Modeling the Long-Run Relationship Between Exchange Rate-Tourism Pass-Through and Growth: The Case of Nigeria?

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Abstract

This study was motivated by the urgent need to diversify the Nigerian economy away from oil. The economy has since the 1970s relied on revenue from oil with attendant consequences from oil price swings. Thus, the study employs the relatively new Bounds testing approach of Pesaran, Shin, and Smith (2001) with the critical values and approximate p-values developed by Kripfganz and Schneider (2018), to test the effect of exchange rate-tourism pass-through effect on growth. In the literature, the tourism-led growth has been studied for various countries. However, this study is the first to investigate the impact of exchange rate-tourism pass-through effect on growth in addition to testing their main effects. And it reveals for the first time, an exchange rate-tourism-led growth. Thus, Nigeria should adopt sound policies in the tourism sector that would make it possible to take advantage of the naira depreciation.

Key Words: *Exchange rate, Tourism, Pass-through, Growth, Sector, Diversification.*

1. Introduction

Nigeria grapples with the Dutch disease syndrome in the tourism sector. Like every other sector, the discovery of oil in commercial quantity in the 1970s has depressed tourism development in Nigeria. The tourism sector's share of GDP is disappointing as it contributes less than 1 per cent to the GDP. However, tourism is the fastest growing industry in the world and contributes immensely to employment and gross domestic product of countries. This fact is attested to by "the United Nations World Tourism Organization which states that 806 million people travelled to a foreign country in 2005 [alone], and spent about US$680 billion in transactions related to the consumption of goods and services in the host countries" (Valle and Yobesia, 2009).

Nigeria has potential to lead in tourism in Africa. Some tourist centres in the country are: Obudu Cattle ranch resort and Tinapu resort centre in Cross Rivers, Yankari game reserve in Bauchi State, Zuma rock in Abuja, Lekki beach in Lagos State, Mambila in Plateau, among others. Yusuff and Akinde (2015) report that Nigeria has over 7,000 tourist centres and the industry has the potential to grow at 6% per annum for a ten-year period. However, this seems like a paradox because despite being abundantly endowed with these centres, Nigeria is yet to fully exploit the benefits from them. Audi, Mohammed and Ola (2014) and Agri, Acha, and Lucy (2016) identify inadequate government policy formulation and implementation, under-utilization, under-funding, and poor infrastructural development as factors responsible for this.

In recent times, debates focus on diversification of the economy, especially to shield it from incessant global oil price volatility. The tourism industry has lots to contribute to the economy in terms of employment and revenue because it can be harnessed with local resources. Recognizing the importance of this sector, the federal government in September 1962 launched the Nigerian Tourist Association (NTA), but since 1992 known as Nigerian Tourism Development Corporation (NTDC) to integrate it into its diversification policy. This has attracted the attention of researchers who seek to investigate the contribution of this sector to economic growth (Ndajiya, Shehu and Yunusa, 2014).

Despite the growing interest in tourism research, to the best of our knowledge, there are several ways this study differs from others. Firstly, previous studies like Brida, Carrera, and Risso (2008) and Perles-Ribes et al. (2017), investigate the main effect of real exchange rate on economic growth. But did not show how exchange rate interacts with tourism to impact on growth. Secondly, previous studies generally, use international tourism receipts or/and tourism arrivals to capture tourism. For instance, while Perles-Ribes et al. (2017) use the two at level form, Shahzad et al. (2017) combine both data using principle component technique; Nene and Taivan (2017) use number of arrivals. We argue that international tourism receipts data from the World Bank is denominated in the US dollar and combining it with other country-specific data in different measurement may not be appropriate. Furthermore, number of arrivals does not reveal monetary value of tourism. Thus, this study employs data in the same monetary value from the Nigerian apex bank. Finally, this is the first study to apply Nigerian data and the Bounds testing approach to investigate the tourism-led growth hypothesis. We argue and show it empirically that exchange rate plays a crucial role in choosing tourism destinations. *Thus, the hypotheses tested in this study are: There exists no long-run exchange rate-tourism-led growth, and there exists no long-run tourism-led growth in Nigeria respectively.* The rest of the paper has the following sections: stylized facts of the Nigerian economy, a brief literature review, modeling and estimation procedure, empirical results, and conclusion.

2. Stylised Facts of the Nigerian Economy

Table 1 below presents tourism as a percentage share of GDP and service sector in selected years. It can be seen from the table that tourism share of GDP is very insignificant as the average contribution is 0.43%. On the other hand, tourism share of service sector increased marginally from less than 1% to more than 1% only after the year 2000. This is because of adoption and implementation of the National Economic

Empowerment and Development Strategy (NEEDS) by the federal government in 2004. Following this policy, key sectors of the economy like the service sector were restructured and made more viable.[1]

Table 1: Tourism Share of GDP and Service Sector respectively (1985-2015)

Year	Tourism Share of GDP	Tourism Share of Service
1985	0.53%	1.23%
1990	0.24%	0.75%
1995	0.20%	0.89%
2000	0.20%	0.65%
2005	0.45%	1.40%
2010	0.45%	1.30%
2015	0.95%	2.36%

Source: Calculated by author with data from the Central Bank of Nigeria (CBN).

The Figure 1 below presents a snapshot of Nigeria's annual receipts from tourism. Unlike what is obtainable in other developing countries, Nigeria's revenue from tourism has been fluctuating over the years and is currently sinking. During the periods of military regime (1995-1998) within the reference period, revenue from tourism only rose marginally, while the increase was a higher within the first periods of democratic regime (1999-2002). After the year 2002, there was a sharp decline for the first time in 8 years after 1995. Surprisingly, the peak was seen during the global financial and economic crisis of 2008. The reason can be gleaned from Figure 2 below. In that year, the US dollar depreciated, while the Nigerian naira appreciated. For instance, the exchange rate was NG₦131/US$ in 2005 and rose to NG₦118/US$ in 2008[2]. This proves a link between tourism and exchange rate albeit the fact that tourists visit to Nigeria has slackened.

Figure 1: The Trend of Nigeria's Tourism Receipts (1995-2015)

Source: Dataset is from the WDI

[1] For a review of the NEEDS document, see IMF Country Report No. 05/433

[2] It would make more sense to place Figures 1 & 2 side by side or collapse the two in one for easier analysis. We tried to do that, but the values are not in the same measurement and minimising the graphs leads to loss of some relevant years.

The exchange rate regimes (ERR): A Historical Perspective

Over the years, Nigeria has practiced several exchange rate regimes aimed at paddling the economy through the voyage of highly volatile economic scenarios. This ranges from "fixed, flexible, [to] some hybrid or variants of exchange rate regimes" (CBN, 2016), with some forms of trial and error, as can be seen in Table 2 below.

Table 2: Exchange Rate Administration in Nigeria

Year	ERR	Description	Rate (Naira per US$)
1959	Fixed ERR	Fixed at per with the British pound sterling until the £ was devalued by 10.0% in November 1967. Nigeria opted out and subsequently pegged the naira to the US dollar, the Deutsche mark, the Swiss franc, the French franc, the Dutch guilder, the Japanese yen and the Canadian dollar respectively.	-
1985	Fixed ERR	One currency intervention system. The naira was pegged to the US dollar only.	NG₦0.89
June-1986 till date (with varying forms of interventions)	Flexible ERR	Liberalized system which was determined by the forces of demand and supply. It had two tiers known as first and second tier foreign exchange rate market (SFEM). The first tier was a fixed system used mainly for government transactions, while the second tier was market-determined meant for private sector transactions.	NG₦1.75
July-1987	Flexible ERR	The two tiers practiced in 1986 were amalgamated into a single tier (FEM).	NG₦4.01
1988	Flexible ERR	Autonomous foreign exchange market (AFEM).	NG₦4.53
1994	Fixed ERR	Re-introduction of temporary pegging system.	NG₦21.99
1995	Flexible ERR	Guided deregulation system. Re-introduction of AFEM with CBN interventions.	NG₦21.89
1999	Flexible ERR	Introduction of Interbank foreign exchange market (IFEM).	NG₦92.33
2002	Flexible ERR	Introduction of retail Dutch Auction System (rDAS).	NG₦120.57
February-2006	Flexible ERR	Introduction of wholesale Dutch Auction system (wDAS).	NG₦128.65
January-2009	Flexible ERR	Re-introduction of rDAS.	NG₦148.90
July-2009	Flexible ERR	Re-introduction of wDAS.	-
October-2013	Flexible ERR	Re-introduction of rDAS.	NG₦157.31
February 17-2015-till date	Flexible ERR	Re-introduction of inter-bank foreign exchange market (IFEM).	NG₦192.44

Source: gleaned from CBN (2016)

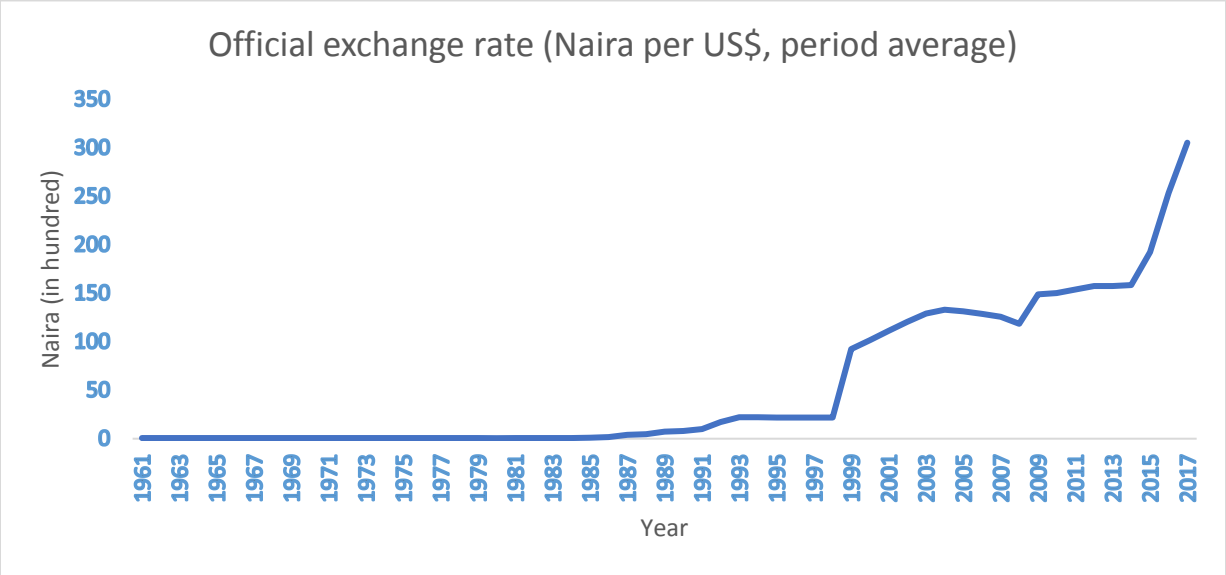
The Figure 2 below shows that the naira depreciated against the dollar in 1986 for the first time in Nigeria's history. This coincided with the period of the popular structural adjustment programme (SAP), when "monetary and credit policies adopted were aimed at reducing excess demand and liquidity in the economy" (Ogiogio, 1996). Furthermore, this was the period when a "pseudo" flexible exchange rate system was adopted for the first time, as shown in table 2 above. However, the policy failed to achieve its purpose.[3]

Since 1986, the value of naira has been depreciating against the US dollar on an increasing rate, except during the global financial crisis between 2007 and 2008. Recently, the naira witnessed (and witnesses) all time depreciation between 2014 and 2017 as its value keeps sinking rapidly from about ₦158 to ₦305 per US

[3] see Anyanwu, 1992 and Ogiogio, 1996 for detail of what happened during the period.

dollar. A decade by decade analysis shows that between 1986 and 1996, the percentage change in the naira depreciation was 1147%, while it was 488% between 1996 and 2006, and 97% between 2006 and 2016.

Figure 2: The Trend of Nigeria's Exchange Rate (1961-2017)



Source: Dataset is from the World Bank

3. A Brief Literature Review

The tourism-led growth hypothesis has drawn the attention of researchers globally. Basically, researchers want to know the causal relationship between tourism and growth. A as a result, country-specific data and varying methodologies are applied. For instance, Gõkovali (2006); Cortes-jimenz and Pulina (2009); Yusuff and Akinde (2015); Čerović, Knežević, Matović and Brdar (2015), investigate whether or not the tourism-led growth hypothesis holds for the Mediterranean countries; Italy and Spain; Nigeria; Montenegro respectively. Their findings suggest that tourism development leads to economic growth both directly and indirectly by promoting the growth of other sectors and by increasing domestic incomes and effective demand. This is confirmed by Kenell (2008), who reports that increasing investment in the tourism sector in Thailand does not dampe resources in other sectors, rather it leads to development of other sectors such as the manufacturing sector. Brida et al. (2008) employ causality approach to investigate the tourism-led growth hypothesis in Mexico and results support the hypothesis. They find a uni-directional causality that runs from tourism expenditure, and exchange rate to growth in Mexico. In contrast, Bouzahzaha and Menyari (2013) reports that no causality exists for Morocco and Tunisia respectively.

Similarly, Shahzad et al. (2017) investigate the tourism-led growth hypothesis of China, France, Germany, Italy, Mexico, Russia, Spain, Turkey, the United Kingdom, and the United States, using the quantile-on-quantile (QQ) approach. The results show a positive and bi-directional causal relationship between tourism and growth, although the relationship is weak in China and Germany. Perles-Ribes et al. (2017) utilize Bounds testing approach to investigate this hypothesis in Spain. The study focuses on the period after the global financial and economic crisis. They also report a bidirectional causality in Spain. Also, Nene and Taivan (2017) find a similar outcome in ten sub-Saharan African countries namely: Botswana, Democratic Republic of Congo (DRC), Kenya, Malawi, Mauritius, Mali, Namibia, South Africa, Tanzania, Uganda and Zimbabwe.

As an aside, tourism also has social impacts. This is the intuition behind Enemuo and Oduntan (2012), who examine whether or not tourism development has any significant social impact on local dwellers of Osun State, Nigeria. The study reports evidence of significant impact on the socio-cultural well-being of the host communities. Keovilay (2012) reports that tourism improves the social life of the people of Luang Namtha Province in Lao Peoples Democratic Republic.

4. Modelling and Estimation Procedure

This study adopts the relatively new autoregressive distributed lag (ARDL) model developed by Pesaran et al. (2001) to investigate the long-run relationship between industrial growth and exchange rate-tourism pass-through in Nigeria. Like Nduka et al. (2017); Shahzad et al. (2017) and Perles-Ribes et al. (2017), the study uses quarterly data from 1981Q1 to 2015Q4 obtained from the CBN Statistical Bulletin of 2015. The choice of this period is consequent on the fact that there have been lots of policy changes in the economy following the global financial and economic crisis of 2008. The econometric framework to estimate the long-run relationship is specified as:

$$indgrowth_t = \alpha_o + \alpha_1 lntourism_t + \alpha_2 exrate + \alpha_3 exrate * tourism_t + \psi_t dummy + \varepsilon_t \qquad (1),$$

where indgrowth is industrial growth, tourism is tourism sector output in monetary terms (the only available data for this in Nigeria is the receipts on hotel and restaurant (see Oyejide and Bankole, 2001), which is recently known as accommodation and food services, exrate is exchange rate (this is the price of the Nigerian naira relative to the US dollar), exrate*tourism measures exchange rate-tourism pass-through, dummy is dummy variable (0 and 1 = the periods before and after the global economic and financial crisis respectively). Including exchange rate-tourism pass-through is on the premise that, foreign exchange in the tourism sector impacts on growth through tourism, while ε_t is the error term that captures effects of other variables omitted in the model. The a priori expectations of the parameters are $\alpha_1 > 0;\ \alpha_2 > 0; \alpha_3 > 0;\ \psi \gtrless 0$.

The objective of this study is to estimate the impact of exchange rate-tourism pass-through on growth. To avoid spurious regression which is common in time series, we conducted unit root test on all the model variables. This test is used to make non stationary series stationary by differencing. However, this may modify the long-run relationship of the variables. Thus, to ascertain the long-run relationship between variables, different approaches are applied. The common ones are, the Engle and Granger (1987) two-step residual based approach; the Johansen and Juselius (1990) multivariate full information maximum likelihood (FIML) based approach and the Autoregressive Distributed Lag (ARDL) model or Bounds testing approach of Pesaran et al. (2001).

In all, we prefer the ARDL model because it is efficient even when the regressors are I(0) or I(1). Meanwhile, it collapses at I(2) or greater. It is efficient even in small sample size in line with ordinary least squares (OLS) technique requirements. It simultaneously tests for long-run and short-run relationships. Moreover, endogeneity is not a problem in this model. In sum, because the variables employed in this study are integrated of I(1), we adopted the ARDL approach which is usually based on the general-to-specific modeling technique with emphasis on model over parameterization.

Following Nduka et al. (2017), we transformed equation (1) above to an ARDL-ECM framework in equation (2) below:

$$\begin{aligned}\Delta indgrowth_t = {} & \alpha_0 \\ & + \sum_{k=1}^{n} \alpha_{1k} \Delta indgrowth_{t-k} + \sum_{k=1}^{n} \alpha_{2k} \Delta tourism_{t-k} + \sum_{k=1}^{n} \alpha_{3k} \Delta exrate_{t-k} \\ & + \sum_{k=1}^{n} \alpha_{4k} \Delta exrate * tourism_{t-k} + \psi_t\, dummy + \ \lambda_1 indgrowth_{t-1} + \lambda_2 tourism_{t-1} \\ & + \lambda_3 exrate_{t-1} + \delta ec_{t-1} + \nu_t \qquad (2),\end{aligned}$$

where α_0 is the drift term, ec_{t-1} is the error correction term that measures the speed of adjustment between the long-run and short-run dynamics of the model; and ν_t is the error term.

5. Empirical Results[4]

Unit Root Test

To examine the time series properties of the model variables, the Augmented Dickey-Fuller (ADF) unit root test was conducted on all the model variables, and the results are presented in Tables 3a-c below. To avoid serial correlation common in models without constant term and time trend, we used the ADF with constant term and the time drift:

$$\Delta y_t = \alpha + \beta y_{t-1} + \delta t + \zeta_1 \Delta y_{t-1} + \zeta_2 \Delta y_{t-2} + \cdots + \zeta_k \Delta y_{t-k} + \epsilon_t \quad (3),$$

where k is number of lags, which is 3 in our model, α is the constant term, and δt is the time trend. All the model variable are I(1) suggesting that they exhibit mean reversion after first difference. The null hypothesis of non stationarity of each variable was tested against the alternative hypothesis of stationarity.

Augmented Dickey-Fuller (ADF) Unit Root Test Results

Table 3a: Augmented Dickey-Fuller test for unit root (Indgrowth)

Augmented Dickey-Fuller test for unit root Number of obs = 135

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-7.011	-4.028	-3.445	-3.145

MacKinnon approximate p-value for Z(t) = 0.0000

D2.ind_gro~h	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
D.ind_growth						
L1.	-.5606952	.0799766	-7.01	0.000	-.7189309	-.4024595
LD.	.0523251	.0871028	0.60	0.549	-.1200099	.2246601
L2D.	.2618582	.0838575	3.12	0.002	.0959441	.4277723
L3D.	.4100901	.0771799	5.31	0.000	.2573879	.5627923
_trend	.00093	.0003272	2.84	0.005	.0002826	.0015774
_cons	-.0707572	.0263576	-2.68	0.008	-.1229065	-.018608

[4] Analysis was done with Stata 15 software using the newly developed codes of *Kripfganz and Schneider (2018).*

Table 3b: Augmented Dickey-Fuller test for unit root (Tourism)

Augmented Dickey-Fuller test for unit root Number of obs = 135

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-4.643	-4.028	-3.445	-3.145

MacKinnon approximate p-value for Z(t) = 0.0009

D2.tourism	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
D.tourism						
L1.	-.3024194	.0651387	-4.64	0.000	-.431298	-.1735409
LD.	-.0575575	.0895082	-0.64	0.521	-.2346517	.1195366
L2D.	.1913659	.0890494	2.15	0.034	.0151794	.3675524
L3D.	.3109874	.0844467	3.68	0.000	.1439076	.4780673
_trend	.0154157	.0060629	2.54	0.012	.0034201	.0274112
_cons	-.6050461	.4223102	-1.43	0.154	-1.440597	.2305049

Table 3c: Augmented Dickey-Fuller test for unit root (Exrate)

Augmented Dickey-Fuller test for unit root Number of obs = 135

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-6.265	-4.028	-3.445	-3.145

MacKinnon approximate p-value for Z(t) = 0.0000

D2.ex_rate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
D.ex_rate						
L1.	-.5117493	.0816817	-6.27	0.000	-.6733586	-.3501401
LD.	.0393538	.0915693	0.43	0.668	-.1418183	.2205258
L2D.	.2551046	.0887523	2.87	0.005	.0795061	.4307032
L3D.	.381983	.0814624	4.69	0.000	.2208078	.5431583
_trend	.0039251	.0020481	1.92	0.058	-.0001272	.0079773
_cons	-.2739517	.1647131	-1.66	0.099	-.5998405	.0519371

Bounds Test for Cointegration

The Bounds test was conducted to test whether or not the model variables have a long-run relationship and the results are presented in table 4 below. The F-statistic is usually compared with the lower and upper bound critical values (see Pesaran, Shin, and Smith, 2001). Our estimation is based on the newly developed Kripfganz and Schneider (2018) critical values and approximate p-values. The null hypothesis is H0: no level relationship. The procedure is, do not reject H0 if both F and t are closer to zero than critical values for I(0) variables (if p-values > desired level for I(0) variables); reject H0 if both F and t are more extreme than critical values for I(1) variables (if p-values < desired level for I(1) variables). The result in table 4 shows that at 5% significance level, the F-statistic (5.061) and t-statistic (-4.299) are more extreme than values of I(1) variables. Thus, we reject H0 and conclude that there exists a long-run relationship between industrial growth, tourism, exchange rate, and exchange rate-tourism pass-through in the post global financial and economic crisis. Similar relationships in the tourism-led growth hypothesis have been reported in the literature by Shahzad et

al. (2017), who use data of top ten leading tourism countries; Perles-Ribes et al. (2017) use Spanish data; Nene and Taivan (2017) study ten sub-Saharan African countries and Nduka et al. (2017) for Nigeria. In other studies, Gõkovali (2006); Cortes-jimenz and Pulina (2009); Yusuff and Akinde (2015); Čerović, Knežević, Matović and Brdar (2015), report the same scenario. In contrast, Bouzahzaha and Menyari (2013) find no relationship in both Morocco and Tunisia.

Table 4: ARDL Cointegration Test (Bounds Test Approach) Results

```
Pesaran, Shin, and Smith (2001) bounds test

H0: no level relationship                                   F =     5.061
Case 3                                                      t =    -4.299

Finite sample (4 variables, 135 observations, 11 short-run coefficients)

Kripfganz and Schneider (2018) critical values and approximate p-values
```

	10%		5%		1%		p-value	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F	2.445	3.587	2.886	4.125	3.854	5.284	0.001	0.014
t	-2.527	-3.608	-2.840	-3.955	-3.448	-4.614	0.001	0.023

The ARDL-ECM Regression Results

As expected, the result shows that exchange rate-tourism pass-through has a positive and significant effect on growth in the period after the global economic and financial crisis relative to the period before. This high significant effect (p-value is 0.000) validates Nduka et al. (2017). Thus, *we reject the H0 which says, there exists no long-run exchange rate-tourism-led growth. And conclude that there exists a long-run exchange rate-tourism-led growth in Nigeria.*

On the other hand, the main effects of these variables are mixed. Surprisingly, the results suggest that the relationship between tourism growth and industrial growth is negative during the period after the 2008 crisis. This contradicts Brida et al. (2008), Nduka et al. (2017), Shahzad et al. (2017) and Perles-Ribes et al. (2017), respectively. However, this seemingly unexpected finding may be due to several factors: First, to have a good fit of our data, we used the log of tourism to capture the effect of percentage change in tourism on the percentage change in industrial growth. Thus, this suggests that after the 2008 economic crisis, the percentage change in tourism is negative. Secondly, Nigeria's tourism data captures only receipts on hotels and restaurants (see Oyejide and Bankole, (2001). This is a far cry of what it should include. For instance, receipts from tour operators, transport, tourism promoters, hospitality, travel services, among others, are not included. Thus, *we do not reject the null hypothesis which says, there exists no long-run tourism-led growth in Nigeria.*

In line with theory, the result shows a positive and significant long-run relationship between exchange rate and growth. Thus, one naira depreciation relative to the US dollar (dollar appreciation) will lead to about 1.7 per cent increase in growth as opposed to the 5 per cent reported by Nduka et al. (2017). This suggests that in the long-run, the higher the naira depreciation the higher the growth vis-à-vis increased exports. This submits to the Marshall-Lerner condition. This finding is consistent with the findings of Brida et al. (2008) and Perles-Ribes et al. (2017). The dummy variable shows that there is a significant difference in the long-run exchange rate tourism-led growth in the post 2008 global financial and economic crisis relative to the period before it in Nigeria.

As noted earlier, one of the advantages of ARDL model, is its convenience to simultaneously test long-run and short-run relationships. As expected, in table 5 below, the coefficient of the error correction term is negative and statistically significant. The coefficient of the EC_{t-1}[5] in our model (-0.092) suggests that about 9.2% of disequilibrium between the dependent variable and the regressors in the long-run is adjusted within one quarter. Remarkably, Nduka et al. (2017) report the same figure, but not statistically significant.

Table 5: The ARDL-ECM Results

```
ARDL(5,2,5,0,0) regression

Sample: 1982q2 - 2015q4                         Number of obs     =        135
                                                R-squared         =     0.6243
                                                Adj R-squared     =     0.5733
Log likelihood =  372.59098                     Root MSE          =     0.0164
```

D. ln_indgrowth	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ADJ						
ln_indgrowth						
L1.	-.0921827	.0214415	-4.30	0.000	-.1346427	-.0497228
LR						
ln_tourism	-.0821507	.0145445	-5.65	0.000	-.1109529	-.0533486
exrate	.0173377	.0019747	8.78	0.000	.0134272	.0212481
exratetourism	.0000672	.0000187	3.59	0.000	.0000301	.0001043
dummy	.1498623	.0689147	2.17	0.032	.0133923	.2863322
SR						
ln_indgrowth						
LD.	.4705075	.0786928	5.98	0.000	.3146744	.6263407
L2D.	.2402385	.0885663	2.71	0.008	.064853	.415624
L3D.	.1972305	.0896107	2.20	0.030	.019777	.3746841
L4D.	-.3300357	.08069	-4.09	0.000	-.4898238	-.1702476
ln_tourism						
D1.	-.0041902	.0224305	-0.19	0.852	-.0486086	.0402282
LD.	.0032112	.0223803	0.14	0.886	-.0411078	.0475302
exrate						
D1.	-.0024482	.0017246	-1.42	0.158	-.0058634	.0009671
LD.	-.000385	.0017272	-0.22	0.824	-.0038053	.0030354
L2D.	-.0004706	.0017534	-0.27	0.789	-.0039428	.0030016
L3D.	-.0000814	.0017449	-0.05	0.963	-.0035369	.0033741
L4D.	-.0035292	.0017733	-1.99	0.049	-.0070409	-.0000175
_cons	.1694677	.0407824	4.16	0.000	.0887074	.2502281

6. Conclusion

This study investigates exchange rate-tourism-led growth hypothesis in addition to the tourism-led growth hypothesis common in the literature. This study builds on Nduka et al. (2017). Also, it benefits from Perles-Ribes et al. (2017), who investigate the later hypothesis for Spain after the global financial and economic crisis of 2008. This study departs from previous studies in the following ways: Firstly, previous studies focus on the separate effects of real exchange rate and tourism on economic growth. This study is the first to show how exchange rate interacts with tourism to impact on growth. Secondly, previous studies use international tourism

[5] This is represented by ADJ in table 5 below which is same as ECM(-1) (see Kripfganz and Schneider, 2018)

receipts or/and tourism arrivals to capture tourism. We argue that international tourism receipts data from the World Bank is denominated in the US dollar, hence, using it for estimation with other data in different measurements may not be appropriate. Additionally, number of arrivals does not reveal monetary value of tourism. Thus, this study employs data in same monetary value from the Nigerian apex Bank. Thirdly, we argue and show it empirically that exchange rate plays a crucial role in choosing tourism destination. Finally, we are the first to use the newly developed Kripfganz and Schneider (2018) critical values and approximate p-values in the Bounds testing approach.

The study tests two hypotheses. $H0_1$: there exists no long-run exchange rate-tourism-led growth. $H0_2$: there exists no long-run tourism-led growth in Nigeria. The analysis shows that, while tourism has a negative impact on growth, exchange rate-tourism pass-through has positive and significant impact on growth in Nigeria. Thus, we conclude that there exists a long-run exchange rate-tourism-led growth in Nigeria. Meanwhile, the tourism-led growth does not seem to hold for Nigeria. We show that the later conclusion may be attributed to several reasons: First, to have a good fit, we use the log of tourism rather than the level form. Second, Nigeria's tourism data is not all inclusive. For instance, receipts from tour operators, transport, tourism promoters, hospitality, travel services, among others, are not included. Thus, caution should be exercised in making policies based on this finding. We recommend another study, perhaps with more inclusive data when made available. On the other hand, the results show that exchange rate impacts positively and significantly on growth. This means that one Nigerian naira depreciation relative to the US dollar increases growth vis-à-vis increased exports.

Overall, this study is revealing. The main effects of tourism and exchange rate show mixed outcomes, but their interaction show a positive effect. Thus, it makes economic sense to incorporate it in the tourism-led growth hypothesis. Nigeria should develop the tourism sector because it has potential to bring in foreign earning and help to diversify sources of revenue. Policies should focus on taking advantage of the naira depreciation. To attract foreigners, existing tourists' locations should be well maintained and promoted, and new ones developed. It benefits foreigners to travel to Nigeria because of exchange rate differentials.

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