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## Estimating the Nexus of Tourism on Sustainable Development Goals in Nigeria

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**Abstract.** Tourism industry has become one of the principal sources of economic growth and a viable platform of employment both in Africa and globally. Considering that economic growth and job creation are the focal points of sustainable development goals (SDGs), this study is focused on investigating the relationship they have with tourism in Nigeria. A gross domestic product (GDP) time series dataset is utilized to represent economic growth variable while, statistical data obtained from the WTTC is employed to denote Tourism revenues and arrivals in Nigeria. The study employed Autoregressive Distributed Lag (ARDL) bounds test of cointegration, the Error Correction model and Granger causality tests to empirically examine the impacts tourism has on economic growth and employment in the LACKET states of Nigeria for the period between 1999 to 2019. Generally, the investigations indicate that both in the short - and long - run, tourism is positively related to economic growth and employment rate in Nigeria. However, regarding short -run relationship, a lower positive link of tourism revenue is recorded.

**Keywords.** African tourism, Tourism revenues, ARDL-ECM, GDP, SDGs, economic growth, LACKET, Nigeria

### 1. Introduction

Tourism sector has become a very important industry in realizing sustainable development goals (SDGs) in many least developed countries (LDC). According to the report of OECD (2019), the tourism sector contributes about 4.5 percent directly to the gross domestic product (GDP) and about 7.1% to employment which are the key targets of SDGs in most developing and developed member countries.

Globally, tourism industry has been established as the fourth largest export industry after mineral resources such as crude oil, some chemicals and agricultural products (Balli, Curry & Balli, 2015). To be precise, according to the study of Tugcu (2014), in 2014, 6% of the overall global exports of products and service which represents 30 per cent of international trade in services was accounted for by the tourism industry. Similarly, the study also shows that tourism industry yields about 9.8% of the total global gross domestic product (GDP). Generally, due to the growing size of the tourist industry, inbound tourism has become an increasing and significant influencer of several LDCs.

Nigeria as a member of the African continent is one of these developing countries with a tourist arrival record of about 5.6 million in 2016 (see World bank indicators report, 2017). However, recent records have shown a fluctuating statistic in the tourism sector contributions

to the Nigerian economy and employment rate. In 2019, the percentage economic contribution of the sector was recorded at 0.2 per cent of the GDP (see the annual bulletin of the National Bureau of Statistics, 2019). Although this figure might look small to compare to the chunk contribution other sectors make to the Nigerian economy, yet, it goes a long way to show that the tourism sector is an integral part of economic growth as well as a key factor in actualizing SDGs in Nigeria.

Over the years, the Nigerian economy has been sole dependent on crude oil production, however, to achieve the targets of SDGs in Nigeria and Africa at large, the government has proposed an economic diversification. Based on this proposal, tourism sector gradually received more attention as an economic attractive sector. Thus, it has become imperative to extensively investigate the relationship that exists between tourism-based revenues and the Nigerian economic growth.

In this study, one of the core motivations of choosing Nigeria amongst other African countries is driven by the fact that the country is currently the largest economy in the African region and one of the fastest growing global economies, which means that the tourism sector of Nigeria is expected to witness a faster and radical growth in the near future (Omoke, P. C. & Ugwanyi, C. U. 2010). Similarly, Nigeria has recently recorded a good number of tourism influx notwithstanding the security and societal challenges faced by the country. Also, with respect to her dense population as the highest populated country in Africa (about 200 million) and several other diversities, Nigeria is keen to encourage viable international tourism, as the country provides massive cultural and natural advantages for those who intend to visit such vibrant destinations. As the saying goes, *'if Nigeria gets it right, then other African countries can get it right'*. Therefore, it is certain that if the relationship between tourism and economic growth in Nigeria is properly explored and the benefits harnessed, then, the policy makers will be adequately equipped to design proactive tourism policies which will be geared towards better improvement in the tourism sector and in turn result in higher revenue contributions to the GDP and overall SDGs actualization in both Nigeria and several other African countries.

Several researches have studied the impacts and relationships between tourism, employments and economic growth. For example, the proposed tourism-led growth hypothesis (TLGH) in the study of Balaguer and Cantavella-Jordá (2002) is established based on the parameters of the popular export-led growth hypothesis (ELGH) which states that growth of an economy can be enhance not just by technological and human resources expansion but also by expansion of earnings from foreign exchange. Similarly, McKinnon (1964) stated that tourism industry contributes significantly to the reserves of foreign exchange which in turn aids in introducing novel technologies in the production sector of an economy. Other authors like, Blake, Sinclair, & Campos (2006) and Lemmetyinen and Go (2009) also have proved that infrastructural investments, increase in competition and human capital are all functions and results of tourism stimulation. Additionally, since the research of Lee & Chang, (2008) indicates that the tourism industry is a major factor for job creation, therefore it also stimulates income earnings, while the studies of Andriotis, (2002); Weng & Wang, (2004) and Croes, (2006), established that tourism enhances positive and optimal economic externalities.

All these studies have in one way or the other recognized the link between tourism revenues and money supply. Therefore, the primary objective of this study is to examine the reasonable relationships between tourism, economic growth and employment rate with respect to sustainable development goals of Nigeria. The study also attempts to determine the relationship between tourism revenues and the Nigerian GDP for the period between 1999 to 2019. Using the co-integration approach, we explored the short – and long – run relationship which exists between tourism, employment rate and economic growth. Finally, the causal relationship

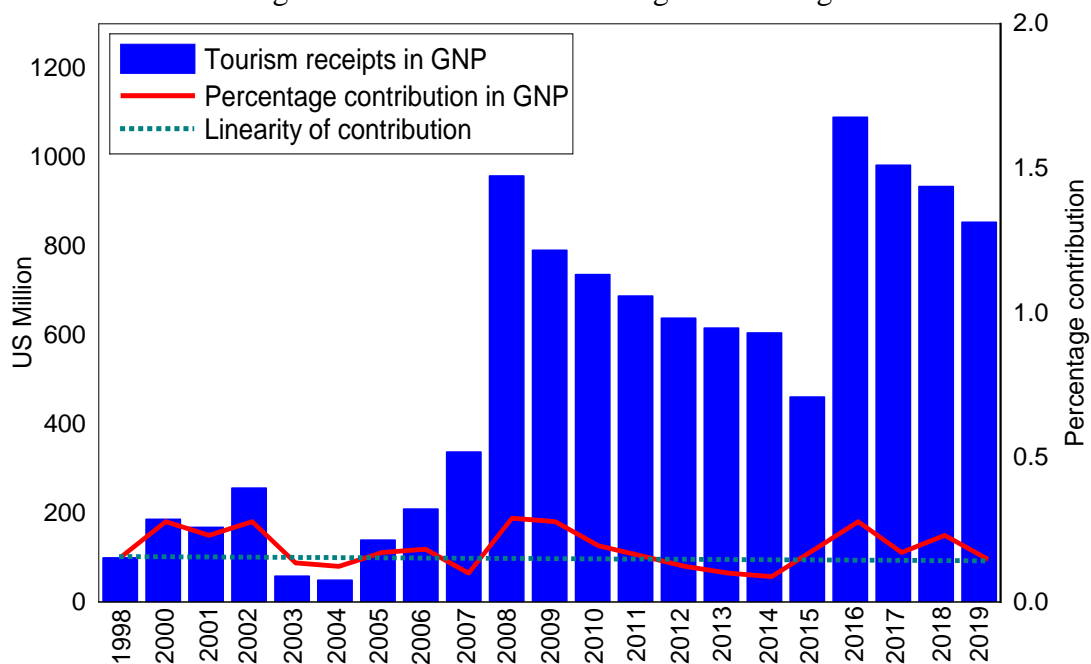
between the variables is explored using the Granger Causality technique.

### 1.1. The Nigerian Tourism, Economic growth and Employment rate

Every country's economic performance is measured by its GDP growth rate. Thus, recent financial reports have shown that the Nigerian economy depends more on crude oil revenue to fund government spending and presently, crude oil accounts for about 15 per cent of Nigeria's GDP, however, it makes up about 80% of total governments revenue<sup>1</sup>.

The overall contributions of the tourism industry to the Nigerian gross national product and its growth rate from 1999 to 2019 is presented in Figure 1. An unstable and fluctuating performance is observed in the contribution from tourism sector over the period of study. Swift decline is witnessed in 2003, 2004, 2010, 2011, 2012, 2013, and 2014 at 0.055, 0.036, 0.2, 0.17, 0.14, 0.12, 0.11 and 0.093 per cents respectively. Slight growth is observed in 2016 at 0.27 per cent while the decline continued in 2017, 2018 and 2019 at 0.21, 0.18 and 0.16 per cent, respectively. These declines could be attributed to periods of financial crises, recession and insecurity challenges the country have faced over the years.

Generally, the analysis of the figure illustrations that the Nigerian tourism sector has witnessed unstable growth over the study period which certifies the necessity to understudy the and outline the impacts of this sector on the Nigerian economic growth rate. Thus, the focus of this research is to investigate and validate tourism-led growth in Nigeria.



**Figure 1:** Contributions of tourism receipts in the Nigerian economic growth (1999 – 2019)

Currently, the Nigerian population stands at an estimated 200 million (the largest population in Africa) in 2018 (World Bank, 2018). As a result of this dense population and ethnical diversification, the country is endowed with varied cultural attractions of tourism. It is important to note that the Nigerian economic size, tourism export income, inbound and outbound demand for tourism are factors that offer a boundless future prospect for the country's tourism industry. However, the Nigeria's ratio of inbound tourism to GDP is relatively low as compare to other tourism destination countries. For instance, in 2013, according to the research of Obeta and Onah (2013) the Nigerian inbound tourism sector contributes a meager amount of

<sup>1</sup> Adaobi Nnadiukwu, (2019), <https://nairametrics.com/2019/02/05/nigerias-oil-revenue-hits-n9-4-trillion-in-2018/>

about 2 per cent to the GDP, unlike the case of small islands of the Caribbean where tourism benefits the economy both directly and indirectly with a total contribution of about 14.6 per cent to their GDP (WTTC, 2011). Also, the research of Mmaduabuchukwu (2013) presented that tourism and hospitality industry contributed as low as 0.5 per cent to the Nigeria GDP in 2010. This is because, Nigerian being one of the world oil producers have over the years depended solely on crude oil revenues for her foreign exchange reserve, thus, paying lesser attention to the enormous potentials of the tourism sector. Therefore, the stern aptitude of the tourism industry to enhance economic growth and establish greater rate of employment and foster earnings than other sectors of the economy is important.

Similarly, domestic tourism has received quite a little attention and have witness a slow boom in Nigeria. This is attributed to the fact that majority of Nigerians are poor and also possess a poor attitude to leisure (Igbojekwe, Okoli, Ugo-Okoro, (2013) In line to that, the researches of Omorogbe – Osagie, (1995) upholds that most Nigerians are yet to realize the significance of taking a break from their normal jobs or business through the pathways of recreation and leisure. One of the ways by which the Nigerian tourism sector contributes to its economy growth with particular reference to its GDP is seen from government revenues obtained through taxes, levies and charges on the hospitality sector (which includes registration and other charges) and is dated as far back as the 1990s, but there were limited documentation to support this claim as at the time of this research. However, in 2004, these levies were put at US \$3,185 and by 2009 over US \$ 277,000 was generated. As at 2011, the sum of US \$3.5 million was recorded as the contribution of the tourism industry to the Nigeria GDP. Although the WTTC forecasted an increase in the figure by more 65 per cent in the next 10 years, however, in 2019 the tourism contribution was at US \$6.5 billion far below the projected growth. On the other hand, according to the report of the Central Bank of Nigeria (CBN), between 2000 and 2012 inbound tourism in Nigeria received a commendable appreciation as the tourism industry in Nigeria is said to have contributed about 8.1% to the Nigeria's GDP, CBN, (2012).

Apart from its contributions to GDP growth rate, tourism has also been recently estimated as a sector with the biggest employer of labor in Nigeria as it generates millions of employments (Ezenagu, 2013). In 2002 the global tourism industry created a valued 199 million jobs - one in every 13 jobs globally. By 2009, the Australian tourism industry recorded a direct contribution to the economy rated at about 4.7 per cent of total employment, while in 2011, the Nigerian Travel and Tourism industry was projected to directly generate a total of 897, 500 jobs in 2012. This happens to cover about 1.4 per cent of the Nigerian total employment. However, the number of projected job creation through tourism was far too low in 2012.

The remaining part of this paper is structured as follows. Section 2, dwells on review of the several literatures in order to establish the relationship between tourism and economic growth. The econometric methodology comprising the data, empirical model and econometric approaches is presented in Section 3. Section 4 contains the empirical findings and results, while discussions are made in Section 5. Finally, conclusions are drawn with policy-making recommendations in Section 5.

## **2. Literature Review**

Several empirical researches which have investigated the study of tourism-led growth, some of these studies implemented tourist receipts in attempt to achieve a desired result. For example, the studies of Eugenio et al. (2004), Fayissa et al. (2008), Dumitrescu E and Hurlin C. (2012), Nikolaos A. et al., (2015), Bojanic and Lo (2016), De Vita and Kyaw (2016) and Chiu, Y. B., & Yeh, L. T. (2017) utilized tourist receipts to establish tourism impacts on a on the different economies they studied. Results of their investigations proved that there is a significant effect

tourist receipts have on economic growth. For instance, the study of Eugenio et al. (2004) established that foreign tourist expenditures can warrant in a measurable tourism development along with investments of human capital consequently resulting in a substantial economic growth. Focusing on Africa, the study of Fayissa et al. (2008) made a discovering establishing the significant effects tourist receipts have on the income per capita growth rate of the continent. Considering the impacts of tourism activities on GDPs, Dumitrescu E and Hurlin C. (2012) investigated and established that with every increase in tourism performances, an increase in GDP is observed as well. Therefore, they were of the opinion that governments and NGOs should get actively involved and cooperatively launch diversity of tourism products to attract more inbound tourists and inspire tourists to boost their expenditure in the travel destination. For example, in the Southeast Asian region, ecotourism has served as a vital strength of the member countries, thus, the governments of these countries have agreed to unanimously endorse ecotourism within the region (Ruekeith, 2014). Consequently, the government earns extra income from tourist expenditures and thereby promoting economic growth in the region. In the study of Ayeni et al. [4] the expansion of sustainable tourism in Nigeria was explored. The authors reported that in recent times, tourism has become a vital tool for economic diversification in both Nigeria and several other developing economies. According to their report, although tourism supports the performance of different service sectors and has developed into a major link with Nigeria's economy, through employment opportunities promotions and income generation. However, other developed countries enjoy greater percentage of global tourism as compared to less-developed or under-developed countries nevertheless, less developed nations still have a lot of opportunities to attain optimal benefits from the tourism sector. The study employed a qualitative approach to explore the potentials of Tourism industry on the Nigeria's economy. The results indicate that tourism have many untapped potentials on the economic development. Therefore, they suggested that the Nigerian government should pay more attention to the development of the industry as part of their poverty eradication and economic diversification scheme.

Comparing tourism-growth nexus for different countries, the study of Lanza and Pigliaru (2000) with respect to the size of a country and it's on the relationship between tourism and growth, it is empirically determined that only small economies were extremely specialized in tourism. In contrast, according to Sequeira and Nunes (2008), the size of a country does not have any influence on the connection between tourism and economic growth. Meanwhile, Vita and Kyaw (2016) made a realistic input about the impacts of tourism development on GDP growth. Their study indicates that the level of this impacts varies for different countries at different levels of economic development. Kneller et al. (1999) stated that growth can be significantly stirred and enhanced through an increase in productive expenditure. The result of their research further established that a positive outcome on growth is realized through the governments investment in transportation and communication industry as part of their effort to improve tourism activities produce. Song and Lin (2010) utilized the autoregressive distributed lag model to estimate the impact of the 2007 financial crisis on tourism in Asia. Their research realized that the financial crisis had a negative impact on both inbound and outbound tourism in Asia.

On the other hand, unit root, cointegration and causality testing were utilized by Ridderstaat and Croes (2015) to examine whether money supply cycles in United States, United Kingdom, and Canada influenced the demand cycle of tourism for Barbados and Aruba. The outcome of their investigation indicates that depending on the phase of development of the cycles, money supply cycles could impact the recurring travels of tourism demand in an asymmetric form. The article of Chiu, Y. B., & Yeh, L. T. (2017) reported that with comparative advantage, the

tourism industry can stimulate overall economic growth. In contrast, development of the tourism industry may not stimulate economic growth if the industry has a comparative disadvantage. They further stated that more tourist receipts and arrivals may not necessarily lead to higher economic growth if the tourism industry faces a trade deficit and comparative disadvantage. This may be the reason why tourist receipts do not lead to economic growth in certain countries. Capital investment spending in the tourism industry is another significant variable that stimulates economic growth. Capital investment means that the industries invested in human capital, land, and technology to further increase their productivity and profit maximization. Similarly, Khalil and et.al (2007) examined the role of tourism in economic growth of Pakistan. Using annual data for the period from 1960 to 2005, they identified empirically whether there is a unidirectional or bidirectional causal relation between tourism and economic growth. Using the concepts and methods of the co-integration and Granger Causality Test, their study explored the short-term dynamic relations as well as long-run equilibrium conditions and concluded about the existence of co-integration between tourism and economic growth in Pakistan.

Berda et al., (2015) examined the dynamic relationship between tourism and economic growth in MERCOSUR countries. The result of their investigation showed enormous contributions of tourism to economic growth in the countries studied. Furthermore, the research proved that tourism has a substantial positive impact on Mauritian economic development. Chang C. et al., (2010) used a Panel Threshold Model to estimate tourism specialization and economic growth. Findings established an economic growth model using tourism as an extra module to the domestic collective demand. They further modelled foreign supply of capital and the growth in export as dependent on tourism growth. The study of Balaguer and Cantavella-Jordá (2002) examined the causality between tourism and economic growth in Spain, the result showed that tourism has made enormous contributions to economic growth. In this research, they also established a significant positive impact tourism has on the development of the Spanish economy. Meanwhile in Greece, Dritsakis (2004) investigated the impact of tourism on economic growth. His research established that a strong unidirectional causality runs from international tourism receipts to economic growth. Similarly, several other studies such as, Holzner M (2011), Ekanayake EM and Long AE (2012), Narayan PK et al., (2013) and Kumar RR (2014) concluded that there exists a unidirectional causality which runs from tourism towards the economic growth. With respect to the GDP of Sri Lanka, the study of Wickremasinghe and Ihalanayake (2006) employed both error correction modelling, multivariate cointegration and variance decomposition approaches to evaluate the causal link between tourism and economic growth. The study concluded that there is a significant causal relationship from tourism receipts to the GDP. On the other hand, the study of Yavuz, (2006) utilized both the Granger causality test and Toda-Yamamoto approach to establish that there is no causality link between tourism revenue and economic growth in Turkey. Likewise, the investigation of Zortuk, (2009) also employed the Granger causality test based on VECM to prove the link between the expansion in tourism and economic growth. His study found a unidirectional causality running from tourism development to economic development. Also, Ojo Thompson et al., (2015) employed the Granger causality test using a multivariate cointegration and error-correction scheme to examine the link between tourism receipts, tourism arrival, and economic growth in Nigeria between the year 1996 to 2010. According to the results of their investigation, a negative unidirectional causality running from tourism receipts to GDP indicate that tourism led growth controls in the long run than in the short run. The results prove a significant contribution of tourism to the current Nigerian GDP and economic growth.

According to Manwa, (2012), tourism can only be sustainable in a society if the society economically benefits from it. These economic benefits will enable the society maintain and protect the popular tourist sites. Similar highlight is observed in Song H. and Lin S. in [53] which states that the economic gains of tourism is a dependent factor of the ability of the country to provide suitable and satisfactory tourism-based facilities. The correlation between GDP and Tourism incomes in Guizhou, China was investigated by Wang et al., (2015). The results of their investigation established a significant and positive correlation between tourism and GDP. While in Turkey, Akan et al. (2008) experimented causal relationships between tourism industry and economic development using the Granger Causality test, the co-integration technique, a Vector Autoregression (VAR) model and Phillips–Perron test for the time period 1985–2007. Based on the analysis which revealed that a long-term stable correlation exists between economic development and tourism growth, the final results of their findings showed that the Turkish tourism sector positively affected the economic development at the period of study. Considering tourism and economic development in Jordan, the causality link between tourism earnings and the Jordan GDP was analyzed by Kreishan, (2011). His study covered the annual time series data of 1970–2009 and utilized the Augmented Dickey–Fuller (ADF), Granger Causality tests and Johansen Co-Integration to check the causal link. Findings indicated a positive link in the long term between economic growth and tourism development. Also, utilizing Granger Causality test, the research discovered a direct relationship which exist between tourism incomes and economic growth. On the other hand, with respect to the Pakistan tourism and economic growth rate, Adnan et al., (2013) investigated the long-run relationship between tourism income and economic growth using an annual data from 1971 to 2008. Their observations proved a long-term link existing between tourism income and economic growth.

The empirical studies of most of the above surveyed literatures paid more attention on developing economies. However, a few empirically-based research was found about Nigeria. Also, most of the previous researches have utilized either the cointegration test related with Engle and Granger (1987) or the maximum likelihood test based on Johansen and Juselius (1990). However, the study of Narayan and Smyth, 2005 and Odhiambo, (2009) have established that the cointegration approaches may not be suitable to be applied if the sample size is too small. Therefore, since the Nigerian sample size is small, this study utilizes the ARDL-Bound's testing approaches to investigate the impact of tourism on the Nigerian economic growth. Contrarily to the cointegration approaches, the ARDL does not enforce a limiting hypothesis that all the study variables must be orderly integrated. Also, just as mentioned earlier, the ARDL testing approach is appropriate for testing even small sample size of data, unlike other cointegration techniques which are subtle to sample sizes. Establishing the causal link existing between tourism revenues and economic growth in developing countries has gained significant interest from conventional economists and researchers because of its incredible policy inferences.

Regardless of the cumulative tourism endowment and the enormous significance of tourism in realizing national economic goal, economic reviews have attracted very little attention in the Nigerian studies. Therefore, the basic focus of this research is to critically examine the relationship between inbound tourism, tourism revenues, and economic growth variables and to establish the relationship between tourism and economic growth in Nigeria. Hence, the following hypotheses forms the basis of our research:

**1. Hypothesis 1:**

- **(H<sub>1</sub>).** *There is a positive link between tourism revenues and GDP.*
- **(H<sub>0</sub>).** *There is no positive link between tourism revenues and GDP.*

**2. Hypothesis 2:**

- (H<sub>1</sub>). *There is positive link between tourism and employment rate.*
- (H<sub>0</sub>). *There is no positive link between tourism and employment rate.*

### 3. Econometric Methodology

#### 3.1. Data source and variables

In this study, we employed annual time series data in the period of 1999-2019 for Nigeria. However, considering the vast population and landscape of the country, Nigeria is sub divided into six geopolitical regions, namely, the south-east, south-south, south-west, north-east, north-west, and the north-central regions. Each of the regions is made up of a particular number of states which when sums up forms the entire 37 states of the country. One state each is selected from all the six zones, respectively. These selections are classified as South-east (Enugu), South-south (Cross-river), South-west (Lagos), North-east (Taraba), North-west (Kaduna), and North-central (Abuja). Thus, the six selected state Lagos, Abuja, Cross-river, Kaduna, Enugu and Taraba (LACKET) formed the case study of the research. The regional classification of states is in accordance to the geographic regions in database of the Nigerian Tourism Development Commission (NTDC) and the World Development Indicators (WDI). Three major reasons were considered in selecting these six states out of the rest 37. Firstly, each of the selected states is one of the oldest and ancient in their respective regions. Secondly, all the selected states are located at the center of their regions and has good proximity and connection with the rest states in the regions, this makes inter-state tourist navigation easier. Thirdly, each of the selected states plays host to several famous and archeological tourist attractions in their respective regions, thus has witnessed high number of tourist arrivals other than any other states in the region.

The rate at which tourism activities provides employment opportunities in the country is considered as a major contributing factor to the growth of the economy. Therefore, considering that Employment is a vital factor of the SDGs in Nigeria, Employment rate (ER) is selected as an important variable in this research. Furthermore, real tourism revenues (TR) are utilized in measuring tourism expansion and is expressed in natural logarithms. Similarly, real growth domestic product (RGDP) is employed as an economic growth indicator and also expressed in natural logarithm form. The time series data on tourism revenues are gathered from the annual statistical report of the NTDC database and World Travel and Tourism Council (WTTC). A total sample of 368 observations were selected for the study and analyzed using E-view 9 software. Using descriptive statistics, we first established the correlational matrix of the variables as stated in Table 1.

**Table 1:** Correlation matrix of variables

Variables	Mean	Std. Dev.	Min	Max	1	2	3
ER	5.291	0.721	3.2	6.21	1		
RGDP	8.523	2.533	1.3	11.8	0.255	1	
TR	9.558	0.999	8.2	11.7	0.359*	0.621**	1

*Note: \*, \*\* represents correlation at 5% and 10% significance, respectively.*

The table indicates the Means, standard deviations, and correlations where ER, RGDP and TR represents Employment rate, Real Gross Domestic Product and Tourism, respectively. Mostly, a very low multicollinearity is observed, however, it does not pose a serious concern.

#### 3.2 Model Specification

To analyze the relationship between tourism revenues on economic growth in Nigeria, it is important to examine if tourism receipt causes economic growth or not. To achieve this, we

employed the Autoregressive Distributed Lag (ARDL) bounds testing technique. Originally, the ARDL technique was developed by Pesaran and Shin (1999) and further expanded by Pesaran, Shin and Smith (2001). The ARDL technique is based on an Unrestricted Error Correction Model (UECM) estimation and it has tremendous advantages over the traditional cointegration approaches. One of these advantages is that the ARDL technique can be used in solving small sample size of data (Pesaran et al., 2001) and since the sample size in this study is relatively small, therefore, it will be appropriate to conduct bounds testing. Also, the ARDL technique can be applied to simultaneously estimate the short- and long-run components of a model by eliminating the problems related with omitted variables and autocorrelation. Furthermore, the standard F-statistics or Wald applied in the bounds test has an unusual distribution under the null hypothesis of no-cointegration link between the investigated variables, regardless of whether the fundamental variables are I(0), I(1) or marginally combined. On the other hand, even when some of the regressors are endogenous in the analysis, the ARDL technique mostly offers impartial estimations of the long-run model and valid t-statistic (Harris and Sollis 2003). Likewise, the study of Pesaran (1997) indicates that the presence of the dynamics may rectify the endogeneity bias. Also, the ARDL technique makes it possible for the short – and long – run parameters of the model to be simultaneously estimated. Finally, as long as the lag orders in the ARDL model have been properly selected, the cointegration relationship can be accurately calculated by means of a simple Ordinary Least Square (OLS) method.

Considering all the above stated advantages, the ARDL-UECM employed in this study is established and expressed as follows:

$$\Delta \ln \text{RGDP}_t = \beta_0 + \sum_{h=1}^a \mu_1 \Delta \ln \text{TR}_{t-h} + \sum_{h=0}^b \mu_2 \Delta \ln \text{RGDP}_{t-h} + \beta_1 \ln \text{RGDP}_{t-1} + \beta_2 \ln \text{TR}_{t-2} + \varepsilon_t$$

(1)

where, RGDP represents the real gross domestic product and TR stands for Tourism receipts,  $\Delta$  symbolizes a first difference operator which denotes the transformation of natural logarithm. The intercept and white noise error terms are set as  $\beta_0$  and  $\varepsilon_t$ , respectively.

To begin the ARDL bounds testing, we utilized the OLS approach to estimate (1) with the intention of testing for the presence of a long-run connection between the variables by performing an F-statistics test for the joint significance of the coefficients of the lagged level variables, i.e.,  $H_0 : \beta_1 = \beta_2 = 0$  against the alternative  $H_1 : \beta_1 \neq \beta_2 \neq 0$ . Using the proposed scheme in Pesaran, et al. (2001), we created two sets of critical value bounds for the F-statistic. Assuming the estimated F-statistic drops below the lower bound critical value, then, the null hypothesis of no-cointegration is accepted. On the other hand, assuming the estimated F-statistic is obtained above the upper bound critical value; then, the null hypothesis is rejected. Therefore, in the model, the latter suggests a long-run cointegration connection exists between the variables. However, assuming the estimated value lies within the bounds, then, inference is inconclusive.

Furthermore, with the establishment of cointegration, the conditional ARDL long-run model for  $\text{RGDP}_t$  is then expressed as:

$$\ln \text{RGDP}_t = \beta_0 + \sum_{h=1}^a \beta_1 \ln \text{RGDP}_{t-h} + \sum_{h=1}^b \beta_2 \ln \text{TR}_{t-i} + \varepsilon_t \quad (2)$$

while that of  $\text{ER}_t$  is established as:

$$InER_t = \beta_0 + \sum_{h=1}^a \beta_1 InER_{t-h} + \sum_{h=1}^b \beta_2 InTR_{t-h} + \varepsilon_t \quad (3)$$

where  $ER_t$  represents the rate of employment, and  $a, b$  represents the optimal lag intervals of the ARDL model with respect to the Schwarz Bayesian Criterion (SBC) and the rest variables have been defined earlier. In the last stage, the dynamic parameters of the short-run are obtained by computing the error correction model related with the already computed long-run estimates. The outcome of this estimation is thus presented as:

$$\Delta InRGDP_t = \beta_0 + \sum_{h=1}^a \mu_1 \Delta InRGDP_{t-h} + \sum_{h=1}^b \mu_2 \Delta InTR_{t-h} + \delta ECM_{t-1} + \varepsilon_t \quad (4)$$

where,  $\mu_1$  and  $\mu_2$  represents the coefficients of the short-run dynamic of the model's convergence to equilibrium while,  $\delta$  is the parameter for speed of adjustment and ECM is utilized to represent the error correction term which is obtained from the equilibrium connection that was estimated in (1).

Furthermore, we employed the ARDL cointegration tests to remove all problems of endogeneity and also, to deal with the inability to test hypotheses on the estimated coefficients in the long-run associated with the two-step Engle Granger procedure. With respect to these reasons, we utilized the ARDL bounds tests to inspect both the short – and long – run link between tourism and economic growth in LACKET states of Nigeria. Lastly, we also employed the Granger causality tests technique to analyze the causal relationships amongst the estimated variables. However, based on the study of Gujarati, (2004), in an attempt to establish a bounds test, the point of exit is normally set to specify the vector autoregressive (VAR) levels. Therefore, the VAR of this model is presented as follows:

$$RGDP_{th} = \chi_t + \sum_{h=1}^a \Phi_h RGDP_{th} + \varepsilon_{th} \quad (5)$$

where  $RGDP_{th}$  represents the equivalence of  $[h_{ht}, \Pi_{ht}]$ , and the error vector terms is represented as  $\varepsilon_{th} = [\varepsilon_t, \varepsilon_{\Pi}] \sim N(0, \chi)$ . Thus, the VAR model presented (5) can be achieved through the use of the vector error correction (VEC) model below:

$$\Delta RGDP_{th} = \chi_{th} + \lambda RGDP_{th-1} + \sum_{h=1}^{a-1} \chi_h \Delta RGDP_{t-h} + \varepsilon_{th} \quad (6)$$

#### 4. Results and Findings

The first step to the ARDL bounds test is to perform a stationarity status test for the selected time series data. This test is to determine the order of integration for the selected data and to guarantee that the variables are not stationary at I(2) order, because, based on the estimated F-statistics developed in Pesaran, Shin and Smith (2001), variables are only valid when they are I(0) or I(1). Thus, to achieve this, we first performed an Augmented Dickey-Fuller (ADF) test and presents the results in Table 2, while Table 3 illustrates the results of bounds test cointegration for the six states, respectively. The results of the unit root test showed an integration between tourism revenues, employment rate and the series of GDP at a respective orders of I(0) and I(1). Once we establish the integration, we then utilize the ARDL bounds testing technique to estimate the level of impact tourism has on economic growth in Nigeria. The analysis in Table 4 represents the result of cointegration relationship based on the ARDL bounds test and with respect to (1). For the conditional ARDL-UECM, we selected the appropriate lag length based on the Schwarz Bayesian Criterion (SBC). Thus, the result shows that at five per cent significant level, the generated F-statistic is apparently greater than the upper bound critical value of 3.17. Therefore, the null hypothesis which states that there is no

cointegration is rejected, signifying that a stable long-run cointegration link exists between tourism and economic growth in Nigeria.

**Table 2:** Results of Unit Root Test

Augmented Dickey-Fuller Test			
Variables	Intercept	Intercept and Trend	Decision
<i>ln</i> TR	-3.536*	-3.421*	I(0)
<i>ln</i> RGDP	0.462	-1.852	-
<i>ln</i> ER	-2.862*	-2.395*	I(0)
$\Delta$ <i>ln</i> TR	-	-	-
$\Delta$ <i>ln</i> RGDP	-2.651**	-2.412**	I(1)
$\Delta$ <i>ln</i> ER	0.231*	-	-

Note: The optimal lag length is determined using the SBC criteria. RGDP represents the real gross domestic product, while TR is the Tourism Revenue, and ER is employment rate. \*, \*\* (\*\*\*) signifies significance at one, five and ten per cent levels, respectively.

Table 3 shows the performance rate at which tourism revenue stirs up growth in the Nigerian economy. Considering the respective contributions of the individual states to economic growth, the results shows that Kaduna, Enugu and Taraba still lag behind, while Lagos has continued to be the highest tourism-growth hub, with an average of 59.6 % increase in economic growth at a 1 per cent adjustment in tourism revenue. With respect to the Nigeria, Lagos has become one of the foremost economies in tourism revenues and economic growth amongst all other states of the country.

**Table 3:** Results of bounds test cointegration.

State	F-statistics	t-statistics	5%                      10%				$\beta$ ( $\Delta$ -technique)
			I(0)	I(1)	I(0)	I(1)	
Lagos	5.312	-5.022	7.85	8.58	6.91	7.21	0.596*
Abuja	3.021*	3.628	6.23	7.54	5.29	6.04	0.535*
Cross river	8.329	-5.392*	5.77	5.59	5.72	5.93	0.591*
Kaduna	3.426	-3.320	5.21	6.02	5.28	5.54	0.531
Enugu	4.124	-4.561	5.33	6.01	8.21	8.02	0.691
Taraba	3.802*	3.419	6.77	8.02	6.26	6.19	0.429

Note: \* indicates 1 percent adjustment of tourism revenue.

Since we have proved the existence of cointegration link between the variables, we proceed to compute the long-run coefficients of the selected ARDL model based on (2) and using the Schwarz Bayesian Criterion (SBC). The results of the estimation are shown is Table 4.

**Table 4:** Analysis of Critical Value for Bounds Test to Cointegration

Levels	F-statistics: 4.669*	Critical Value	
		Lower Bound	Upper Bound
		At 1 per cent significance	4.35
At 5 per cent significance		2.68	3.17

At 10 per cent significance                      2.31                      3.22

Note: From the table, \* shows that analyzed statistic falls above the upper bonds value. The analysis shows an unrestricted intercept and no trend.

The result in Table 5 indicates that at one per cent level of significance, the value for the examined tourism coefficient is positive and significant. Generally, based on the Nigerian data and considering all things to be equal, the analysis reveals that in the long run, one percent increase in the tourism revenues results in a GDP (economic growth) increase at about 0.59 percent. This proves that in a long run, there is an existing positive impact tourism has on economic growth in Nigeria.

Similarly, Table 6 illustrates the result of long – run relationship between tourism and employment rate. It is observed that at every 1% increase in tourism growth, employment rate is as well increase by 0.35 per cent,

**Table 5:** Estimated Long-Run Coefficients of Tourism revenues and Economic growth

Dependent Variable: $\ln RGDP$			
Variables	t-statistics	Coefficients	P. values
$c$	16.321*	12.1102	0.000
$\ln TR$	5.2193*	0.5921	0.000

Note: The optimal lag length is determined using the SBC criteria. RGDP represents the real gross domestic product, while TR is the Tourism revenue. \* - signifies significance at one per cent level.

**Table 6:** Estimated Long-Run Coefficients of Tourism and Employment rate

Dependent Variable: $\ln ER$			
Variables	t-statistics	Coefficients	P. values
$c$	9.651*	6.3922	0.000
$\ln TR$	3.4521*	0.3582	0.000

Note: The optimal lag length is determined using the SBC criteria. ER represents the Employment rate, while TR is the Tourism revenue. \* - signifies significance at one per cent level.

In Table 7, we utilized the ARDL-ECM in (3) to obtain the results of short-run dynamic coefficients related with the long-run relationships. The Schwarz Bayesian Criterion (SBC) is employed to establish the optimal lag length for the selected error correction illustration of the ARDL model.

**Table 7:** Illustration of Error Correction for the proposed ARDL model

Variables	Dependent variable: $\ln RGDP$		
	t-statistics	Coefficients	P. values
$c$	3.3211**	0.3652	0.040
$\ln TR$	4.2961*	0.0628	0.005
$ECM_{t-1}$	-3.2971**	-0.0282	0.035

$ECM = \ln RGDP - 0.5921 * \ln ER - 0.3583 * \ln TR - 12.1102 * C$

$R^2 = 0.8521$	AIC = 100.21
F-stat. (2, 32) = 6.4921 (0.003)	SBC = 96.213
D-W statistic = 1.6231	
<i>Short-run Test</i>	
Normal test = 14.0342 (0.000)	
Heteroscedasticity test = 2.8921 (0.36110)	
Serial Correlation LM test = 0.3239 (0.561)	
Ramsey RESET test = 0.3691 (0.539)	

*Note: The optimal lag length is determined using the SBC criteria. RGDP represents the real gross domestic product, while TR is the Tourism revenue. \*, \*\* signifies significance at one and five per cent levels, respectively.*

The result presented in Table 7 reveals a negative and significant for the computed coefficient of error correction at five per cent level confirming that the process of adjustment from the short-run deviation is relatively slow. It clearly shows that only 2 per cent of the uncertainty in GDP from the shock of the former period will be converges back to the long-run equilibrium in the present period. However, at one per cent level, the computed coefficient of tourism is positive and significant. Statistically, this signifying that there is a positive and significant short-run impact of tourism on the economic growth in Nigeria.

**Table 8: Result of Granger causality test.**

State	Null Hypothesis	Short run causality			Long run causality	
		F-statistics	P-values	$\Sigma$ coefficient	ARDL <sub>t-1</sub>	t-statistics
Lagos	H <sub>0</sub> : TR>>RGDP	5.052*	0.050	-0.621	-0.329*	-1.525
	H <sub>0</sub> : RGDP>>TR	2.039	0.321	-0.234	-0.352*	-2.212
Lagos	H <sub>0</sub> : TR>>ER	3.001*	0.000	-0.421	-0.321*	-3.362
	H <sub>0</sub> : ER>>TR	2.321*	0.035	-2.311	-0.881*	-3.202
Abuja	H <sub>0</sub> : TR>>RGDP	0.319	0.185	-2.819	-0.591	-2.332
	H <sub>0</sub> : RGDP>>TR	4.825	0.202	-	-0.631*	-0.692
Abuja	H <sub>0</sub> : TR>>ER	3.222*	0.051	-0.259	-0.622	-0.562
	H <sub>0</sub> : ER>>TR	0.068	0.558	-	-0.921*	-2.212
CRS	H <sub>0</sub> : TR>>RGDP	1.321*	0.021	-	-0.321*	-2.226
	H <sub>0</sub> : RGDP>>TR	0.133	0.664	-	-0.511*	-0.925
CRS	H <sub>0</sub> : TR>>ER	0.811	0.332	-0.414	-	-3.001
	H <sub>0</sub> : ER>>TR	0.072	0.423	-	-0.111*	-0.514
Kaduna	H <sub>0</sub> : TR>>RGDP	1.281*	0.002	-	-0.241*	-1.226

	H <sub>0</sub> : RGDP>>TR	0.223	0.544	-0.432	-0.511 <sup>*</sup>	-0.625
<b>Kaduna</b>	H <sub>0</sub> : TR>>ER	0.311	0.632	-0.714	-	-2.001
	H <sub>0</sub> : ER>>TR	0.172	0.213	-	-0.101 <sup>*</sup>	-0.414
<b>Enugu</b>	H <sub>0</sub> : TR>>RGDP	0.333 <sup>*</sup>	0.281	-0.005	-0.121 <sup>*</sup>	-3.561
	H <sub>0</sub> : RGDP>>TR	0.521	0.386	-	-0.491 <sup>*</sup>	-0.425
<b>Enugu</b>	H <sub>0</sub> : TR>>ER	0.198	0.000	-0.614	-	-2.181
	H <sub>0</sub> : ER>>TR	0.072	0.131	-	-0.501 <sup>*</sup>	-0.111
<b>Taraba</b>	H <sub>0</sub> : TR>>RGDP	0.321 <sup>*</sup>	0.000	-0.003	-0.053 <sup>*</sup>	-0.161
	H <sub>0</sub> : RGDP>>TR	0.106	0.000	-	-0.419 <sup>*</sup>	-0.252
<b>Taraba</b>	H <sub>0</sub> : TR>>ER	0.212	0.312	-0.222	-	-2.016
	H <sub>0</sub> : ER>>TR	0.157	0.001	-	-0.231 <sup>*</sup>	-0.415

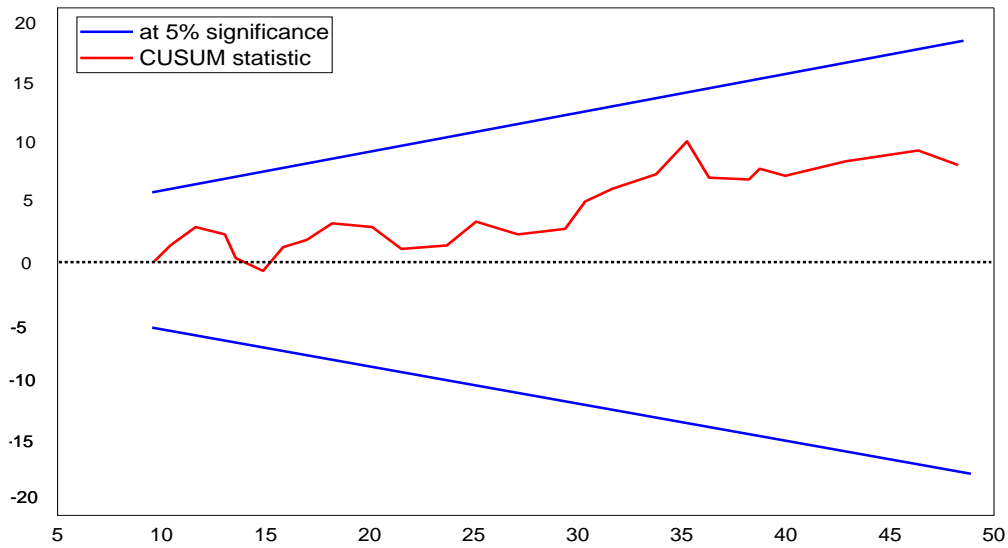
Note: \* - signifies significance at one per cent level.  $ARDL_{t-1}$  signifies the error correction term t-statistics, while (\*) denotes 5% or 10% significance.

The short run and long run causality analysis of the estimated variables is shown in Table 8. Particularly, the focus is to derive the causal relationship between tourism, tourism revenues, employment rate and economic growth in the LACKET states of Nigeria. The derivations indicate a substantial error correction ( $ARDL_{t-1}$ ) or term t-statistics coefficients for all the surveyed states. Thus, considering a long-term relationship, the result indicates that a bi-directional causality is existing amongst tourism revenues and economic growth and between tourism and employment rate in the LACKET states of Nigeria. Similarly, the analysis revealed that there a unidirectional long run causality from tourism revenues to economic growth mainly as regards Lagos Abuja, and CRS.

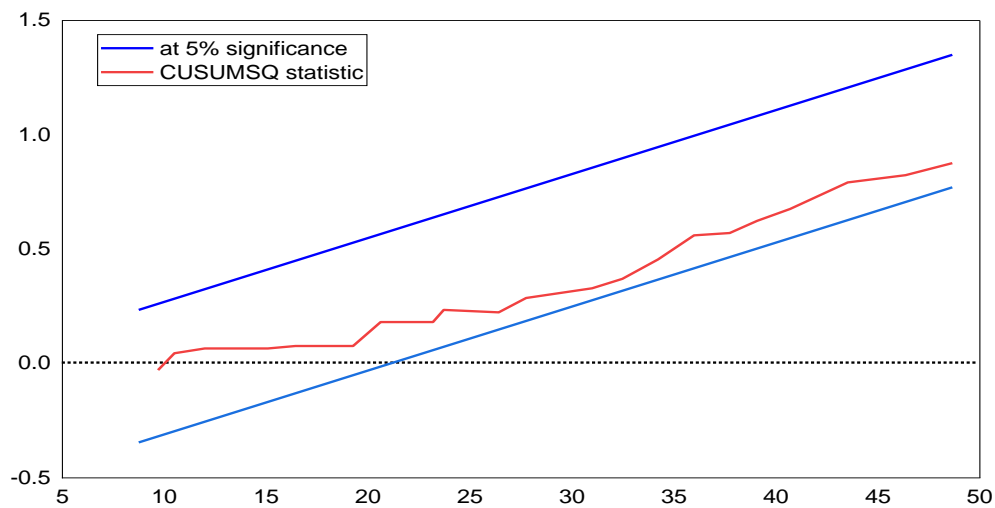
More so, to test the stability of our proposed ARDL regression model, we employed the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squared residuals (CUSUMSQ) plots based on the study of Brown T (1975). According to Brown T (1975), if the tests fall within the 5 per cent critical bound, it implies that there is no operational instability with the variables and their coordinating parameters at the period of study. The residual diagnostic tests indicate that the R-square ( $R^2$ ) is greater at 5% level of significance, therefore, the null hypotheses which suggests the absence of heteroskedasticity and uninterrupted correlation in the model is not rejected. Because the computed  $R^2 = 85\%$  and is greater than the 60% standard gauge, the stability and suitability of our model is confirmed.

Finally, Figures 2 and 3 illustrates the CUSUM and CUSUMSQ plots which checks the stability of the long-run and the short-run parameters activities for the proposed ARDL-ECM. This check was performed for Nigeria using data from each of the six LACKET states. The straight lines of the plot indicate the critical bound levels at 5% significance. As long as the statistics of the CUSUM and CUSUMSQ plots remain within the critical bounds of 5% level of significance, the null hypothesis of all coefficients in the given regression are stable and cannot be rejected. Statistical result of the plots indicates that CUSUM and CUSUMSQ fall within the

5% critical bounds which implies a very good stability between the short – and long – run coefficients of the ARDL-ECM.



**Figure 2:** Plot of Cumulative Sum of Recursive Residuals (Stability test)



**Figure 3:** Plot of Cumulative Sum of Squares of Recursive Residuals (Stability test)

## 5. Discussion

The tourism sector has been recorded as one of the fastest growing industries and also a very important industry in realizing sustainable development goals (SDGs) in many developing countries. Also, it is considered as one of the major sources of employment and a large contributor to an economic diversification in Nigeria. Weaker regions or regions in decay could be developed through the tourism sector easily. In Nigeria, tourism is proposed has been projected as a viable tool for the realization of the SDGs.

The primary objective of this study is to investigate the core relationship which exists between tourism, employment, and economic development in Nigeria. We attempted to analyze the positive nexus between the annual tourism growth, employment and economic growth and the results of our statistical analysis prove that a growth in the tourism industry can warrant an improvement in the rate of employment as well as GDP. The study of Ridderstaat J, et al., [51] explored causal relationships between tourism growth and economic expansion in the Caribbean. The findings of their study showed a long-term equilibrium association. Also, with respect to the study of Archer [4] and Mathieson [37], tourism industry offers both direct and indirect employment opportunities. However, in the case of Nigeria, studies in this context is not applicable. Thus, our research is focused on investigating the direct and positive impact of tourism on economic growth and employment rate is achieved. The results of our study have proved that the growth of tourism has positive correlation to GDP and employment rate, thus, aligning with the results obtained by Khalil [29]. Also, the overall results of our study concur with several outcomes of previous research. For example, the cointegration results indicates the presence of a relationship between annual tourism growth and GDP. this outcome conforms with the research of Pedak [50]. In addition, the cointegration analysis results indicate a short – and long – run relationship existing amongst annual employment rate and tourism growth. This also aligns with the results of Dimoska [18]. Considering a long-term relationship, the result of this study indicates that a bi-directional causality exists between tourism revenues and economic growth and between tourism and employment rate in the LACKET states of Nigeria. Likewise, the outcome shows that there is a unidirectional long run causality from tourism revenues to economic growth and employment rate mainly as regards Lagos Abuja, and CRS. These findings suggest that growth in tourism has a major role in the economic growth as well as in creating employment opportunities. In a not shell, all findings of this study support the established hypotheses.

Finally, the theoretical and empirical methods employed in this research have established that any growth witnessed in the tourism sector has a positive impact on GDP. On the other hand, the GDPs direct effect on travel and tourism can produce extra employment opportunities through its motivating impacts on many tourism sectors. It has been established that the overall economic impact of tourism is improved when the tourism sector is fortified to obtain domestic goods and services.

## 6. Conclusion and Implications

Tourism has become one of the motivating factors of the Nigerian economy. The expansion of the tourism sector can result in the actualization of the SDGs towards the enhancement of the economy, particularly with regards revenues, GDP, employment creation, and economic growth. Nigeria has the largest population in Africa with the fast-growing economy. The country is also endowed with spectacular tourist attracting centers thereby have witnessed a large influx of tourist arrivals in recent time. All these makes the country an outstanding case study for this research. Thus, this study has attempted to empirically investigate the level of relationship between tourism revenues, employment rate and economic growth (GDP) in

Nigeria using the Autoregressive Distributed Lag (ARDL) bounds testing and the Error Correction Model (ECM). A total of six states (LACKET states) was selected from the six geopolitical regions of the country, respectively. Annual time series data from 1999 to 2019 was selected and analyzed. To achieve a good result, we performed different econometric tests on the variables and their parameters, beginning with a unit root tests. To perform the unit root test, we employed the Augmented Dickey-Fuller (ADF) test and the result showed an integration between tourism revenues and the series of the Nigerian GDP at  $I(0)$  and  $I(1)$  orders, respectively, therefore, we proceeded and utilize the ARDL bounds testing technique to estimate the level of impact tourism has on economic growth in Nigeria. Also, the results of our cointegration test showed a long run relationship which exist between the tourism revenues, employment rate and economic growth while, the results the bounds test of cointegration established the presence of a bi-directional causality from tourism revenues to economic growth in almost all LACKET states. Likewise, we also observed a unidirectional causality existing amongst tourism revenues and economic growth particularly in the case of Lagos and CRS. It is assumed that the reason why these two states (Lagos and CRS) witnessed higher unidirectional causality in the analysis is because the two states received higher number of tourist arrivals during the period of study. Also, Lagos and CRS amongst other states of the country plays host to several archeological and high-valued tourist attraction center covering almost about 60 per cent of the county's tourism centers, thus, have been a major source of tourism-growth link in Nigeria. Our investigation went further to investigate the stability of the long- and short-run coefficients in the model by analyzing the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squared residuals (CUSUMSQ) statistics. Results obtained from the residual plots analysis indicate stability of the parameters of the estimated ARDL-ECM and thus confirms it suitable.

Generally, with respect to all the reports of our investigations, we have been able to establish that both in the short run and long-run, tourism has a positive impact on economic growth in Nigeria. However, regarding short-run relationship, a low positive impact of tourism is recorded. The reason for this low impact could be attribute to several security challenges, political instability, poor infrastructural development, people's wrong perception of leisure and relaxation, and lots of other societal glitches in Nigeria in the short-run. Thus, in order to improve the Nigerian tourism industry and achieve stability, we suggest that governments intervention towards alleviation of these underlying challenges is very crucial and will result in more tourist arrivals, thereby enhancing the contributions of tourism revenues in the Nigerian economic growth (GDP). Also, considering that the tourism sector needs talented and creative minds with well-equipped infrastructure, it is our opinion that for the sector to flourish better, such manpower and equipment's should be made available by the government.

In summary, this research thus established a few policies which is believe to improve the tourism sector if adopted by the government. Firstly, in order to create more employment opportunities which in turn creates incomes sources and revenues for the citizens as part of the SDGs goals, the government should pay adequate attention towards drawn from this study are that the government should create employment opportunities, income sources, and revenue for the local inhabitants as well as economic activities in the country through the ultra-modern development of the tourism sector. Secondly, one of the ways the government can develop the tourism sector is by making available necessary incentive in the form of basic infrastructural, such as a standard and enhanced transportation system, good and motorable roads, well-equipped airports, etc. Thirdly, government should provide tax incentives to the tourism-related industries (i.e., hotels and leisure centers). Finally, there is need to establish political stability in Nigeria in order to improve the Nigerian's image to the world which in turn fosters attraction

of more tourist arrivals. Likewise, the insecurity and unrest in Nigeria, particularly in the North east region is a key factor to the recent decline in tourist arrivals. Therefore, the government should intensify efforts to permanently take control of this issues and restore tranquility in these areas, thereby guaranteeing the safety of tourist. policies. This ensures a stable, secure, and consistent demand of tourism for Nigeria.

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