



**ENERGY CONSUMPTION AND FOREIGN DIRECT INVESTMENT
IN NIGERIA: A STRUCTURAL BREAK ANALYSIS**

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Abstract: The study analyses the structural break impact on the relationship between energy consumption and foreign direct investment in Nigeria from 1970 to 2015. The study accounts for the structural break and estimates the short-run and long-run relationship between energy consumption and foreign direct investment using ARDL estimation technique and Bai-Perron Least Squares Break Point. It was observed from the findings that a strong long-run cointegrating relationship exist between energy consumption and foreign direct investment with and without structural break. The structural break test reveals a break period of 1995 which supports the occurrence of oil price review by OPEC in 1995. Also, the ARDL estimate result revealed that energy consumption, trade and exchange rate adversely attract foreign direct investment, while GDP positively attract foreign direct investment both in the short-run and long-run in Nigeria. The study concludes that even though Nigeria's GDP is trending towards attracting FDI into the economy, energy consumption, trade and exchange rate obstruct the attraction through the additional cost incurred as a result of imbalances in the variables. A major recommendation from the findings is that energy policies need quick re-visit in Nigeria. However, they will - due to the pressure exerted by the constant growth of the population, i.e. on the demand side, demand inflation will constantly manifest.

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1. Introduction

The energy industry is one of the strategic industries, regulated by the government in many countries, with only a few numbers of private investors were allowed in the industry (Sirin, 2017). The new developments in technology: energy market liberalization and restructuring, growing concerns on energy security, environmental degradation and climate change have created opportunities for private investors, and promote innovative capabilities in renewable and sustainable technologies (Sirin, 2017). However, despite the large production of fossil fuel in the country through oil exploration, Nigeria is seen to be behind in terms of energy availability and accessibility among other oil producing countries.

To an economy, growth depends on firm's decision on investment, but declines when investors lose interest in the economy. Kulatilaka and Perotti (1998) and Henrique and Sardosky (2011) similarly identified the same problem in recent literature in line with Baranke (1983) that when firms do not have a monopolistic power over investment opportunities and the market is not competitive enough to accommodate fluctuations in oil prices and alternative costs of generating energy, firms are faced with two options: the option of waiting to resolve the fluctuations in the prices of oil which will favour the prices of alternative sources of energy (such as diesel, premium motor spirit, among others; classified as oil equivalent energy use) and an option to grow investment. This scenario in most cases is considered by investors in the developing countries such as Nigeria.

Nigeria being one of the most endowed in terms of natural resources in the world, and one of the major oil exporting countries in Africa and the world as a whole; the issue of energy availability has been a major impediment to the growth of the economy and also investment over the years. It has been argued by scholars that lack of stable policy in the energy sector is one of the major problems. In recent years, it was recorded that many companies left Nigeria because of the problem of adequate power supply and due to unstable prices of fossil fuel products which increase the risk of foreign direct investment inflows into the country. Foreign direct investment improves an economy's level of growth and development via the introduction of new technologies and the engagement of labour in the production process. The profit orientation of the investors however guides their decision on investing in a country or not. Considering Nigeria as a developing country lacking behind in terms of energy availability and accessibility, it is therefore important to investigate the extent to which energy consumption has impacted on foreign direct investment in order to devise the appropriate policies to aid it existence.

The study has four more sections: section two provides a detailed literature review, section three specifies and presents the data sources for the study, the empirical analysis is presented in section four, while section five summarizes the study into a conclusion and recommends from the findings.

2. Literature Review

Cheng and Kwan (2000) in contrary to the existing theoretical models proposed for the economy of China that in estimating the impact of FDI determinants, regressing the dependent variable (probability of locating FDI or investment in a location) on the explanatory variables that may influence profit making. The explanatory variables impact on the market expectations, production cost, transportation cost, taxes and the business environment by foreign investors. The study takes a different dimension from the existing studies by explicitly considering; (a) error correction of in invest flows as result of the target stock of FDI, (b) actual stock link with investment flow, and (c) relationship between target stocks and the business environment. The study applied Chow (1967) partial stock adjustment model to study the inter-temporal and regional distribution of FDI inflows in the economy of China.

Yildirim (2014) used panel data analysis for 76 countries and noted that apart from Mozambique, United Arab Emirates, Oman, India, Iceland, Panama, and Zambia; energy use and carbon emissions are neutral to foreign direct investment (FDI) inflows in the aggregate level. The study noted that increase or decrease in energy consumption due to the foreign direct investment inflow does not mean increase or decrease in the level of pollution vice versa. Consent to this; Sbia, Shahbaz and Hamdi (2013) proved that in United Arab Emirates; foreign direct investment, trade openness, large scale trade negatively impacted on energy consumption due to adoption of energy efficiency technology that aids energy savings. They also claimed that there is a bi-causal relationship between foreign direct investment and energy consumption. In India, Shahbaz, Hoang and Mahalik (2017) affirmed that a negative shock in financial development and energy consumption negatively impact on economic growth through FDI why positive shocks in both financial development and energy consumption does not have any impact on economic growth through FDI.

Using a global panel data of 65 countries, Omri and Kahouli (2013) posited for the global economy that a bi-direction causal link runs between economic growth and energy consumption, economic growth and foreign direct investment inflows, and there is uni-directional causal relationship from foreign direct investment inflow to energy consumption. For the high-income and middle-income, their study established bi-directional causal existence between energy consumption, foreign direct investment inflow, and economic growth. Between energy consumption and foreign direct investment inflow, a unidirectional causal relationship exists. In low-income countries, the study confirms bi-directional causal relationship between FDI and economic

growth and uni-direction causal link between economic growth and energy consumption and same for energy consumption and foreign direct investment inflow.

In the same vein, Linh and Lin (2014) in Vietnam argued that a bidirectional relationship exists between foreign direct investment and energy consumption, but a short-run reality. While accounting for the long-run, the causal relationship between energy consumption and foreign direct investment is bidirectional. In different view; Kuo, Lai, Chancham and Liu (2014) in Germany argued that there is no causal link running from foreign direct investment to energy consumption due to impact of energy efficiency in attracting foreign direct investors, thus, an increase in foreign direct investment has no or little influence on energy consumption. While both energy consumption and foreign direct investment exhibit unidirectional causality correlation with gross domestic product.

For Latin America countries using Panel Ordinary Least Square (OLS) method; Sapkota and Bastola (2017) findings revealed that foreign direct investment and energy use is related to pollution emissions; and there is a need for the attraction of clean and efficient energy industries through foreign direct investment in order to improve environmental quality and maintaining economic growth. In 56 middle-income countries; Hagert and Marton (2017) confirmed that foreign direct investment is negatively connected with the share of alternative energy sources (renewables), which determines the need for institutional quality regarding environmental performance.

Testing the intensity of energy as result of investment using OLS, Herrerias, Cuadros and Orts (2013) noticed that trade openness to foreign direct investment in China improves energy efficiency. Still in China, Li and Lin (2014) confirmed among industrial structure, technology progress, energy price, and energy intensity, a long-run relationship. While, energy price and technological progress produce a negative effect on energy intensity specifically in 2009. Analysing the effectiveness of state policies on foreign direct investment on wind energy sector in India; Kathuria, Ray and Bhangaonkar (2014) noted that policy reforms on wind renewable energy, and the institutional environment of India is seen as a powerful force that attracts foreign direct investment inflows into the country.

In 17 MENA countries, it was confirmed by Abdouli, and Hammami (2017) using that the causal relationship from energy consumption to foreign direct investment inflows is unidirectional. This translates that energy consumption increases foreign direct investment inflows for individual and collective countries. They further deduced that an increase in the demand for energy is linked to foreign direct investment inflows, meaning that foreign direct investment inflows significantly impact on energy consumption. In Portugal, using GMM; Leitão (2015) submitted that there is a positive relationship between foreign direct investment and energy consumption. Whereas; energy consumption, economic diplomacy, and trade openness is essential in attracting foreign direct investment in Portugal.

Alternatively, in the Sub-Saharan African countries, Keho (2016) used panel cointegration technique and pointed out that in Nigeria and Benin Republic, foreign direct investment leads to transfer of energy reducing technology while increase in foreign direct investment leads to fall in energy intensity in Cote d'Ivoire and Togo. The findings further revealed that in the short-run, foreign direct investment granger causes energy intensity in Cote d'Ivoire and Nigeria, while, import activities granger causes energy intensity in Cameroon and Nigeria.

In European countries employing Ordinary Least Square; Del Bo (2013) results revealed that foreign direct investment spillover in electricity sector aids energy efficiency and competition in the single market which distort some local industries. The study also noted that at the macro level of the electricity sector there are some evidence of a barely significant negative spillover effects. In 21 Kyoto countries, Mert and Bölük (2016) noted a significant long-run causality run from renewable energy consumption, fossil fuel energy consumption, and inflow of foreign direct investments to carbon emission. They finally submitted that an increase in renewable energy consumption and foreign direct investment reduce carbon emissions in Kyoto countries.

In contrary, Gökmenoğlu and Taspınar (2016) for the economy of Turkey, that there is a long-run equilibrium relationship between energy consumption, economic growth, and foreign direct investment, while economic growth, energy consumption, and foreign direct investment are long-run determinants of air pollution in Turkey. They further detected that energy consumption leads to economic growth, while economic growth attracts foreign direct investors to the country. In the same country, Sirin (2017) findings showed that the Turkish power sector attracts FDI inflows through privatization and low real effective exchange rate. A key note from the study is that the Turkish economy remains a landing country for renewable energy technology investment opportunities.

In Malaysia, Bekhet and Othman (2011) observe a long-run relationship between foreign direct investment, electricity consumption, gross domestic product, consumption expenditure, and consumer price index. The VECM result established that there is a significant long-run causal link running from electricity consumption to foreign direct investment.

Komal and Abbas (2015) in Pakistan observed that the contribution of economic growth and financial development to energy consumption over the time period under study is positive and significant, while the contribution of energy price volatility is negative but significant. In Jiangsu Province; Yue, Long and Zhuang (2011) affirmed that FDI scale effect reduce energy consumption intensity from 1998 to 2000, 2003 to 2005, and 2006 to 2008; whereas FDI structurally has negative effect on energy consumption intensity in 1998 to 2003, and later has positive effect on energy consumption intensity between 2003 and 2008, while FDI technology reduces energy consumption intensity from 2000 to 2003 and 2005 to 2008. They further

deduced that FDI promotes energy consumption intensity reduction in Jiangsu Province.

In Shanghai, He, Gao and Wang (2012) agreed that, the granger causality relationship between real GDP and energy consumption, GDP and foreign direct investment is unidirectional, while in the short-run, FDI reduces energy consumption and it promotes energy efficiency through improved technologies introduced into the economy. Financial development significantly impacts on economic growth during negative shocks. In Egypt, Ibrahim (2015) validated cointegrating relationship between economic growth, renewable electricity consumption, and foreign direct investment. While for foreign direct investment and renewable energy consumption, the study noted a direct link with economic growth.

In the economy of Nigeria, Nwankwo (2013) noted that foreign direct investment inflow significantly influences power sector in Nigeria through output. Uzoka (2016) confirmed the realness of the significant influence of foreign direct investment on the power sector of Nigeria due to the dominance of trade openness in the economy.

3. Data Source and Methodology

For this study an annual secondary data spanning from 1970 to 2015 majorly sourced from the World Development Indicators (WDI) is used. The data include, Foreign direct investment net inflow (% of GDP) proxy for foreign direct investment (FDI), Energy use (Kg oil equivalent per capita) proxy for energy consumption (E), Ratio of the sum of import and export service to GDP at current LCU sourced from WDI proxy for trade (T), (this is used to capture how trade contribution to economic growth in Nigeria attract foreign investors into the country), GDP per capita (Current LCU) proxy for gross domestic product (GDP), and Official exchange rate (LCU, per US\$, period average) proxy for exchange rate. This study followed the model of Chow (1967), Cheng and Kwan (2000) and Kinuthia & Murshed (2015) which considered the determinants of FDI. The model for this study is therefore specified as;

$$fdi_t = f(E_t, GDP_t, TR_t, EXR_t) \text{ --- (1)}$$

Where fdi is foreign direct investment, E is Energy Used (oil equivalent per capita), GDP is gross domestic product per capita, TR is trade, EXR is official exchange rate of naira to dollar, all at time t.

Transforming equation 1, into a log-linear function and including parameters, the model is respecified as;

$$FDI_t = \beta_0 + \beta_1 \ln E_t + \beta_2 \ln GDP_t + \beta_3 TR_t + \beta_4 \ln EXR_t + \varepsilon_t \text{ --- (2)}$$

To analyse the short-run and long-run model of energy consumption and foreign direct investment in Nigeria, the ARDL model including a dummy variable is specified as;

$$\begin{aligned}
 \Delta FDI_t = & \vartheta_0 + \sum_{q=1}^n \rho_1 \Delta FDI_{t-k} + \sum_{q=1}^n \rho_2 \Delta \ln E_{t-k} + \sum_{q=1}^n \rho_3 \ln GDP_{t-k} \\
 & + \sum_{q=1}^n \rho_4 \Delta TR_{t-k} + \sum_{q=1}^n \rho_5 \Delta EXR_{t-k} + \beta_1 FDI_{t-1} + \beta_2 E_{t-1} \\
 & + \beta_3 GDP_{t-1} + \beta_4 TR_{t-1} + \beta_5 EXR_{t-1} + \delta ecm_{t-1} \\
 & + \sum_{r=1}^s B_r Dummy_{rt} + \varepsilon_t \text{ --- --- --- (3)}
 \end{aligned}$$

Δ implies changes in the variables in the short-run, the optimal lag length is denoted by n , ε_t - error term at time. $\rho = (1, 2, 3, 4, 5)$ are the corresponding long-run coefficients of the parameters, and $\beta = (1, 2, 3, 4, 5)$ are the short-run coefficients of the parameters. ecm implies the error correct model and δ is the ecm coefficient. $Dummy_{rt}$ is a dummy for each break identified and denoted as $Dummy_{rt} = 1$ for $t > T_B$, otherwise $Dummy_{rt} = 0$. t represents the time period; T_B is the date identified in the structural break, where $r=1, 2, 3, \dots, k$ and B_r is the dummy break coefficient.

4. Empirical Results

4.1. Descriptive Statistics

The descriptive statistics reveals that the variables behaved rightly as their mean values lie in between their minimum and maximum values. This implies that the variables do not react outrageously to shocks in the economy with the period under study. The skewness results also showed that the variables are positively skewed except energy consumption which is negative. This implies that while all the variables have a long tail to the right, energy consumption has a long tail to the left. The Jarque-Bera statistics reveals that the variables energy consumption and GDP are normally distributed while FDI, exchange rate and trade are not.

Table 1: Descriptive Statistics Result

	<i>FDI</i>	<i>InE</i>	<i>EXR</i>	<i>TR</i>	<i>InGDP</i>
Mean	2.607264	2.839586	54.50505	36643.91	3.87947
Maximum	10.83256	2.902168	192.4405	206517.1	5.717982
Minimum	-1.15086	2.748249	0.546781	31.40865	2.203171
Std. Dev.	2.170242	0.036946	65.15405	57256.71	1.154692
Skewness	1.781939	-0.57239	0.667911	1.594895	0.157175
Jarque-Bera	56.38061	2.549702	6.600289	23.17089	3.988889
Probability	0.00000	0.279473	0.036878	0.000009	0.136089
Observations	46	46	46	46	46

Source: Compiled by authors

For the correlation test, the result shows insignificant correlation between the independent variables (energy consumption, exchange rate, trade and economic growth) and the dependent variable (foreign direct investment). This implies that there is no problem of multicollinearity among the variable (see table 2).

Table 2: Correlation Matrix

	<i>FDI</i>	<i>InE</i>	<i>EXR</i>	<i>TR</i>	<i>InGDP</i>
FDI	1				

InE	0.121084 (0.4228)	1			

EXR	0.032669 (0.8294)	0.785932 (0.0000)*	1		

TR	-0.0655 (0.6654)	0.714271 (0.0000)*	0.864479 (0.0000)*	1	

InGDP	0.209575 (0.1622)	0.89365 (0.0000)*	0.921404 (0.0000)*	0.823392 (0.0000)*	1

Note: *, **, *** infers significance level at 1%, 5%, and 10% respectively.

Source: Compiled by authors

From the unit root result in table 3; it was observed that the variables are stationary at first difference for both Augmented Dickey Fuller Test and Phillip-Perron test at 10% significance level. The implication of this is that the variables mean reversion in the long-run is unrealistic, which necessitate testing for the long-run cointegrating relationship among the variables.

Table 3. Unit Root Test Result for Energy use and FDI

Variables	ADF		PP	
	Levels	First Difference	Levels	First Difference
FDI	-3.60384**	-9.38569**	-	-21.6243*
InE	-3.07434	-6.05473*	3.52391**	-6.28973*
InGDP	-1.96686	-6.05893*	-2.04247	-6.05893*
InEXR	-1.62069	-5.32037*	-1.88937	-5.32423*
TR	-1.8259	-4.8374*	-1.91176	-4.8374*

Note: *, **, *** infers significance level at 1%, 5%, and 10% respectively.

Source: Compiled by authors

The ARDL bounds test confirms the existence of long-run cointegrating relationship among the variables at 10% significance level as the F-statistics of the

result is greater than the upper and lower bounds. This therefore assure the report of the ARDL short-run and long-run estimate. Table 4 below presents the result;

Table 4. ARDL Bounds Test Results

Energy and FDI Model		
Model Estimation	F-statistic	Lower & Upper class bound
$F_{FDI}(FDI_t/E_t/lnGDP_t/TR_t/EXR_t)$	7.764496***	3.03-4.06

Note: *, **, *** infers significance level at 1%, 5%, and 10% respectively.

Source: Compiled by authors

In addition, we consider structural breaks to be important in the analysis of FDI and Energy consumption nexus. For the purpose, Bai-Perron (2003) test was adopted for determining the breaks endogenously; then the authors incorporate the break dummies in the ARDL model as fixed regressors. Table 6, consists of the Bai-Perron break results. The result recognised only one break period for Nigeria, which is 1995. The break period is in consonance with the series of OPEC policy reforms on oil price during that period which may have affected energy use.

Table 5. Bai-Perron (2003) Structural Break Dates

Country	Break Period	Break Range
Nigeria	1995	1970- 1994
		1995 - 2015

Source: Compiled by authors

ARDL Estimation

The pre-estimation test established that no multicollinearity problem exists among the variables, and the unit root test confirms the doubt of long-run mean reverting of the variables. A bounds test without accounting for structural breaks was carried out to confirm the long-run relationship among the variables, it was established that a strong long-run cointegrating relationship exist among the variables in the study. The relationship is confirmed by the value of the F-statistics greater than the lower and the upper class bounds at 10% level of significance.

From the ARDL estimation result reported in table 6 which include the model with and without break. The break period while included in the model shows a strong significant impact in the model which validates the importance of taking the break period into consideration in the interpretation of the result. The study therefore interprets more of the ARDL estimation with break and compare when it is necessary. From the findings energy consumption exerts negative and insignificant impact of foreign direct investment considering breaks and without breaks. This implies that energy consumption in Nigeria in no way over the period attracts foreign

investors into the economy. These findings are in consonance with the findings of Gökmenoğlu & Taspınar (2016) in Turkey, that Nigeria similar to that of other developing countries such as Turkey does not have the right energy infrastructure that is capable of attracting foreign direct investment into the economy as the cost of considering alternative means of energy obstructs the profit making of the investors. Particularly for GDP, the result shows that GDP has a positive significant relationship with foreign direct investment in Nigeria at 5% significance level both in the short-run and long-run. Trade significantly influence foreign direct investment both in the short-run and long-run with and without breaks. Though, trade in the short-run considering breaks positively impact on foreign direct investment, while in the long-run negatively impact on FDI. This implies that in the long-run where there is tendency for investors to expand their businesses in Nigeria, trade policies do not favour their existence. Exchange rate without breaks reveals a positive insignificant impact on foreign direct investment, while the impact was negative when break was considered. This implies that considering the breaks in Nigeria, the value of the country currency has been discouraging foreign investor's interest in the economy, as the value of the country currency depreciates over time.

Also, the diagnostic test [LM (1), Arch (1) and Ramsey reset] showed that the specified model has no serial correlation and heteroscedasticity problem, but the model with or without breaks is not stable.

Table 6: ARDL Estimation Result

Variables	ARDL Without Breaks	ARDL With Breaks
Long Run Results		
Constant	171.9592 (2.1970)*	171.9592 (2.5382)**
Trend	-0.11312 (-0.4799)	-0.11312 (-0.5886)
InE	-68.4841 (-2.5132)**	-68.4841 (-2.8529)*
EXR	-0.01169 (-0.8432)	-0.01169 (-1.1563)
TR	-1.3E-05 (-1.5600)	-4.4E-05 (-4.9619)*
InGDP	1.776979 (0.7304)	8.477475 (3.8614)*
B		-6.70047 (-4.6056)*
Short-run Results		
Constant	58.1557 (0.6752)	180.7987 (2.3199)**
Trend	0.266533 (1.0902)	-0.11894 (-0.5911)

$\Delta \ln E$	-137.206 (-3.5624)*	-137.206 (-4.1533)*
ΔEXR	-0.01229 (-0.8207)	-0.01229 (-1.0968)
ΔTR	-1.4E-05 (-1.5265)	-1.4E-05 (-0.9341)
ΔTR_{t-1}		0.0001 (2.9439)*
$\Delta \ln \text{GDP}$	0.000017 (0.000004)	8.913256 (3.6082)*
$\Delta \ln \text{GDP}_{t-1}$	-8.91326 (-1.9237)***	
$\Delta \ln \text{GDP}_{t-2}$	7.0449 (1.7805)***	
B		-7.0449 (-4.7305)*
ECM_{t-1}	-1.05141 (-5.7922)*	-1.05141 (-7.0727)*
F-Stat	4.9975	0.6998
Bounds F-Stat	7.764496***	9.173486***
Adj. R2	0.4877	0.6089
J.B. Stat	2.306087 [0.3157]	2.894439 0.235223
LM(1)	0.438523 [0.6491]	2.576198 [0.0923]***
Arch (1)	3.656131 [0.0353]**	0.984582 [0.3827]
Ramsey test	4.654344 [0.0174]*	4.637925 [0.0173]*
SIC lag selection	(1,1,0,0,3)	(1,1,0,2,0)

B represents dummy for the identified break date as identified in the Bai Perron test presented in Table 6. T-statistics are presented in brackets and probability values are presented in parentheses. The critical values for the Lower and Upper Bounds respectively are 3.03 and 4.06 for the symmetric models at 10% significance level. *, **, and *** indicate statistical significance at 1%, 5% and 10% respectively.

Source: Compiled by authors

5. Conclusion and Recommendation

The study investigates the impact of energy consumption on foreign direct investment using ARDL estimation technique to estimate the parameters and also use Least Squares Bai-Perron method to analyse the structural breaks of the data used. It was observed from the findings that with and without structural breaks, there is a strong long-run cointegrating relationship between energy consumption and foreign direct investment in Nigeria. However, considering the significance of the

break period identified in the model, the ARDL estimate with break is explained. The result reveals that energy consumption, exchange rate and trade show a negative relationship with foreign direct investment, while GDP shows a positive relationship with foreign direct investment in the short-run and long-run in Nigeria. The error correction model is correctly signed and implies that the independent variables (energy consumption, trade, GDP and exchange rate) are capable of correcting deviations of foreign direct investment from the short-run equilibrium back to equilibrium in the long-run by 105%, and at 1% significance level.

The study concludes that energy consumption, trade and exchange rate trend in Nigeria are major factors against the inflow of foreign investors into the economy through the additional they impose. From the findings, it is therefore recommended that energy policies towards enhancing the availability and accessibility of energy by investors should be designed in the country. This can be done by putting in place energy incentives and encouraging the development of other sources of energy in the economy in order to meet the expectations of the investors in terms of energy.

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POTROŠNJA ENERGIJE I STRANE DIREKTNE INVESTICIJE U NIGERIJU: ANALIZA STRUKTURNIH PREKIDA

Apstrakt: Studija analizira uticaj strukturalnih prekida na odnos između potrošnje energije i direktnih stranih investicija u Nigeriji od 1970. do 2015. Studija objašnjava strukturalne prekide i procese kratkih i dugoročnih odnosa između potrošnje energije i direktnih stranih investicija upotrebom Tehnike za procenu ARDL-a i metode Bai-Perron. Iz rezultata je uočeno da postoji snažna dugoročna kointegraciona veza između potrošnje energije i direktnih stranih investicija sa i bez strukturalnog prekida. Strukturalni test prekida otkriva period prekida 1995. godine koji podržava pojavu preispitivanja cena nafte od strane OPEC-a 1995. Takođe, rezultati procene ARDL pokazali su da se potrošnja energije, trgovina i devizni kurs nepovoljno privlače direktne strane investicije, dok BDP pozitivno privlači, kratkoročno i dugoročno, strana direktna ulaganja u Nigeriji. Studija zaključuje da, iako BDP Nigerije teži ka privlačenju SDI u ekonomiji, potrošnja energije, trgovina i devizni kurs ometaju privlačenje dodatnih troškovima koji nastaju kao rezultat neravnoteže u varijabli. Glavna preporuka iz rezultata je da se energetske politike treba brzo pozabaviti u Nigeriji.

Ključne reči: potrošnja energije, SDI, ARDL, Bai-Perron test

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