objective of this paper is to investigate the impact of domestic investment on the standard of living in Nigeria for the period of 1986 to 2020. In order to achieve this objective, ARDL model were employed in the study. The properties of the data were first checked in order to avoid spurious regression and found that some of the variablesware integrated of order zero while other were integrated of order one. The results revealed that, domestic investment and Foreign Direct investment are positively and statistically significant in improving the standard of living both in short run and long run in Nigeria, while trade openness is negative and statistically significant in improving the standard of living in the country. The study recommends that, policy makers and stake holders should inspire resident in the importance of domestic investment as well as Foreign Direct investment in the economy.

Keywords: ARDL, Domestic Investment, FDI, Standard of Living and Trade Openness

1.0 Introduction
Domestic investment has an important place in the economies of countries, because it is very paramount in achieving economic development and its impact on several economic variables including the standard of living of the society. The size of its investment stock uses different means and methods to help stabilise and stimulate investment. Investment (both public and private) contributes to the economic prosperity of a nation, the rate of investment in a country is a critical factor in its economic growth and development (Yolopoulost and Nugent 1976). Nigeria is still saddled with a number of economic maladies despite the structural reform carried out by Nigerian government. These problem includes high rate of inflation, low level of saving and investment, wide spread poverty and highly of unemployment (Akujuru, 2015). Thus situation as increase so many researchers who have described the reforms woes rather than a blessing. Instead for the economy to adjust in to recovery, the situation continues to deteriorate. Until now Nigeria experiences high rate of inflation, high poverty and unemployment and this can be reduce only through the massive domestic investment and foreign investment (Adesina, 2013). The expected role of domestic investment as one of the engine of growth never materialised. The most important aspect of

expansion in investment needed to sustain economic growth is yet to be achieved. The macroeconomic indicators in Nigeria reflect these poor performances between 2000 through 2018 (Omodero & Mlanga, 2019). The most important part of an open an effective economic system is investment and also serves as a major factor that facilitates economic growth of most economy.

Domestic investment has generated hit debates among scholars as to its importance in nation building (Kanu, Ozurumba & Anyanwu, 2014; Kanu, 2008; Qin, Cagas, Quising, &. He, 2006; Odedokun, 1997). After the Nigerian civil war, the government sought an approach to build the national economy and place the economy on the part of development. As such, the government in an effort to build the economy embark on massive reconstruction and public-sector investments to achieve sustainable economic growth and development. However, records of the past four decades have generated some concern over the slow pace of industrial and infrastructural development. Questions have been raised as to what should constitute the optimal size of government's capital outlays that can turn around the economy. Overtime, the Nigerian nation has witnessed a tremendous increase in her revenue profile through oil exports. She has equally enjoyed cycles of an oil boom with successive governments harnessing the resources of the nation to execute its budget. Ironically, there has been an increase too in her expenditure pattern overtime. Paradoxically, it does not appear as if the increase in capital expenditures has translated into the increased capital formation and consequently economic growth and development. The problem becomes that Nigeria domestic investment as well as capital accumulation has not been growing and has declined by 24% within the period of 1998 to 2013 (World Bank, 2014). This is a real problem. Although, foreign direct investment has been growing steadily except with the recent economic recession in the country that sawa substantial reduction in FDI by about 28% within 2014-2016 (CBN, 2016). Nigeria macroeconomic indicators show the pitiable performance of a Domestic investment in Nigeria for the period 1986 till date (CBN, 2016). For example, domestic investment declined from 12.3% of GDP in 1991 to 8.3% of GDP in 1992, this may be partly due to the reduced public investment, which fell during the same period. Domestic investment then increased to 12.5% in 1993 and to 16% in 1994. Later, it fell continuously to 8.9% in 1996. Between 2001 and 2010, the ratio averaged 13%; it peaked at 16.2% in 2002 but fell again to 152% in 2010 (CBN, 2015). A mere look at the figure below will reveal domestic investment percentage of GDP in Nigeria is the lowest among the countries examined. From the graph, we could see why China remains the second largest economy in the world with 46% domestic investment percentage of GDP.

Most of the available literatures carried out centred in to establishment the short run or long run and causal relationship among the variables, for example the work of Fakraoui and Bakari (2019), Emmanuel and Kehinde (2018), Babalola (2011), Bakari (2017a) among others and at the same time they focussed on economic growth and felt to address how domestic investment augment standard of living in their respective research. This study is quite different from other study carried out in two different ways. First the study looks in to weather domestic investment augment standard of living or not, which is the main concern of the economist in the developing countries. Second the previous studies in Nigeria used OLS, ECM, VAR, VECM and causality test as their approaches in their findings but this

research used ARDL approach because of it advantage over VAR/VECM models as it does not require all the variables to be integrated of order one (i.e. I(1)).

2.0 Literature Review

Empirical work on domestic investment and economic growth has been enormous and somewhat consistent with its findings but in term of domestic investment and standard of living it is scanty. For instance, Fakraoui and Bakari (2019) investigate the relationship between domestic investment, exports and economic growth in India for the period 1960 – 2017. Empirical analyses show that there is no relationship between exports, domestic investment and economic in the long run. However, only exports cause economic growth in the short run. The further noted domestic investment and exports are not seen as source of economic growth in India. Bakari, Mabrouki and Othmani (2018) examined the nexus between domestic investment, exports and economic growth in Nigeria using cointegration analysis and vector error correction model over the period 1981 – 2015. The results show that there is no relationship between domestic investment, exports and economic growth in the long run and in the short run. Bakari et al (2018) examined the relationship between industrial domestic investment and economic growth in Tunisia. In order to achieve this purpose, annual data for the periods between 1969 and 2015 were tested using the Johansen co-integration analysis of VECM and the Granger-Causality tests. According to the result of the analysis, it was determined that there is a negative relationship between industrial domestic investment and economic growth in the long run term. Otherwise, and on the basis of the results of the Granger causality test, we noted a unidirectional causal relationship from economic growth to industrial domestic investment in the short term. According to Zaheer and Saleem (2018), which examined the relationship among domestic investment, exports and economic growth in Pakistan using the same empirical analysis of Iftikhar et al (2016) but for the period 1980 – 2016, exports have a positive impact on economic in the long run; however domestic investment has a negative effect on economic growth in the long run.

Obayori, et al (2018) investigate the Impact of Private Domestic Investment on Economic Growth in Nigeria for the period of 1980 to 2016 and found that private domestic investment is significantly related to economic growth. The result also indicated that holding other variables, 10 percent increase in the current value of private domestic investment, on the average, stimulates economic growth by 2.08 percent. Similarly, the value of financial sector credit to private sector is positively related to economic growth. On the average, a percent increase in financial sector credit to private sector boost growth in Nigeria by 2.27 percent. They further recommended that, Private domestic investment should be promoted across key sectors of the economy, especially agriculture and manufacturing activities in order to stimulate rapid and sustained growth in Nigeria. Also, Emmanuel and Kehinde (2018) investigate the impact of domestic investment and economic growth in Nigeria for the period of 1980-2016. Their results showed that, a long run significant relationship exists between the variables and domestic investment. The study also found that domestic investment positively influences real gross domestic product. The study recommends that government should create enabling environment for domestic investment to rise through the adoption of macroeconomic policies that will boost investment opportunities in Nigeria.

Bakari (2018) studied the impact of domestic investment and exports on economic growth in Algeria for the period 1969 – 2015. By using cointegration analysis and error correction model, he found in the long run that domestic investment has a negative effect on economic growth; however exports have a positive effect on economic growth. In the short run, he found that domestic investment has a positive effect on economic growth. Also Bakari (2017a) examined the impact of domestic investment and exports on economic growth in the short run and the long run for the case Gabon for the period 1980 – 2015. He used cointegration analysis and error correction model. Empirical analysis showed that domestic investment and exports have a negative effect on economic growth in the long run. However, in the short run, he found that exports and economic growth have a positive effect on economic growth. In another study, Bakari (2017b) investigated the impact of domestic investment and exports on economic growth in Sudan. In order to achieve this goal, he applied cointegration analysis and error correction model. Empirical analysis showed that there is no relationship between domestic investment, exports and economic growth in the long run. Only economic growth causes domestic investment in the short run. Again Bakari (2017c) investigated the relationship between exports, domestic investment and economic growth in Egypt. In order to achieve this purpose, annual data for the periods between 1965 and 2015 was tested by using Johansen co-integration analysis of Vector Error Correction Model to explore the long run and the short run relationships between these variables. The empirical results indicated that in the long run domestic investment and exports have negative impact on economic growth.

Mbulawa (2017) explored the impact of economic infrastructure on long term economic growth in Botswana by using Vector Error Correction Model and Ordinary Least Squares during the period of 1985 – 2015. Empirical results show that domestic investment influence positively economic growth. Iftikhar et al (2016) analyzed the relationship among domestic investment, exports and economic growth in Pakistan during the period 1985 - 2016 by using cointegration analysis and error correction model to detect the nexus in the long run. Empirical results showed that domestic investment has a positive effect on economic growth; however, exports have a negative effect on economic growth. Albiman and Suleiman (2016) investigated the nexus between exports, domestic investment and economic growth in Malaysia, using annual data for the period 1967- 2010. Cointegration analysis, VAR and Granger causality tests were employed in the empirical analysis. The results show economic growth and exports cause domestic investment.

Mba et al. (2013) evaluated the relevance of human capital development on the growth of the economy. The study deduced a strong positive relationship between human capital development and economic growth. Similarly, Tan and Tang (2011) examined the dynamic relationship between private domestic investment, the user cost of capital and economic growth in Malaysia during the period 1970-2009. Their results of Johansen co-integration test suggests that private domestic investment, user cost of capital and economic growth co-integrated in Malaysia. They also carried out Granger Causality test and found that unidirectional causality runs from private Domestic Investment (PDI) to economic growth (GDP) and from PDI to user cost of capital in the long-run. Also Babalola (2011) analysed, empirically, the relationship between investment in education and

economic growth in Nigeria using annual data over the period 1977 to 2008. The unit root properties of the data were examined after which the cointegration and causality tests were conducted. The error correction models were also estimated in order to examine the short run dynamics. The result suggests a long run relationship and a short-term dynamism. Ghazali (2010) identified the causal relationship between private domestic investment and economic growth (GDP) in Pakistan over the period 1981 to 2008. He discovered the following: That there is a bi-directional causality between private domestic investment and economic growth; increased economic growth encourages large private domestic investment, and vice versa. The cointegration results from his study showed that there is a long run relationship between private domestic investment and economic growth. From the result, it is obvious that private domestic investment in Pakistan spurs economic growth.

Most of the available literatures carried out centred in to establishment the short run or long run and causal relationship among the variables, for example the work of Fakraoui and Bakari (2019), Emmanuel and Kehinde (2018), Babalola (2011), Bakari (2017a) among others and at the same time they focussed on economic growth and felt to address how domestic investment augment standard of living in their respective research. This study is quite different from other study carried out in two different ways. First the study looks in to weather domestic investment augment standard of living or not, which is the main concern of the economist in the developing countries. Second the previous studies in Nigeria used OLS, ECM, VAR, VECM and causality test as their approaches in their findings but this research used ARDL approach because of it advantage over VAR/VECM models as it does not require all the variables to be integrated of order one I(1)).

3.0 Materials and Method

Data

The data for this study is mainly secondary data sourced from World Development Indicators (2020), over the sample period from 1986 to 2020 to observe the impact of Domestic Investment on Standard of living in Nigeria also the data will be use in a natural form. The data includes GDP per capita at constant US (GDPPI) proxy for standard of living, Gross Fixed capital Formation (GFCF) proxy for Domestic Investment, Foreign Direct Investment (FDI) and total trade proxy for Trade Openness (TOP)

Model Specification

The model of this study can be written as:

$$GDPPI = f(GFCF, FDI, TOP) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

Where;
GDPPI= Gross Domestic Product per capita at constant US proxy for Standard of living
$GFCF$ = Gross Fixed Capital Formation proxy for Domestic Investment,
FDI = Foreign Direct Investment
$TOP =$ Total Trade proxy for Trade Openness
F = Functional Relationship
The econometric form of the model is as given below;

$$GDPPI_t = \delta_0 + \delta_1 GDPPI_{t-1} + \delta_2 GFCF_t + \delta_3 FDI_t + \delta_4 TOP_t + \varepsilon_t \ldots\ldots 3.2$$

Furthermore, to capture the relationship between Domestic Investment and Standard of Living in Nigeria, the study employed ARDL model otherwise known as Bound test to investigate the impact of Domestic Investment on Standard of Living in Nigeria. The a-priori expectations for the variables under study are:

$\delta_1, \delta_2, \delta_3 and\ \delta_4$ are all positive (>0)

The ARDL regression analysis model employed in the study can be expressed as follows:

$$\Delta GDPPI_t = \alpha_o \sum_{i-4}^{m} \beta_1 \Delta GDPPI_{t-i} + \sum_{i-4}^{m} \beta_2 \Delta GFCF_{t-i} + \sum_{i-4}^{m} \beta_3 \Delta FDI_{t-i} + \sum_{i-4}^{m} \beta_4 \Delta TOP_{t-i} + \mathcal{E}_t \ldots 2\mathcal{E}_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .3.3$$

where α is the intercept, GDPPI, GFCF, FDI and TOP respectively, are the variables used in the model, ε_t is the white noise and Δ is the first difference operator. In order to test the long-run equilibrium relationship among the variables the study employs the "F-test" in the ARDL Bounds test based on the null hypothesis of no co-integration [i.e. H0 : $\delta_1 = \delta_2 = \delta_3 = \delta_4 = 0$], contrary to the alternative hypothesis of co-integration [i.e. H1 : $\delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq 0$]. Accordingly, the computed "F-statistic" is compared to both the upper and lower bounds critical value to either reject or accept the null hypothesis (Pesaran et al., 2001).

4.0 Results and Discussion

As a requirement for ARDL regression analysis, variables can either be I(0) or I(1) without necessity of being both I(0) or I(1). As a result, the study employs the ADF unit root test to test the stationary properties of the data. Evidence from Table 1 shows that FDI and TOP are stationary at level that is they are integrate of order zero {I(0)}, while GFPPI and GFCF have unit root at level but become stationary at their first difference, meaning that the variables are integrated of order one [I(1)]. This mixture of order of integrated paved way to apply ARDL model due to its advantages as it accommodate such mixture of order of integrated,

Table 1 unit root test

	ADF Unit Root (at level)			ADF unit root (at first difference)	
Variables	T statistic	Probability	Variables	T statistic	Probability
GDPPI	-0.574608	0.8623	ΔGDPPI	-3.224591	0.0280**
GFCF	-1.640048	0.4511	ΔGFCF	-5.354645	0.0001*
FDI	-4.074035	0.0035*	ΔFDI	-7.277698	0.0000*
TOP	-3.544829	0.0130**	ΔTOP	-6.945861	0.0000*

*Note: * and ** indicate statistically significant at 1% and 5% level of significant*
Source: researchers' computation 2021

ARDL Co-integration Analysis

After testing the unit root as the prerequisite of any time series econometric research, the study applied ARDL bound test to examine the co-integration among the variables based on the null hypothesis of no long-run relationship. Evidence from Table 2 shows that the F-statistic value (6.06 > I1 Bound) lies above the upper bound critical values at 10%, 5%, 2.5%, and 1%, rejecting the null

hypothesis. This means that the variables under study are co-integrated in the long run.

Table 2 ARDL Bounds Test

Test Statistic	Value	K
F-statistic	6.064491	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.97	3.74
5%	3.38	4.23
2.5%	3.8	4.68
1%	4.3	5.23

Source: researchers' computation 2021

Since the variables are cointigrated, the study estimated the short-run and long-run elasticity, which is shown in Table 3. Evidence from Table 3 shows that the speed of adjustment [ECT(-1) = -0.29, p-value = 0.0001] is negative and significant, confirming the expected equilibrium process in the short-run and long-run dynamics of standard of living, domestic investment, foreign direct investment and trade openness

Evidence from the results show that, domestic investment (GFCF) and Foreign Direct investment are statistically significant and have positive effect on standard of living both in the short run and long run in Nigeria, but trade openness is statistically significant and has a negative impact on Standard of living in the short run and statistically insignificant in the long run in Nigeria.

Table 3 ARDL Cointegration Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF)	14.176754	3.679455	3.85295	0.0032
D(FDI)	13.424048	6.757265	1.98661	0.0750
D(TOP)	-3.948567	1.021101	-3.866972	0.0031
C	-332.776634	53.201226	-6.255056	0.0001
CointEq(-1)	-0.287719	0.044159	-6.515477	0.0001
Long Run Coefficients				
GFCF	26.489729	9.910867	3.285622	0.0166
FDI	187.774814	81.330469	2.308788	0.0436
TOP	-1.593345	11.756211	-0.135532	0.8949
@TREND	111.429808	43.885181	2.539122	0.0294

Source: researchers' computation 2021

Diagnostic Checks

After estimating the ARDL regression, the next step is to examine the "independence" of the residuals in the ARDL model by employing the "Glejsertest" to test for heteroskedasticity problems, the "Breusch–Godfrey Serial Correlation LM Test" to test for serial correlation, the "Ramsey Test" to test for misspecification and the "Jarque–Bera Test" to test for normal distribution. Evidence from Table 4 shows that the residuals in the ARDL model have no Heteroskedasticity problems, exhibits no serial correlation, no misspecification (i.e. in

its functional form), and are normally distributed. These tests show in table 4 and figure 2 below respectively.

Table4. Diagnostic checks

Name of the Test	F –Statisitic	Provability	null Hypothesis
Breusch-Godfrey Serial Correlation LM Test:	0.382836	0.5514	Serial correlation
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.848441	0.6320	Heteroskedasticity
Ramsey RESET Test	1.459755	0.2578	misspecification

Source: researchers' computation 2021

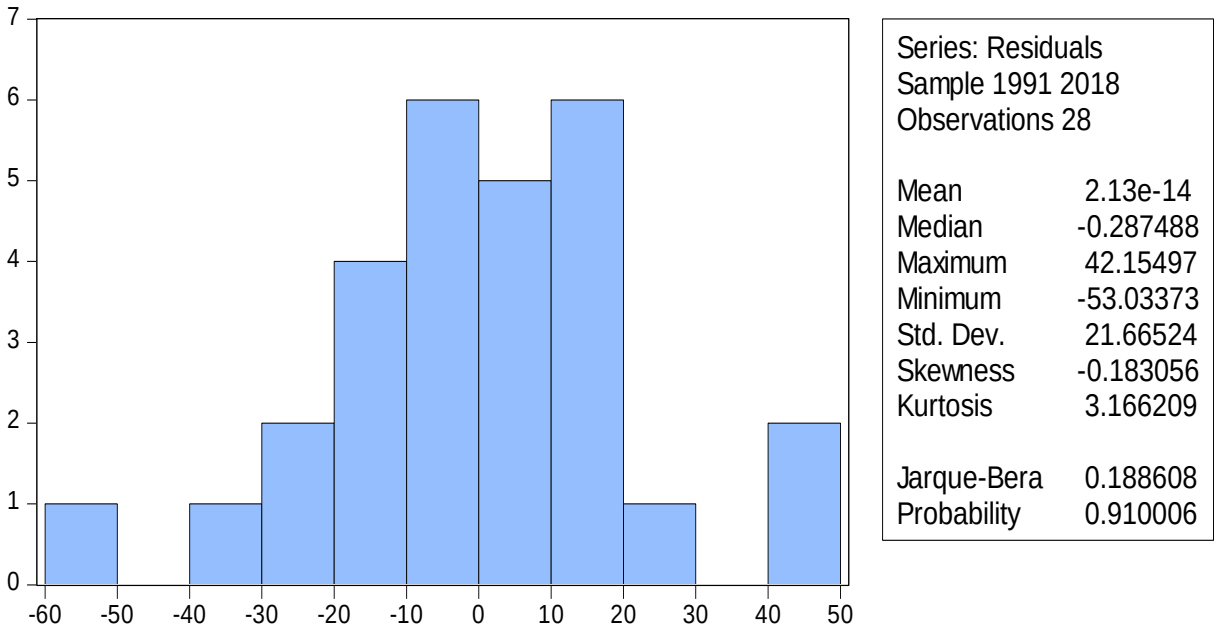

Figure 2 Normality Test
Source: researchers' computation 2021

Stability Checks

In order to check the stability of the ARDL model, the study examines the "constancy of the cointegration space" using the CUSUM and the CUSUM of squares plots. Evidence from Figure 3 shows both the CUSUM and the CUSUM of squares plots are within the 5% significance level; thus, the ARDL model is robust and stable in its form.

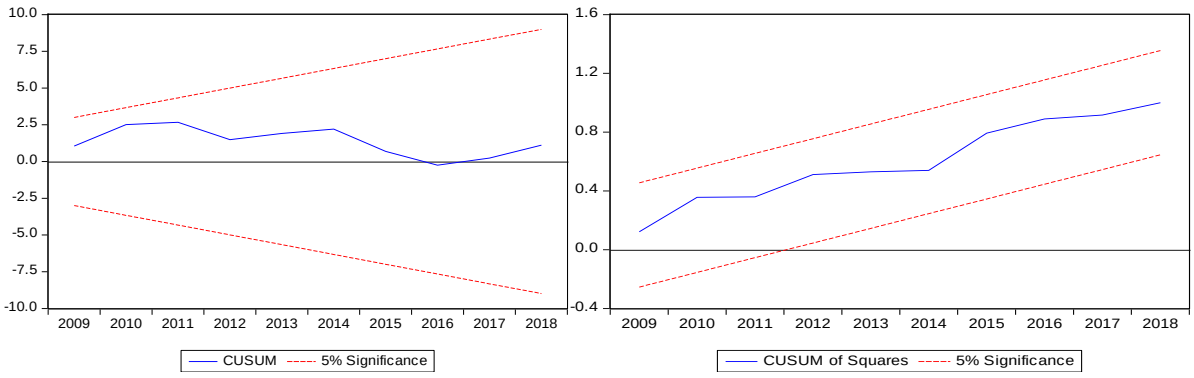

Figure 3 Stability Checks
Source: researchers computation 2021

Result Discussion

The paper investigates the impact of domestic investment on the standard of living in Nigeria for the period of 1986 to 2020. Based on the findings of the results, it shows that the F-statistic value (6.06 > I1 Bound) of the bound test lies above the upper bound critical values at 10%, 5%, 2.5%, and 1%, rejecting the null hypothesis of no long run relationship exist at 1% level of significance and concluded that, the variables under study are co integration in the long run. This implies that the series under study are cointegration in the long run that is to say they have common features and can be convergent in the long run. This study is in line with the findings of Bakari (2018) for Algeria, Obayori, et al (2018) for Nigeria, Babalola (2011) for Nigeria among others and contradicts with findings of Fakraoui and Bakari (2019) for India, Bakari (2017b) for Sudan among others.

Since the variables are cointegrated, the study estimated the short run and long run elasticity and the result indicates that the speed of adjustment ECT(-1) = -0.29, p-value = 0.0001] is negative and statically significant at 1%, confirming the expected equilibrium process in the short run dynamics among the variables under study. The result also reveals that, domestic investment (GFCF) and Foreign Direct Investment (FDI) are statistically significant and have positive effect on standard of living both in the short run and long run in Nigeria, but trade openness is statistically significant and has a negative impact on Standard of living in the short run and statistically insignificant in the long run in Nigeria. This implies that, domestic investment and FDI influence standard of living positively both in the short run and long run in Nigeria. This is in line with the prior expectation of the parameters of the variables. This finding is in line with the finding of Babalola (2011) for Nigeria, Tan and Tang (2011) for Malaysia, Mbulawa (2017) for Botswana among others and contradict with finding of Fakraoui and Bakari (2019) for India, Bakari (2017b) for Sudan among others. Trade openness is statistically significant and has a negative impact on Standard of living in the short run and statistically insignificant in the long run in Nigeria. This is contrary to the prior expectation of the parameter of the variable under study.

5.0 Conclusion and Recommendations

The study analyses the impact of Domestic Investment on standard of living in Nigeria from1986 to 2018. ARDL approach was used in the research. The result from ARDL cointegration reveals that the speed of adjustment is negative and statically significant, confirming the expected equilibrium process in the short run

dynamics among the variables under study. The results also show that, Domestic Investment and Foreign Direct Investment are statistically significant and have positive impact on standard of living both in the short run and long run in Nigeria, but trade openness is statistically significant and has a negative impact on Standard of living in the short run and statistically insignificant in the long run in Nigeria. Based on the findings the paper concludes that, increase in Domestic Investment and FDI in Nigeria improve the standard of living in Nigeria. Therefore the paper recommends that, policy makers and stake holders should inspire resident in the importance of domestic investment as well as Foreign Direct investment in the economy.

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