Journal of Tourism Management Research
2020 Vol. 7, No. 2, pp. 132-154.
ISSN(e): 2313-4178
ISSN(p): 2408-9117
DOI: 10.18488/journal.31.2020.72.132.154

TOURISM AND GROWTH IN NIGERIA: APPLICATION OF TYDL GRANGER-CAUSALITY TEST AND INNOVATION ACCOUNTING TECHNIQUES

Ademola Obafemi Young

Mountain Top University, Prayer City, College of Humanities, Management and Social Sciences, Department of Economics, Ogun State, Nigeria.
Email: aoyoung@mtu.edu.ng Tel: +234-806-9820390

Article History
Received: 19 March 2020
Revised: 6 May 2020
Accepted: 9 June 2020
Published: 29 June 2020

Keywords
Export-led growth hypothesis
Tourism-led growth hypothesis
TYDL granger- causality test
Vector autoregressive model
Innovation accounting
Techniques.

ABSTRACT

The causal relationship between economic growth and tourism development, first formalized by Balaguer and Cantavella-Jorda, has been a subject of an intensive debate, extensively discussed and studied in tourism economics treatise. However, an in-depth reading of this literature suggests that, besides the fact that evidences are contentious and mixed across data, methodologies, countries and, remain at best inconclusive; country-specific studies examining the relationship within the context of African countries has received relatively little attention as the bulk of existent country-specific studies mostly focused on European, American, and Asian economies. Thus, the study empirically examines whether the rapidly developing tourism sector can effectively stimulate growth in Nigeria from the period 1995 to 2019. Bounds testing procedure to co-integration, Toda-Yamamoto and Dolado-Lutkepohl approach to causality and Innovative Accounting Techniques were applied. Empirical results reveal that tourism receipts and arrivals per capital from tourism industry can effectively stimulate long- and short-run growth, as do investments in human and physical capital, in Nigeria. Thus, apt policies such as provision of adequate securities for both foreign and domestic tourists, tax incentives to tourism related industries and hotels, investment in basic infrastructure that will enhance and accelerate tourism expansion in the country should be pursued.

Contribution/Originality: This study contributes to exiting literature by examining the relationship between economic growth and tourism development.

1. INTRODUCTION

The causal relationship between economic growth and tourism development, first formalized by Balaguer and Cantavella-Jorda (2002) has been a subject of an intensive debate, extensively discussed and studied in tourism economics discourse. Primarily, there are four contrasting and distinct theoretical schools of thoughts to this debate, precisely: the tourism-led economic growth (TLEG), economic-driven tourism growth (EDTG), reciprocal, and neutrality hypotheses. With regard to the TLEG hypothesis, proponents of this view, whose notion was grounded in the export-led growth hypothesis (ELGH) postulated by the neo-classical economists (in particular Ricardo (1891)) asserts that there is a flow of multiple benefits from the tourism sector, via various mechanisms, to the economic development of the host countries (Tang & Tan, 2018). Firstly, as suggested by the exponents of this hypothesis, tourism increases foreign-exchange earnings which, in turn, can be used to finance imports (Antonakakis, Dragouni, & Filis, 2015a). Secondly, it boosts investment and drives local firms towards greater efficiency following the increased competition (Schubert, Brida, & Risso, 2011). Thirdly, as its activities are heavily

based on human capital (Brida & Pulina, 2010) it alleviates poverty and unemployment and has the potential to create forward and backward linkages with the rest of the economy. Lastly, it is an essential factor of stimulation of research and development, dissemination of technical knowledge, and accumulation of human capital (Schubert et al., 2011). In essence, according this strand of literature, there exists a unidirectional causal nexus from tourism expansion to growth. Vis-à-vis the conservation (or so-called EDTG) hypothesis, advocates of this school of thought maintain that government policies tailored towards well-defined and enforceable property rights, stable political institutions and sufficient investment in both physical and human resources would improve economic growth prospects (Payne & Mervar, 2010). Such growth will enhance and facilitate the development of the tourism sector as resources are available for tourism infrastructure as well as acting as a signal of the country's stability to international tourists (Payne & Mervar, 2010). As such, contrary to the TLEG literature, it is the country's sustained growth that facilitates the development of the tourism sector in that country (Shahzad, Shahbaz, Ferrer, & Kumar, 2017). As resources become available for tourism infrastructure, the positive economic climate promotes the proliferation of tourism activities and foreign tourists are also attracted by the economic potential of the country (Shahzad et al., 2017). Thus, tourism does not itself decide the path of growth for a nation. Instead, it is growth that stimulates tourism even more than it affects the former. Re the reciprocal hypothesis, this strand of literature affirms the causal relationship between economic growth and tourism development seem to be bi-directional. Unlike the TLEG and EDTG hypotheses, this exposition holds the notion that tourism consumption and economic development have feedback effect (Wu & Wu, 2019). Investments in the tourism sector enhance economic growth and vice versa (Zhang & Cheng, 2019). With respect to the neutrality hypothesis, advocates of this view implicitly dismissed the theoretical predictions of growth, conservation, and reciprocal expositions and advance the viewpoint that tourism expansion does not have any significance in understanding the process of growth, and vice versa.

On empirical grounds, a considerable number of studies have examined the predictions and macroeconomic consequences of these four expositions. However, whereas some studies (Balaguer & Cantavella-Jorda, 2002; Bassil, Hamadeh, & Samara, 2015; Havi & Enu, 2013; Lee & Chang, 2008; Mishra, Rout, & Mohapatra, 2011; Rahman, Ahmad, & Chongbo, 2017; Songling, Ishtiaq, & Thanh, 2019; Tang & Tan, 2013) lent credence to the TLEG hypothesis, some other studies (Ahiawodzi, 2013; Antonakakis, Dragouni, Eeckels, & Filis, 2015b; Jin, 2011; Kim, Chen, & Jang, 2006; Narayan, 2004; Payne & Mervar, 2010; Wu & Wu, 2019) have likewise validated the EDTG exposition. Several other studies (Dritsakis, 2004a, 2004b; Lean & Tang, 2010; Lee & Chien, 2008; Nowak, Sahli, & Cortés-Jiménez, 2007; Tang, 2013; Wu & Wu, 2018) are also quite supportive of the predictions of the feedback hypothesis. Still, a large number of studies found: no spillover effects between growth and tourism (Chou, 2013; Lee & Chien, 2008) the causal relationship to be dependent on the destination economy (De Vita & Kyaw, 2016a) geographical size and dimension (Brau, Lanza, & Pigliaru, 2007; Shahbaz, Ferrer, Shahzad, & Haouas, 2018) precise market (Tang & Tan, 2013) openness of the region under investigation (Oh, 2005) capacity of absorption (De Vita & Kyaw, 2016b) spatial connection (Ma, Hong, & Zhang, 2015) and trade surplus in tourism (Zuo & Huang, 2018). In essence, from theoretical and empirical perspectives, the question as to whether there is a causal direction of impacts between growth and tourism remains, at best, inconclusive. Globally, tourism industry has continued to experience rapid and uninterrupted growth for over six decades. As of 1970, international tourist arrivals were estimated at 165.80 million. Between 1980 and 1990, it rose from 278.10 million to 439.40 million (World Tourism Organization, 2019). With an average annual growth rate of 6.5 percent, in 2000, it increased dramatically from 689 million to 808 million in 2005, culminating in an estimated 1.19 billion and 1.32 billion in 2015 and 2017 respectively. Presently, as of 2019, according to the WTO estimates, it currently stands at 1.5 billion having risen from 1.24 billion in 2016 to 1.44 billion in 2018. It is projected to grow by 3.3 percent per year to almost 1.8 billion by 2030. Although most of the global tourism activity is still concerted in the developed regions of Europe, Asia/Pacific, Middle East and the Americas, a considerable proliferation is also observed in Africa. Between 1970 and 2018, according to the latest WTO data, there was a 28-fold upsurge in international visitor arrivals rising

from 2.40 million in 1970 to 67 million in 2018, making Africa the second-fastest growing tourism region (with 5.6 percent growth in 2018 against a global average growth of 3.9 percent), after Asia/Pacific. In the coming decade, with tourist arrivals in emerging economies projected to grow at double the rate of that in advanced tourism economies, it is anticipated to reach 134 million by 2030. In fact, according to the World Tourism Organization (2019) of the 1.50 billion global tourist arrivals in 2019, a total of 81.30 million tourists (against 67 million arrivals in 2018) visited Africa. More remarkable is the fact that despite the challenging economic environment occasioned by the increase and unforeseen shocks from global terrorism, health pandemics, unstable political climate, economic crisis and natural disasters, sub-Saharan Africa (SSA) alone welcomed a 6 percent increase in 2018, to reach 37.4 million, against 16.35 million and 25 million tourist arrivals in 2012 and 2017 respectively, demonstrating the resilience of the industry as a leading and reliable economic sector. Within the SSA region, at the individual country level, since 1995, as revealed in World Bank's recent World Development Indicators (World Bank International Economics Dept Development Data Group, 2020) database, Nigerian tourism sector has continued to experience significant growth, with tourism arrivals (international) doubling from 1.03 million to 2.78 million between 1995 and 2005. As a matter of fact, despite the Boko Haram insurgency in Northern part of the country, during the period 2006-2016, the average international inbound tourists for the period stood at 4.99 million. Over the period, the lowest as well as the highest international tourist arrivals were 3.06 million and 6.02 million recorded in 2006 and 2015 respectively. Further, based on the recent World Bank database, it presently stands at 6.4 million. In light of the country's abundant tourism resources and deposits, it is expected to continue to rise over the coming decades. Given these trends, this study aims to empirically examine whether the rapidly developing tourism sector can effectively stimulate economic growth in Nigeria over the period 1995-2019.

Though, as evinced in the studies cited above, the debate on the aforesaid causal relationship has received a lot of attention, widely studied and generated a sizable body of literature from different countries and time periods. However, an in-depth reading of this literature suggests that, besides the fact that evidences are contentious and mixed amid data, methodologies, countries and, remain at best inconclusive; country-specific studies examining the relationship within the context of African countries has received relatively little attention. Moreover, in Nigeria, as section two (2) highlights, in light of tourism's increasing importance in global economy and the country's abundant tourism deposits, a body of literature examining the macroeconomic implications of the sector has emerged. However, while there exists a considerable number of studies, a careful reading of this literature suggests that most of the extant tourism-literature predominantly focussed on implications of tourism for economic diversification, growth and development which by their nature have been far from been definitive on tourism-growth causal nexus. To the best of our knowledge, aside Akighir (2017) and Matthew et al. (2018) which examined the effects of tourism on growth, only Yusuff and Akinde (2015) has investigated the said causal relationship using Vector Error Correction Model Granger-causality test. However, Hundie (2014) argued that the VECM which often involves pre-testing by unit root and co-integration tests, suffers from size distortions and usually leads to erroneous conclusions about causality. Equally, Toda and Phillips (1993); Toda and Phillips (1994) maintained that VAR and VECM estimations often include nuisance parameters. Besides, there is no adequate basis for conducting a statistical causality test, because the F-test statistics do not have a standard distribution when the variable is integrated. To overcome these drawbacks, this study employs Toda-Yamamoto-Dolado-Lutkepohl-TYDL technique (Dolado & Lütkepohl, 1996; Toda & Yamamoto, 1995) to causality. The approach has certain econometric precedence over other procedures. Besides the fact that the technique is applicable regardless of the model's integration and cointegration properties and the procedure better regulates the type I error probability, the Yamada and Toda (1998) simulation results show that it is the most stable method of all the procedures. Further, recent studies have pointed out the limitations inherent in Granger-causality analysis particularly for policy purposes (Onafowara, Owoye, & Huart, 2011). Apart from showing the causal direction between variables, causality analysis does not include details on the time paths (Onafowara et al., 2011) and the response of the variables to shocks from

other variables in the system (Onafowara et al., 2011). For comprehensive analysis, the study generated impulse response functions and forecast error variance decomposition. To achieve this objective, the rest of the study is set out as follows. In section 2 a brief review of selected literature is presented. While section 3 focuses on data and methodology, in section 4, empirical results obtained are depicted. Section 5 concludes the paper.

2. REVIEW OF LITERATURE

One of the most debatable questions in tourism economics discourse and among policy makers is whether there is a causal direction of effects (Zhang & Cheng, 2019) between the national economies and tourism sector. Theoretically, there exist four contrasting and distinct notions to this debate, viz.: the growth, conservation, reciprocal, and neutrality hypotheses. Re the first two hypotheses, advocates of these school of thoughts suggest the existence of positive one-way causality which run either from tourism expansion to the economy (growth hypothesis) or from the economy to tourism (conservation hypothesis). Vis-à-vis the third and fourth hypotheses, proponents of these views posit the existence of a bi-directional causal nexus between the economy and tourism expansion (reciprocal hypothesis) or that tourism policies or incentives have little or no effect on the growth of the overall economy, and vice versa (neutrality), respectively.

Empirically, a sizable number of empirical studies have likewise examined the predictions and macroeconomic consequences of these four expositions. As of yet, however, the question as to whether there is a causal relationship between growth and tourism remains, at best, inconclusive. While some empirical studies give credence to the TLEG hypothesis, some other studies have likewise validated the EDTG exposition. Several other studies are also quite supportive of the predictions of the feedback hypothesis. Numerous studies found: no spillover effects between growth and tourism development, the causal relationship to be dependent on the destination economy, geographical size and dimension, precise market, openness of the region and countries under investigation, capacity and volume of absorption, spatial connection, and trade surplus in tourism. A synopsis of the extant literature is presented in Table 1. To retain simplicity and also provide an excellent starting point for a comparison on data, methodology and results across different countries, we categorize the studies into four major group of economies, explicitly: African, American and Oceanian, Asian and, European studies. As evidenced in the table, the debate on the said relationship has generated an extensive body of literature from different countries and time periods. Yet, despite the extensive extant and burgeoning literature, it is obvious from the table that the debate remains, at best, inconclusive. Further, aside the ambivalent findings, country-specific studies examining the relationship within the context of African countries has received relatively little attention in the literature as the bulk of existent country-specific studies mostly focused on European, American, and Asian economies. In Nigeria, in light of tourism's increasing importance in global economy and the country's abundant tourism deposits, a sizable body of empirical literature examining the macroeconomic implications of the sector has emerged. While there exists a considerable number of studies, however, most of the extant literature principally focused on the implications of the sector for Nigeria's economic diversification, growth and development. (Agri, Acha, & Lucy, 2008; Akighir, 2017; Alamai, Kirfi, & Ladi, 2018; Eko, Utting, & Onun, 2013; Matthew et al., 2018; Ogonu & Didia, 2019; Omodero, 2019; Ovat, 2003; Yusuff & Akinde, 2015; Yusuff., 2016). In contrast, the question of whether the rapidly developing tourism sector can effectively stimulate economic growth in Nigeria has been left unaddressed.

Table-1. A synopsis of the extant literature on growth-tourism nexus.

S/N	Author(s)	Methodology	Sample Period	Countries	Findings
	African Economies				
1	Durbarry (2004)	VECM	1952-1999	Mauritius	T ↔Y
2	Akinboade and Braimoh (2010)	J-J, VECM	1980-2005	South Africa	T→Y
3	Belloumi (2010)	J-J VECM	1970-2007	Tunisia	T→Y
4	Cortes-Jimenez and Pulina (2010)	J-J VECM	1975-2007	Tunisia	T←Y
5	Havi and Enu (2013)	J-J, GC	1996-2012	Ghana	T→Y
6	Ahiawodzi (2013)	GC	1985-2010	Ghana	T←Y
7	Bouzahzah and El Menyari (2013)	J-J, VECM	1980-2010	Morocco, Tunisia	T→Y
8	Kibara, Odhiambo, and Njuguna (2012)	ARDL, GC	1999-2012	Kenya	T→Y
9	Balcilar, Van Eyden, Inglesi-Lotz, and Gupta (2014)	VECM	1960-2011	South Africa	T↔Y
10	Yusuff and Akinde (2015)	J-J VECM	1995-2013	Nigeria	T→Y
11	Akama (2016)	OLS, GC	1980-2013	Kenya	T→Y
12	Akighir (2017)	ARDL	1980-2015	Nigeria	T→Y
13	Matthew et al. (2018)	FMOLS	1980-2016	Nigeria	T→Y
14	Da Costa and Wang (2020)	J-J, GC	1997-2018	Sao Tome and Principe	T→Y
	American and Oceanian Economies				
15	Ghali (1976)	OLS	1953-1970	Hawaii	T →Y
16	Narayan (2004)	ARDL	1970-2000	Fiji	T←Y
17	Sanchez Carrera, Brida, and Risso (2008)	J-J, WE	1980-2007	Mexico	T→Y
18	Croes and Vanegas (2008)		1980-2004	Nicaragua	T→Y
19	Brida and Risso (2009)	J-J, GC	1988-2008	Chile	T→Y
20	Brida, Lanzilotta, Lionetti, and Risso (2010)	J-J, VECM, GC	1987:Q1-2006:Q4	Uruguay	T→Y
21	Tang and Jang (2009)	J-J, VECM, GC	1981:Q1-2005:Q4	USA	T←Y
22	Brida and Monterubbianesi (2010)	J-J, VECM, GC	1990-2005	Colombia	T→Y
23	Brida et al. (2010)	J-J, VECM	1987:Q1-2006:Q4	Uruguay	T→Y
24	Schubert et al. (2011)	J-J, VECM	1970-2008	Antigua and Barbuda	T→Y
25	Corrie, Stoeckl, and Chaiechi (2013)	J-J, VECM	2000-2010	Australia	T↔Y

Table-1. Continued.

S/N	Author(s)	Methodology	Sample Period	Countries	Findings
26	Ghartey (2013)	J-J, VECM	1968-2008	Jamaica	T→Y
27	Ridderstaat, Oduber, Croes, Nijkamp, and Martens (2014)	VECM	1972-2011	Aruba	T↔Y
	Asian Economies				
28	Oh (2005)	GC	1975:Q1-2001:Q4	Korea	T←Y
29	Kim et al. (2006)	GC	1971Q1-2003Q4	Taiwan	T↔Y
30	Lee and Chang (2008)	J-J, WE	1959-2003	Taiwan	T↔Y
31	Chen and Chiou-Wei (2009)	EGARCH model	1975:Q1–2007:Q1	Taiwan and South Korea	T→Y T↔Y
32	Lee and Hung (2010)	ARDL, VECM	1978-2007	Singapore	T→Y
33	Lean and Tang (2010)	TYDL	1989:M1-2009:M12	Malaysia	T ↔Y
34	Tang (2011)	GC, ECM	1995:M1-2009:M2	Malaysia	T←Y
35	Katircioğlu (2011)	ARDL, VECM	1960-2007	Singapore	T→Y
36	Jin (2011)	VDC, IRF	1982:Q1-2010:Q4	Hong Kong	T←Y
37	Kreishan (2011)	J-J, GC	1970–2009	Jordan	T→Y
38	He and Zheng (2011)	IRF, VDC	1990-2009	Sichuan	T ↔Y
39	Mishra et al. (2011)	J-J, VECM	1978-2009	India	T→Y
40	Wang, Zhang, and Li (2012)	GC, ECM	1984–2009	China	T ↔Y
41	Lee (2012)	ARDL, VECM	1980-2007	Singapore	T ↔Y
42	Lee and Kwag (2013)	J-J, VECM	1970:Q1-2010:Q3	Korea	T→Y
43	Tang (2013)	GC, ECM	1974-2009	Malaysia	T ↔Y
44	Trang and Duc (2013)	J-J,GC, ECM	1997-2011	Vietnam	T→Y
45	Tang (2013)	ARDL, VECM	1974-2009	Malaysia	T ↔Y
46	Wang. and Xia (2013)	J-J, GC	2001-2011	Jiangsu Gaochun District	T←Y

47	Tang and Tan (2013)	Recursive GC, ECM	1995:M1-2009:M2	Malaysia	T→Y
48	Li, Mahmood, Abdullah, and Chuan (2013)	J-J, VECM	1974-2010	Malaysia	T ↔Y
49	Hye and Khan (2013)	J-J, ARDL	1971-2008	Pakistan	T →Y
50	Jalil, Mahmood, and Idrees (2013)	ARDL, GC	1972-2011	Pakistan	T→Y
51	Trang, Duc, and Dung (2014)	J-J, VECM	1992-2011	Vietnam	T→Y
52	Deng, Ma, and Cao (2014)	RE, FE	1987-2010	China (30 Provinces)	T→Y
53	Santhirasegaram and Mustafa (2014)	J-J, GC	1978-2011	Sri Lanka	T→Y
54	Tang and Abosedra (2014b)	ARDL, VECM	1995-2010	Lebanon	T→Y
55	Bassil et al. (2015)	GC, IRF	1995-2013	Lebanon	T →Y
56	Tang and Tan (2015)	J-J, TYDL	1991-2014	Malaysia	T→Y
57	Tang and Abosedra (2016a)	BC	1995-2011	Lebanon	T→Y
58	Hatemi-J (2016)	BCL	1995-2014	UAE	T→Y
59	Rahman et al. (2017)	J-J, GC	1995-2015	Pakistan	T→Y
60	Widodo and Sugiyanto (2019)	CA	2010–2016	33 provinces in Indonesia	T→Y
61	Songling et al. (2019)	VAR, ECM, GC	1994-2015	Beijing, China	T→Y
62	Balaguer and Cantavella-Jorda (2002)	VECM	1975-1997	Spain	T →Y
	European Economies				
63	Gunduz and Hatemi-J (2005)	TYC	1963-2002	Turkey	T →Y
64	Louca (2006)	J-J, VECM	1960-2001	Cyprus	T →Y

Table-1. Continued.

S/N	Author(s)	Methodology	Sample Period	Countries	Findings
65	Nowak et al. (2007)	J-J, VECM	1960-2003	Spain	T ↔Y
66	Soukiazis and Proença (2008)	GMM	1993-2001	Portugal	T →Y
67	Kaplan and Celik (2008)	J-J, VECM	1963-2006	Turkey	T →Y
68	Ozturk and Acaravci (2009)	ARDL, VECM	1987-2007	Turkey	T ≠ Y
69	Katircioglu (2009a)	ARDL, GC	1960-2006	Malta	T↔Y
70	Katircioglu (2009b)	ARDL, VECM	1960-2006	Turkey	T ≠ Y
71	Katircioglu. (2009c)	ARDL, GC	1960-2005	Cyprus	T←Y
72	Brida. and Risso (2009)	J-J, VECM	1980-2006	Chile	T →Y
73	Zortuk (2009)	J-J, VECM	1990:Q1-2008:Q3	Turkey	T →Y
74	Payne and Mervar (2010)	TYC	2000-2008	Croatia	T←Y
75	Cortes-Jimenez and Pulina (2010)	J-J, VECM	1954-2004	Spain Italy	T↔Y T →Y
76	Arslanturk, Balcilar, and Ozdemir (2011)	VECM, TVC	1963-2006	Turkey	T ≠ Y
77	Eeckels, Filis, and Leon (2012)	VECM, IRF	1976-2004	Greece	T→Y
78	Louca (2013a)	J-J, VECM	1980-2012	UK	T↔Y
79	Louca (2013b)	J-J, VECM	1995-2012	France	T→Y
80	Massidda and Mattana (2013)	SVECM	1987-2009	Italy	T↔Y
81	Pavlic, Svilokos, and Tolic (2015)	J-J, VECM	1996-2013	Croatia	T ≠ Y
82	Aslan (2016)	ARDL, VECM	2003-2012	Turkey	T↔Y

Note: T denotes Tourism and Y Economic Growth, respectively. WE depicts Weak Exogeneity, VECM Vector Error Correction Method, OLS denotes Ordinary Least Squares,GC is Granger- Causality, J-J is Johansen-Juselius cointegration test, TYDLC means Toda-Yamamoto and Dolado-Lütkepohl Granger Causality test, TVC is Time varying causality, BC is Bootstrap Causality, IRF represents Impulse Response Function, SVECM is Structural Vector Error Correction Model, SIA represents Spillover Index Approach, ABE is Arellano-Bond Estimation, PTRT means Panel Threshold Regression Technique, PFE is Panel Fixed Effect, CA means Convergence Analysis, BPGC means Bootstrap Panel Granger Causality approach, AIDS is Almost Ideal Demand System, DGMM is Dynamic Generalized method of moments, PMG is Pooled Mean Group, CAS is Cross Section Analysis, VDC is Variance Decomposition, GMM is Generalized method of moments, ECM is Error Correction Model, TV-VECM is Time varying Vector Error Correction Method, DHNC is Dumitrescu–Hurlin noncausality test, P is Pedroni, FE is Fixed Effect, RE is Random Effect, EGARCH-M is Exponential Generalized Autoregressive Conditional Heteroskedasticity Model, DPD is Dynamic Panel Data, FMOLS denotes Fully modified ordinary least squares,IRF is Impulse Response Function, BCL is Bootstrap Causality with Leverage Adjustments,

3. DATA AND METHODOLOGY

3.1. Data Sources

Time series macro data for the period 1995 to 2019 sourced from World Bank's recent World Development Indicators (WDI, 2020) database and Penn World Table (Version 9.1) are used. The specific source is highlighted in Table 2 for each variable. Likewise, the time span is dictated by data availability.

Table-2. Data sources and measurements

Variable	Description	Proxy	Sources
dlnrgp	Economic Growth	Real GDP per capita growth (annual %)	World Development Indicators (2020)
lnhca	Human Capital	Human Capital Index	Penn World Table (Version 9.1)
lnpcs	Physical Capital	Capital stock at constant 2011 national prices (in mil. 2011US)	Penn World Table (Version 9.1)
dlnrer	Real Exchange Rate	Real effective exchange rate index (2010=100)	World Development Indicators (2020)
lntra & lntrr	Tourism Development	Tourist arrivals per capita and Tourist receipts per capita	World Development Indicators (2020)

3.2. Theoretical Framework and Econometric Model

Following Jalil et al. (2013) the present study adopts the neoclassical growth theory and specifies an aggregate production function, having Hicks-neutral technological process, as follows:

$$q_t = A_t k_t^{\beta} \quad (1)$$

where q_t, A_t, and k_t, are real GDP per capita; total factor productivity; capital per worker respectively. In empiric literature analyzing the macro-economic determinants of growth, Equation 1 has been expanded in several ways. Numerous studies have suggested a number of variables such as human capital (Mankiw, Romer, & Weil, 1992; Mincer, 1984; Romer, 1990) physical capital (Iqbal & Zahid, 1998; Lucas, 1988; Nejat & Sanlı, 1999) tourism development (Ahad, 2016; Rahman et al., 2017) real exchange rate (Tang & Abosedra, 2016a) affecting growth. Thus, it is plausible to assume that:

$$A_t = F(\phi_t, \psi) \quad (2)$$

where ϕ_t is a vector of economic growth enhancing covariates such as human capital, physical capital, real exchange rate, tourism and numerous structural and macroeconomic policies and ψ approximating the time dynamics. To retain simplicity, this study takes after works of Ahad (2016) in selecting the covariates (i.e. human capital, physical capital, real exchange rate and tourism) included in Equation 2. On growth effects of human capital, endogenous growth literature (Azariadis & Drazen, 1990; Lucas, 1988; Romer, 1990) emphasizes the role of human capital in the process of economic growth, innovation and adoption of new technologies (Alataş & Cakır, 2016). According to Solow growth model, aside human capital, physical capital stock is another important determinant of growth. Re the growth impacts of real exchange rate, two distinct strands of literature analyzing the impact have evolved separately. While the first view holds the notion that a lower real exchange rate will boost growth, proponents of the second view assert that exchange rate is an endogenous variable, whose contribution to growth may be difficult to disentangle (Habib, Mileva, & Stracca, 2017). Finally, to examine whether the rapidly developing tourism sector can effectively stimulate growth in Nigeria, the study incorporates tourism flow. In view of the above arguments, Equation 1 is augmented in econometric terms as follows:

$$\delta \ln rgp_t = \beta_0 + \beta_1 \ln hca_t + \beta_2 \ln pcs_t + \beta_3 (\gamma \ln rer_t) + \beta_4 \ln trd_t + u_t \quad (3)$$

where $\delta \ln rgp, \ln hca, \ln pcs, \gamma \ln rer$ and $\ln trd$ real GDP per capita growth, human capital, physical capital, exchange rate and tourism respectively. Empirically, given the model (3), to analyze causal direction of effects between two or more time-series variables, econometric literature suggests numerous alternative methodologies such as the VAR model in the level data, VAR model in the first-differenced data, Vector error correction model (Hundie, 2014). However, Hundie (2014) argued that the VECM which often involves pre-testing by unit root and co-integration tests, suffers from size distortions and usually leads to erroneous conclusions about causality. Equally, Toda and Phillips (1993); Toda and Phillips (1994) maintained that both VAR and VECM estimations often include nuisance parameters. Besides, there is no adequate basis for conducting a statistical causality test, because the F-test statistics do not have a standard distribution when the variable is integrated. To overcome these downsides, this study employs TYDL procedure to causality. The basic principles behind TYDL is to augment the VAR representation of Equation 3 order p with the maximum likely order of integration of the series, $d_{\max}$, in the system (Hundie, 2014) as follows:

$$\begin{bmatrix} \delta \ln rgp_t \\ \ln hca_t \\ \ln pcs_t \\ \gamma \ln rer_t \\ \ln trd_t \end{bmatrix} = \begin{bmatrix} \alpha_0 \\ \delta_0 \\ \lambda_0 \\ \theta_0 \\ \sigma_0 \end{bmatrix} + \sum_{i=1}^{p} \begin{bmatrix} \alpha_{1i}\alpha_{3i}\alpha_{5i}\alpha_{7i}\alpha_{9i} \\ \delta_{1i}\delta_{3i}\delta_{5i}\delta_{7i}\delta_{9i} \\ \lambda_{1i}\lambda_{3i}\lambda_{5i}\lambda_{7i}\lambda_{9i} \\ \psi_{1i}\psi_{3i}\psi_{5i}\psi_{7i}\psi_{9i} \\ \sigma_{1i}\sigma_{3i}\sigma_{5i}\sigma_{7i}\sigma_{9i} \end{bmatrix} \begin{bmatrix} \delta \ln rgp_{t-i} \\ \ln hca_{t-i} \\ \ln pcs_{t-i} \\ \gamma \ln rer_{t-i} \\ \ln trd_{t-i} \end{bmatrix} + \sum_{j=p+1}^{P+d_{\max}} \begin{bmatrix} \alpha_{2j}\alpha_{4j}\alpha_{6j}\alpha_{8j}\alpha_{10j} \\ \delta_{2j}\delta_{4j}\delta_{6j}\delta_{8j}\delta_{10j} \\ \lambda_{2j}\lambda_{4j}\lambda_{6j}\lambda_{8j}\lambda_{10j} \\ \psi_{2j}\psi_{4j}\psi_{6j}\psi_{8j}\psi_{10j} \\ \sigma_{2j}\sigma_{4j}\sigma_{6j}\sigma_{8j}\sigma_{10j} \end{bmatrix} \begin{bmatrix} \delta \ln rgp_{t-j} \\ \ln hca_{t-j} \\ \ln pcs_{t-j} \\ \gamma \ln rer_{t-j} \\ \ln trd_{t-j} \end{bmatrix} + \begin{bmatrix} u_{1t} \\ u_{2t} \\ u_{3t} \\ u_{4t} \\ u_{5t} \end{bmatrix} \quad (4)$$

where $\alpha_i s$, $\delta_i s$, $\lambda_i s$, $\psi_i s$, and $\sigma_i s$ are parameters, while u_{it} signifies the residuals (for $i = 1,\ldots,5$), p denotes the true lag length of the model.

3.3. Estimation Techniques

Basically, in order to estimate Equation 4, a four-phase technique was followed. To start with, the ADF test advanced by Dickey and Fuller (1979); Dickey and Fuller (1981) and PP test developed by Philips and Perron (1988) were employed to establish the stationary properties of the employed variables. Hereafter, as suggested by Liew (2004) the optimum lag length (p) incorporated in the model was ascertained on the basis of Akaike Information Criterion (AIC) and Final Prediction Error (FPE). Next, the presence of long-run cointegrating relationship among the variables was established using ARDL (Autoregressive distributed lag model) bounds testing procedure. The paper considered the ARDL framework apt because the set of variables employed in the exercise is likely to be purely I(0) and I(1) variables, or mix of both. The ARDL representation of Equation 3 is specified as follows:

$$\begin{aligned} \Delta(\delta \ln rgp_t) = {} & \phi_0 + \sum_{i=1}^{p} \phi_{1i} \Delta(\delta \ln rgp_{t-i}) + \sum_{i=0}^{q} \phi_{2i} \Delta \ln hca_{t-i} + \sum_{i=0}^{r} \phi_{3i} \Delta \ln pcs_{t-i} + \sum_{i=0}^{s} \phi_{4i} \Delta(\gamma \ln rer_{t-i}) \\ & + \sum_{i=0}^{t} \phi_{5i} \Delta \ln trd_{t-i} + \lambda_1 (\delta \ln rgp)_{t-1} + \lambda_2 (\ln hca)_{t-11} + \lambda_3 (\ln pcs)_{t-1} + \lambda_{41} (\gamma \ln rer)_{t-1} + \lambda_5 (\ln trd)_{t-1} + \varepsilon_t \end{aligned} \quad (5)$$

where $\lambda' s$ and $\phi' s$ are the long- and short-run parameters of the model respectively, Δ depicts the first difference operator, ε_t is the white noise error term, p, q, r, s, t are the optimal lag length, and ϕ_0 is the drift

component. In applying cointegration tests the study test, we first the null of cointegration ($H_0 : \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$) against the alternative.

($H_0 : \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq 0$) using the F-test with critical values tabulated by Pesaran, Shin, and Smith (2001). Under the null hypothesis of no cointegration relationship between the variables tested, asymptotic distributions of the F-statistics are non-standard, irrespective of whether the variables are purely I(0), I(1), or mutually cointegrated. Two sets of asymptotic critical values are suggested by Pesaran et al. (2001). While the first set assumes that all variables are I(0), the second set assumes all variables are I(1). The null hypothesis will be rejected if the calculated F-statistic is greater than the upper bond critical value (Verma, 2007). If the computed F-statistic is less than lower bound critical value, we accept the alternative hypothesis. Finally, the result is inconclusive if the computed F-statistic falls within the lower and upper bond values (Verma, 2007). Under the inconclusive cases, following Banerjee, Dolado, and Mestre (1998) and Kremers, Ericsson, and Dolado (1992) error correction term will be a suitable way of establishing cointegration. Afterward, following the TYDL procedure, the augmented VAR model (4) was estimated and whether there is causality or not was determined by applying Modified Wald test. Further, recent studies have pointed out the limitations inherent in Granger-causality analysis particularly for policy purposes (Onafowara et al., 2011). Other than showing the causal direction between variables, it does not include details on the time paths (Onafowara et al., 2011) and the response of the variables to shocks from other variables in the system (Onafowara et al., 2011). To provide an intuitive insight, thus, the study generated impulse response functions (IRFs) and forecast error variance decomposition (FEVD). While IRFs trace the effects of a shock in one variable in the VAR-system, FEVD separates the variation in the endogenous variable into component of shocks to the system (Mohammed, Kinafa, & Nata'ala, 2016). Following the influential study by Sims (1980) the dynamic investigations of the VAR model were performed using "orthogonalized" impulse response, where the underlying shocks to the VAR were orthogonalized using Cholesky decomposition. To retain simplicity two model versions of Equation 4 and Equation 5, as specified above, were considered. These model versions are hereafter referred to as versions A and B. In model A, tourist receipt per capita $(\ln trr)$ was incorporated as proxy for tourism flow. In model B, the exercise was repeated using tourist arrival per capita $(\ln tra)$ as measure for tourism development.

4. DISCUSSION OF RESULTS

4.1. Stationarity Test, Lag Length Selection Criteria and Bounds Test Results

Prior to detail analysis and estimation of the VAR and ARDL models (4) and (5) respectively, the study first employed the ADF and PP tests to ascertain the stationarity properties of the data. The test was undertaken for two reasons: to avert spurious regression problem and select the maximum likely order of integration $(d_{\max})$of the series in the system. The results of the ADF and PP tests are presented in Table 3. From the table, it is obvious that $\delta \ln rgp, \ln hca, \ln pcs, \gamma \ln rer$ and $\ln trd$ are stationary at their first differences, suggesting that the variables are integrated of order one. After investigating the order of integration, the appropriate lag length (p)incorporated in the models were ascertained on the basis of Akaike Information Criterion (AIC) and Final Prediction Error (FPE). The results obtained are depicted in Table 4. As suggested by Liew (2004) given that there were 25 observations, the apt lag order two was chosen. Afterward, to find out the existence of long-run relationship among the variables, bounds testing procedure was employed. The results reported in Table 5 reveal that, in each case, the value of the computed F-statistics clearly exceeds the upper bond value at 5 percent level of significance. Accordingly, the study rejected the hypothesis of no long-run relationship.

Table-3. Stationarity tests of variables: ADF and PP tests.

ADF Test (With Intercept only)												
Variable	**Level**						**First Diff**					
	Test Statistic	**Critical Values**			**P-Values**	**Remarks**	**Test Statistic**	**Critical Values**			**P-Values**	**Remarks**
		1%	5%	10%				1%	5%	10%		
dlnrgp	-2.368691	-3.737853	-2.991878	-2.635542	0.1605	NS	-6.644166	-3.752946	-2.998064	-2.638752	0.0000	I(1)
lnhca	-1.452323	-3.752946	-2.998064	-2.638752	0.5390	NS	-4.544587	-3.769597	-3.004861	-2.642242	0.0018	I(1)
lnpcs	-1.645439	-3.752946	-2.998064	-2.638752	0.4443	NS	-4.120847	-3.769597	-3.004861	-2.642242	0.0046	I(1)
dlnrer	-3.369985	-3.752946	-2.998064	-2.638752	0.0321	NS	-3.960676	-3.752946	-2.998064	-2.638752	0.0063	I(1)
lntrr	-0.686391	-3.737853	-2.991878	-2.635542	0.8320	NS	-4.321828	-3.752946	-2.998064	-2.638752	0.0028	I(1)
lntra	-1.161614	-3.752946	-2.998064	-2.638752	0.6726	NS	-3.670495	-3.752946	-2.998064	-2.638752	0.0120	I(1)
ADF Test (With Trend and Intercept)												
Variable	**Level**						**First Diff**					
	Test Statistic	**Critical Values**			**P-Values**	**Remarks**	**Test Statistic**	**Critical Values**			**P-Values**	**Remarks**
		1%	5%	10%				1%	5%	10%		
dlnrgp	-2.628774	-4.394309	-3.612199	-3.243079	0.2719	NS	-6.81586	-4.416345	-3.622033	-3.248592	0.0001	I(1)
lnhca	-1.237486	-4.416345	-3.622033	-3.248592	0.8779	NS	-4.649226	-4.440739	-3.632896	-3.254671	0.0065	I(1)
lnpcs	-2.261212	-4.416345	-3.622033	-3.248592	0.4366	NS	-4.36302	-4.440739	-3.632896	-3.254671	0.0117	I(1)
dlnrer	-3.211293	-4.416345	-3.622033	-3.248592	0.1068	NS	-3.983147	-4.416345	-3.622033	-3.248592	0.0245	I(1)
lntrr	-2.326664	-4.394309	-3.612199	-3.243079	0.4051	NS	-4.241552	-4.416345	-3.622033	-3.248592	0.0144	I(1)
lntra	-1.943474	-4.416345	-3.622033	-3.248592	0.5998	NS	-3.775125	-4.416345	-3.622033	-3.248592	0.0371	I(1)

Note: NS denotes Not Stationary at level.

lntrr and lntra are per capita international tourist receipts and tourist arrivals.

Table-3. Continued.

PP Test (With Intercept only)												
Variable	**Level**						**First Diff**					
	Test Statistic	**Critical Values**			**P-Values**	**Remarks**	**Test Statistic**	**Critical Values**			**P-Values**	**Remarks**
		1%	5%	10%				1%	5%	10%		
d(lnrgp)	-2.40597	-3.73785	-2.99188	-2.63554	0.1506	NS	-6.65039	-3.75295	-2.99806	-2.63875	0.0000	I(1)
lnhca	-1.42725	-3.75295	-2.99806	-2.63875	0.5512	NS	-4.55535	-3.76960	-3.00486	-2.64224	0.0017	I(1)
lnpcs	-1.72968	-3.75295	-2.99806	-2.63875	0.4039	NS	-4.09893	-3.7696	-3.00486	-2.64224	0.0048	I(1)
d(lnrer)	-2.72413	-3.73785	-2.99188	-2.63554	0.0847	NS	-3.88812	-3.75295	-2.99806	-2.63875	0.0074	I(1)
lntrr	-0.74931	-3.73785	-2.99188	-2.63554	0.8153	NS	-4.29714	-3.75295	-2.99806	-2.63875	0.0003	I(1)
lntra	-1.05305	-3.73785	-2.99188	-2.63554	0.7168	NS	-3.67050	-3.75295	-2.99806	-2.63875	0.0120	I(1)
PP Test (With Trend and Intercept)												
Variable	**Level**						**First Diff**					
	Test Statistic	**Critical Values**			**P-Values**	**Remarks**	**Test Statistic**	**Critical Values**			**P-Values**	**Remarks**
		1%	5%	10%				1%	5%	10%		
d(lnrgp)	-2.54496	-4.39431	-3.6122	-3.24308	0.3058	NS	-8.72561	-4.41635	-3.62203	-3.24859	0.0000	I(1)
lnhca	-1.46556	-4.41635	-3.62203	-3.24859	0.8119	NS	-4.65756	-4.44074	-3.6329	-3.25467	0.0064	I(1)
lnpcs	-2.25204	-4.41635	-3.62203	-3.24859	0.4412	NS	-4.40617	-4.44074	-3.6329	-3.25467	0.0107	I(1)
d(lnrer)	-2.61586	-4.39431	-3.6122	-3.24308	0.2769	NS	-3.90522	-4.41635	-3.62203	-3.24859	0.0286	I(1)
lntrr	-2.32666	-4.39431	-3.6122	-3.24308	0.4051	NS	-4.20794	-4.41635	-3.62203	-3.24859	0.0154	I(1)
lntra	-1.66753	-4.39431	-3.6122	-3.24308	0.7341	NS	-3.77513	-4.41635	-3.62203	-3.24859	0.0371	I(1)

Note: NS denotes Not Stationary at level.

lntrr and lntra are per capita international tourist receipts and tourist arrivals.

Table-4. VAR lag order selection criteria.

VAR Lag Order Selection Criteria Results for Equations 4 & 5 Model A					
LAG	**LR**	**FPE**	**AIC**	**SC**	**HQ**
0	NA	7.56E-10	-6.813418	-6.565454	-6.755005
1	116.072	5.57E-12	-11.79519	-10.3074	-11.44471
2	40.17343*	2.14e-12*	-13.17459*	-10.44698*	-12.53205*
VAR Lag Order Selection Criteria results for Equations 4 & 5 Model B					
LAG	LR	FPE	AIC	SC	HQ
0	NA	4.30E-10	-7.377295	-7.129331	-7.318882
1	108.9864	4.93E-12	-11.91622	-10.42843	-11.56574
2	42.55198*	1.53e-12*	-13.51185*	-10.78424*	-12.86931*

Note: * indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion.

Table-5. Bounds test results.

Bounds Test Result for Equations 4 & 5 Model A			
Significance	**Critical Values**		**F Statistics**
	Lower Bond	Upper Bond	
10%	1.99	2.94	*4.307539*
5%	2.27	3.28	
2.5%	2.55	3.61	
1%	2.88	3.99	
Bounds Test Result for Equations 4 & 5 Model B			
Significance	Critical Values		F Statistics
	Lower Bond	Upper Bond	
10%	1.99	2.94	*8.38129*
5%	2.27	3.28	
2.5%	2.55	3.61	
1%	2.88	3.99	

4.2. Empirical Result on Causal Relationship between Tourism and Growth

As evinced in Table 4, the appropriate lag length is two. Since all variables, became stationary after the first differencing, it suggests that $(d_{\max})$ is one. Thus, a $p+d_{\max}$ (i.e. 2+1) lagged expanded VAR model (4) was estimated. Before the VAR results was utilized for Granger-causality and related tests, a variety of formal diagnostic tests such as auto-correlation, non-normality, heteroscedasticity and stability tests were undertaken to verify the adequacy of the model. Firstly, the inverse roots of AR characteristic polynomial were applied to check the stability conditions of the model. As shown in Figure 1, the polynomial roots fall within the circle. This implies that the estimated VAR model satisfy the stability conditions. Next, the VAR residual correlation Langrangian Multiplier to check serial correlation problem, the Skewness and the Kurtosis of the residuals of the model using Cholesky (Lutkepohl) Orthogonalization and Jarque-Bera normality test, and heteroscedasticity were conducted. The results reveal that the model passed all the diagnostic tests. However, in order to conserve space, they are not presented, but are available upon request.

Following TYDL procedure, whether there is any causality or not was ascertained by utilizing modified Wald test statistics to the first pth order of the VAR. The estimation results of the two specifications of Equation 4 are presented in Table 6. All the tests were performed at 5 percent level of significance. As depicted in the table, according to the two specifications, the null hypothesis of tourism does not Granger cause growth is rejected, but, the null hypothesis of growth does not Granger cause tourism is accepted. This implies that there exists a

unidirectional causality running from tourism to growth and not vice versa in Nigeria. Further, there is evidence of unidirectional causality running from human and physical capital to growth. The implication of these findings is that receipts and arrivals from tourism industry can effectively stimulate short- and long-run growth in Nigeria, as do investments in human and physical capital. Lastly, the results reveal evidence of a unidirectional causality running from real exchange rate to tourism and growth. This suggests that exchange rate affect not only tourism sector but also economic growth.

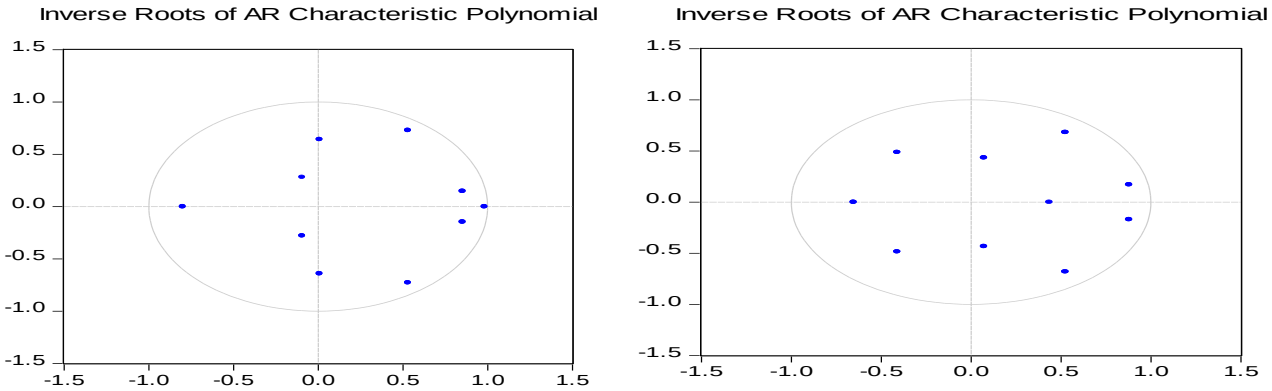

Figure-1. Inverse Roots of AR characteristic polynomial for models A and B respectively.

Table-6. Granger causality test results.

Granger Causality Test for Model A			
Null Hypothesis (Ho)	**Chi-square X^2**	**P-Values**	**Conclusion**
dlnrgp does not granger cause lntrr	0.186227	0.9111	Accept Ho
lntrr does not granger cause dlnrgp	24.43479	0.0000	Reject Ho
dlnrer does not granger cause dlnrgp	21.92493	0.0000	Reject Ho
dlnrgp does not granger cause dlnrer	2.206257	0.3318	Accept Ho
dlnrer does not granger cause lntrr	11.67923	0.0029	Reject Ho
lntrr does not granger cause dlnrer	0.401416	0.8182	Accept Ho
lnhca does not granger cause dlnrgp	32.67866	0.0000	Reject Ho
lnpcs does not granger cause dlnrgp	6.556290	0.0377	Reject Ho
Granger Causality Test for Model B			
Null Hypothesis (Ho)	**Chi-square X^2**	**P-Values**	**Conclusion**
dlnrgp does not granger cause lntra	0.009698	0.9952	Accept Ho
lntra does not granger cause dlnrgp	15.93573	0.0003	Reject Ho
dlnrer does not granger cause dlnrgp	13.11574	0.0000	Reject Ho
dlnrgp does not granger cause dlnrer	1.340498	0.5116	Accept Ho
dlnrer does not granger cause lntra	8.415252	0.0149	Reject Ho
lntra does not granger cause dlnrer	0.501015	0.7784	Accept Ho
lnhca does not granger cause dlnrgp	23.51014	0.0000	Reject Ho
lnpcs does not granger cause dlnrgp	7.801926	0.0202	Reject Ho

4.3. Innovation Accounting Techniques

To provide an intuitive insight, this present study generated IRF functions and FEVD. The IRFs and FEVD results are presented in Figure 2 and Table 7 respectively.

4.3.1. Impulse Response Function

Figure 2 depicts the response of growth to tourism receipts and tourist arrivals per capita respectively. Beginning with the response of growth to shock occasioned by tourism receipts, a one standard deviation disturbance originating from tourism receipts did not have an immediate impact in the first year. After this, it leads to an increase in growth for the first two years, while it fluctuates at the positive level from year three to eight, and levels out thereafter. Vis-à-vis the response of growth to a shock in tourist arrivals, a one standard innovation to tourist arrivals did not have an immediate impact in the first period, however it fluctuates at the positive level from

year two to five and thereafter continue to increase reaching its peak in the ninth period but decline marginally, then still positive till the tenth year period.

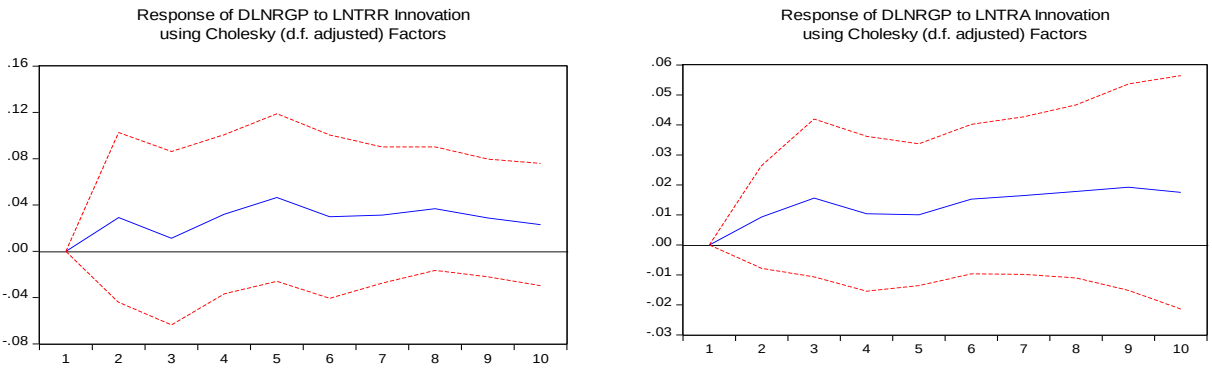

Figure-2. Impulse response analysis of economic growth.

Source. Autor's Computation using E-view 10 (2020).

4.3.2. Forecast Error Variance Decomposition

With respect to the two model versions (A and B) of Equation 4 estimated, an observation of FEVD analysis results in Table 7 showed that own shocks had the greatest influence in the variation of forecast error of economic growth. According to the first and second specifications, the proportion was as high as 100 percent in the first year, but then gradually decreased to 48.66 and 37.98 percent respectively. With respect to the two specifications, aside own shock, as can be observed, the second, third, and fourth largest variation arise from human capital accumulation, tourism development and real exchange rate respectively. But for physical capital stock, its percentage contribution was very minimal and almost stable throughout the time horizon. Overall, both the IRFs and FEVD analysis results give credence to the TLEG hypothesis.

Table-7. Variance decomposition of growth.

Variance Decomposition of dlnrgp using Cholesky (d.f. adjusted) Factors for Model A

Period	S.E.	dlnrgp	lnhca	lnpcs	dlnrer	lntrr
1	2.322541	100.0000	0.000000	0.000000	0.000000	0.000000
2	3.085009	64.53286	21.52241	1.380596	12.50006	0.064078
3	3.501193	60.65703	18.28534	1.563962	11.71908	7.774587
4	3.623650	56.64809	17.10959	1.688485	11.49107	13.06276
5	3.871483	52.67698	16.51235	1.533890	11.34859	17.92819
6	3.987883	50.88655	15.56474	1.546965	12.07941	19.92234
7	4.233281	51.83482	13.93890	1.372900	11.83019	21.02319
8	4.517093	50.90397	12.89390	1.614974	12.82544	21.76172
9	4.894540	51.00640	11.09763	1.761216	11.67992	24.45483
10	5.272760	48.66170	9.562766	2.213835	10.98214	28.57955

Variance Decomposition of dlnrgp using Cholesky (d.f. adjusted) Factors for Model B

Period	S.E.	dlnrgp	lnhca	lnpcs	dlnrer	lntra
1	1.775388	100.0000	0.000000	0.000000	0.000000	0.000000
2	3.182664	41.01285	27.55545	0.287375	13.83135	17.31298
3	3.666599	43.34068	21.83861	0.290691	14.73343	19.79659
4	3.764095	41.19939	21.64674	0.897622	15.70248	20.55376
5	3.854752	40.86535	20.82780	0.861243	17.79864	19.64696
6	3.917661	39.72698	21.44899	1.068757	18.24542	19.50985
7	4.012645	40.51742	21.13658	1.501531	17.74741	19.09706
8	4.156849	39.03307	22.34420	1.401432	18.05893	19.16237
9	4.284305	39.30417	22.22736	1.402235	17.11124	19.95500
10	4.406094	37.98403	22.29672	1.571694	16.40976	21.73779

Note: Cholesky Ordering: dlnrgp lnhca lnpcs dlnrer lntra.

5. CONCLUSION

The causal relationship between economic growth and tourism development, first formalized by Balaguer and Cantavella-Jorda (2002) has been a subject of an intensive debate, extensively discussed and studied in tourism economics treatise. However, an in-depth reading of this literature suggests that, besides the fact that evidences are contentious and mixed across data, methodologies, countries and, remain at best inconclusive; country-specific studies examining the relationship within the context of African countries has received relatively little attention as the bulk of existent country-specific studies mostly focused on European, American, and Asian economies. Thus, the study empirically examines whether the rapidly developing tourism sector can effectively stimulate growth in Nigeria from the period 1995 to 2019. Bounds testing procedure to co-integration, Toda-Yamamoto and Dolado-Lutkepohl approach to causality and Innovative Accounting Techniques were applied. Empirical results reveal that tourism receipts and arrivals per capital from tourism industry can effectively stimulate long- and short-run growth, as do investments in human and physical capital, in Nigeria. Thus, apt policies such as provision of adequate securities for both foreign and domestic tourists, tax incentives to tourism related industries and hotels, investment in basic infrastructure that will enhance and accelerate tourism expansion in the country should be pursued.

Funding: This study received no specific financial support.
Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.

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