International Tourism and Economic Growth: Empirical Evidence from BRICS Countries

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Abstract

The aim of the study was to examine the tourism-growth nexus in the context of BRICS nations. For this purpose, the augmented neo-classical growth framework has been employed a panel data model approach over the sample period spanning from 1995 to 2019. The estimation was conducted using PMG based ARDL regression. The results lend support to the tourism-led growth hypothesis when the capital formation and human development exert a positive impact on the long-run real economic growth in BRICS economies. So, the policies meant for tourism sector development can contribute to long-run economic growth through an increase in the share of gross capital formation in the gross domestic product and with the help of improved human development. Therefore, the policy focus should be on infrastructure development, the promotion of investment opportunities, and the development of healthcare and education in BRICS countries. The use of a macroeconomic framework in the analysis is the novelty of this study.

Keywords: International tourism, economic growth, human development, BRICS, neo-classical growth model

Introduction

In the last few decades, the smokeless industry – tourism – has been playing a crucial role in the economic growth and development of emerging economies. Specifically, the role of international tourism is noteworthy. Apart from foreign exchange earnings, tourism has been observed to contribute to job creation, growth of local business, growth and expansion of other related sectors/industries, infrastructure development, government revenue, human development and poverty reduction (Mishra, Rout & Pradhan, 2018; Mishra, Rout & Kestwal, 2019, 2020; Mishra & Mishra, 2021). Therefore, the development of the tourism sector has become an important policy focus in many countries including developing nations (Samimi, Sadeghi & Sadeghi, 2013). The literature describes the growth-enhancing role of tourism as the 'tourism-led growth hypothesis' (Mishra, Rout & Mohapatra, 2011). This hypothesis considers the growth of international tourism as a significant strategic factor for economic growth (Samimi et al., 2011, 2013). International tourism has been argued to contribute to an increase in national income in an economy by (i) enhancing efficiency through increased competition among firms and other international tourist destinations (Krueger, 1980), (ii)

facilitating the exploitation of economies of scale in local firms (Helpman & Krugman, 1985), and (iii) ensuring optimal use of available economic resources (Alhowaish, 2016). Such positive implications of the tourism sector on economic growth and development have been on the rise in emerging market economies especially due several international relaxations via the deepening of globalization (Bayar, Odabas & Sakar, 2021). Globalization in the form of socio-economic, political and cultural integration among nations positively contributes to the development of tourism which in turn contributes to economic growth. In this context, the conglomeration of BRICS nations (Brazil, Russia, India, China, and South Africa) can be viewed as an important instance of international economic integration that can foster international tourism and drive their economic growth and development. At the BRICS Xiamen Summit 2017 held in China, the importance of tourism as a growth driver of these economies has been noted (Rasool, Maqbool & Tarique, 2021).

Travel and tourism in BRICS nations have had incredible positions in world competitiveness in 2019 (Pop, 2020). Despite the severity of the COVID-19 pandemic in BRICS countries along with the associated multifarious socio-economic damages (Mishra & Mishra, 2021), the total contribution of travel and tourism to gross domestic product remained significant in 2020 (see Table 1). This indicates the significance and depth of travel and tourism in these nations, and thus, can be the growth driver in the long-run.

Table-1: Contribution of travel & tourism to GDP, 2019-2020

Country	Contribution 2019	World Rank	Contribution 2020	World Rank
Brazil	115.70	12	78.0	11
Russia	75.50	19	40.10	18
India	191.30	9	121.9	7
China	1,665.60	2	667.20	2
South Africa	22.10	-	11.10	-

Note: Contribution means the total contribution of travel and tourism to GDP in USD bn
Source: Global Economic Impact and Trend 2021, WTTC

Similarly, the total contribution of travel and tourism to the employment of total employment in the country in 2019 was 8.2 per cent (Brazil), 5.6 per cent (Russia), 8.8 per cent (India), 10.6 per cent (China), and 8.9 per cent (South Africa). However, the Corona virus pandemic has taken a significant toll on BRICS economies in terms of job loss due to the imposition of regulatory restrictions on travel and tourism in the year 2020. Despite the total contribution of travel and tourism to the employment of total employment in the country in 2020 was 7.2 per cent (Brazil), 5.4 per cent (Russia), 7.3 per cent (India), 8.8 per cent (China), and 6.5 per cent (South Africa). Furthermore, the share of international visitor spending in total exports in 2019 was 2.3 per cent (Brazil), 3.4 per cent (Russia), 5.8 per cent (India), 5.0 per cent (China), and 8.5 per cent (South Africa). Although the COVID-19 has had a footprint on this parameter, this share in the year 2020 was 1.2 per cent (Brazil), 1.2 per cent (Russia), 2.5 per cent (India), 1.6 per cent (China), and 3.1 per cent (South Africa). The Table 2 shows the status of inbound tourism in BRICS nations in the years 2019 and 2020. All these indicate the robustness of the travel and tourism sector in BRICS countries. The aforementioned facts and figures have been taken from the World Travel & Tourism Council (WTTC), United Nations World Tourism Organization (UNWTO) and the World Bank. These facts and figures indicate that the tourism sector in BRICS countries can be catalysts for their long-run growth. Thus, tourism can be an imperative sector in BRICS countries, and therefore has an incredible role in the growth and development of these economies. Tourism can exert an influence on economic growth and development by increasing gross capital accumulation (Bilen, Yilanci & Eryüzlü, 2015), contributing to infrastructure development (Selimi, Sadiku & Sadiku, 2017), increasing factor productivities (Li, Jin & Shi, 2018), improving the standard of livings (Muslija, Satrovic &

Erbas, 2017), reducing poverty (Khan, Bibi, Lorenzo, Lyu & Babar, 2020), and ensuring sustainable development (Banday & Ismail, 2017; OECD, 2018).

Table 2: Brief account of inbound tourism in BRICS nations, 2019-2020

Countries	International Tourist Arrivals (in Millions)	Source Nations
2019		
Brazil	6.353	Argentina (31%), US (9%), Paraguay (6%), Chile (6%), Uruguay (6%), Rest of the World (42%)
Russia	24.419	Ukraine (35%), Kazakhstan (11%), China (7%), Finland (4%), Azerbaijan (4%), Rest of the World (39%)
India	17.914	Bangladesh (12%), US (9%), UK (7%), Sri Lanka (2%), Canada (2%), Rest of the World (68%)
China	162.538	Hong Kong SAR, China (37%), Macau SAR, China (12%), Myanmar (7%), South Korea (7%), Japan (4%), Rest of the World (33%)
South Africa	14.797	Zimbabwe (22%), Lesotho (15%), Mozambique (13%), Eswatini (9%), Botswana (7%), Res of the World (34%)
2020		
Brazil	4.256	Argentina (33%), Paraguay (9%), US (8%), Chile (6%), Uruguay (6%), Rest of the World (39%)
Russia	6.359	Ukraine (44%), Kazakhstan (13%), China (5%), Finland (4%), Azerbaijan (4%), Rest of the World (30%)
India	2.680	Bangladesh (13%), US (5%), UK (4%), Sri Lanka (2%), Canada (2%), Rest of the World (73%)
China	19.505	Hong Kong SAR, China (47%), Macau SAR, China (13%), Myanmar (8%), South Korea (6%), Vietnam (4%), Rest of the World (23%)
South Africa	4.586	Zimbabwe (23%), Lesotho (19%), Mozambique (16%), Eswatini (9%), Botswana (7%), Rest of the World (27%)

Source: *Oxford Economics, UNWTO, WTTC*

However, to understand the influence of tourism on economic growth and development, it is essential to estimate a growth equation that accommodates the inclusion of the parameters of tourism sector expansion. Therefore, this work is an attempt to estimate the impact of tourism sector development on real economic growth in BRICS nations. In this direction, this work enriches the existing literature in the following ways: (i) it augments the neo-classical model of economic growth by including the indicators of tourism sector development; (ii) it validates the tourism-led growth hypothesis in BRICS economies in a macroeconomic growth framework; (iii) it checks the forecasting ability of the proposed augmented neo-classical growth model in a dynamic framework; and (iv) it is perhaps the first study that addresses the tourism-growth nexus in a formal macroeconomic growth framework.

In the rest of the paper, the relevant literature has been reviewed to formulate the hypothesis and set the model for estimation of the likely relationship between the tourism sector expansion and real economic growth in BRICS nations. A note describing the nature and sources of data has been provided. A description of the estimation mechanism has also been provided. Finally, the findings have been interpreted to draw the policy implications.

Literature review
In the last decades, the tourism sector has been credited for its significant contribution to the growth and development of economies, both developed and developing. Particularly, inbound tourism has been given a special place for its substantial contribution in terms of increased foreign exchange earnings (Kirca & Ozer, 2021; Kruja, 2012; McKinnon, 1964; Yap & Saha, 2013), increased government revenue (Isik, Dogru & Turk, 2018), increased investment, infrastructure building and improved human capital (Blake, Sinclair & Campos, 2006; Lemmetyinen & Go, 2009; Steyn & Vuuren, 2016), job creation and income generation (Lee

& Chang, 2008; Pulido-Fernandez & Cardenas-Garcia, 2020), improved resource allocation (Alhowaish, 2016), development of other sectors such as agriculture, food and accommodation, manufacturing, construction, transport, communication and accommodation and other service industries (Alhowaish, 2016; Cernat & Gourdon, 2012; Croes, 2006; Sokhanvar et al., 2018; Vellas, 2007; Weng & Wang, 2004), growth of local economy (Lionetti & Gonzalez, 2012; Nunkoo et al., 2020; Tang & Abosedra, 2014; Yazdi, Salehi & Soheilzad, 2017), productivity growth and poverty reduction (Khan et al., 2020; Li et al., 2018), increased FDI inflows (Meivitawanli, 2018; Mishra et al., 2020; Samimi et al., 2013; Sanford & Dong, 2000; Tang, Selvanathan & Selvanathan, 2007; Yazdi et al., 2017), and improved balance of payments and enhanced standard of living (Liu & Song, 2018; Muslija et al., 2017; Paramati et al., 2017). Thus, the development of tourism in an economy contributes to human development in the long-run (Biagi, Ladu & Royuela, 2017; Croes et al., 2020, 2021; Wibowo et al., 2019). Therefore, tourism plays a critical role in resolving macroeconomic problems including low income and output, high unemployment, capital deficiency, shortage of foreign exchange, fiscal deficit, and balance of payments disequilibrium (Belke, Bolat & Hatemi-J, 2021).

Keeping in view the above mentioned contributions of tourism in an economy, the existing literature aptly remarked that international or inbound tourism can be an important growth driver in the long-run (Balsalobre-Lorente et al., 2020; Brida et al., 2014; Kostakis, 2020; Kumar et al., 2018; Manzoor et al., 2019; Mishra et al., 2011; Mishra et al., 2021; Ohlan, 2017; Padmasree & Anchula, 2011; Perez-Rodriguez et al., 2021; Sharma, 2018; Tasos et al., 2019). However, the findings of some studies contradict this remark and establish that the expansion of the tourism sector does not contribute to economic growth in the long-run (Palamalai & Kalaivani, 2016). Few other studies are there which recorded mixed effects of tourism development on economic growth (Alhowaish, 2016; Skrinjaric, 2019; Wu & Wu, 2019; Zhang & Cheng, 2019).

Standing at this crossroad, when we look at the studies that addressed the same issue in the context of BRICS countries, the following observations have been made. *First*, the development of the tourism sector significantly contributes to the real economic growth of BRICS economies in the long-run (Banday & Ismail, 2017; Danish & Wang, 2018). *Second*, inbound tourism in BRICS countries has a positive and significant effect on economic growth (Rasool et al., 2021). *Third*, an increase in international tourist arrivals does not have a significant impact on economic growth while that of international tourist expenditure is positive and significant (Usmani, Akram & Praveen, 2020). *Fourth*, tourism sector expansion in BRICS nations contributes to environmental degradation and thus, does not ensure sustainable development in the long-run (Danish & Wang, 2018). *Fifth*, BRICS nations possess a huge touristic potential that can be used to create favourable growth impacts (Ambardar, 2017; Pop, 2014). *Last but not the least*, tourism potential in BRICS economies can be catalysts for achieving global competitiveness (Datta, 2014; Usmani et al., 2020).

It is, therefore, evidenced that the issue of tourism-growth nexus is yet inconclusive, and hence a moot point. The studies pertaining to the BRICS bloc have not been taken up in a macroeconomic growth framework. There are also only a few studies relevant to BRICS countries that are insufficient to reach any conclusion. Hence, this research work is an attempt to bridge these gaps by studying the tourism-growth nexus in an augmented neo-classical growth framework and making an in-depth study for BRICS economies using panel datasets.

Theoretical construct

In the studies of the tourism-growth nexus undertaken in the context of BRICS economies, Danish and Wang (2018) do not use any macroeconomic growth framework and estimates the relationship between international tourism receipts and economic growth while controlling for globalization and investment in tourism. Similarly, Banday and Ismail (2017) do not use any growth model and estimates the relationship between international tourism receipts and economic growth while controlling for gross capital formation, total labour and CO_2 emissions. Furthermore, Usmani et al. (2020) directly estimate the relationship between tourist arrivals, international tourism expenditure and economic growth while controlling for none. So the policy implications of these studies may not be growth-enhancing. Therefore, we propose the use of a macroeconomic growth framework to revisit the issue.

In macroeconomics, the neo-classical model of long-run economic growth envisages that the growth of total output in an economy depends on exogenous population growth and rate of technical change (Solow, 1956, 1957; Swan, 1956). Later, Mankiw et al. (1992) augmented this neo-classical model to argue that human capital is also an important determinant of long-run economic growth. Barro (1996) found that the growth rates of economies are enhanced by higher initial schooling and life expectancy, lower fertility, lower government consumption, better maintenance of the rule of law, lower inflation, and improved terms of trade. Further, Barro (2003) found that long-run economic growth depends positively on the rule of law and investment ratio, given per capita GDP and human capital. From these variants of neo-classical approaches, total labour force, gross capital formation and human development can be taken as key determinants of long-run economic growth.

Then the tourism-augmented model can be developed by considering the tourism development indicators such as international tourist arrivals, international tourism receipts and international tourism expenditure. The existing literature provides evidence that international tourist arrivals can exert a positive impact on long-run economic growth (Kum, Aslan & Gungor, 2015; Ren, Can, Paramati, Fang & Wu, 2019; Van der Schyff, Meyer & Ferreira, 2019). Similarly, international tourism receipts can have a positive contribution to real economic growth in the long-run (Azeez, 2019; Boga & Erkisi, 2019; Govdeli & Direkci, 2017; Huseyni, Doru & Tunc, 2017; Simundic & Kulis, 2016; Tang & Tan, 2018). Furthermore, tourism spending can favourably influence the level of economic growth in the long-run (Seghir, Mostefa, Abbes & Zakarya, 2015; Yazdi et al., 2017). So we considered these three indicators to represent the development of the tourism sector in an economy.

In addition to the above indicators, the recent literature also argues that the growth impact of tourism depends on the development of the financial sector in the host country because it improves the country's liquidity position, facilitates access to credit and other financial services, and increases efficiency in financial transactions by lowering the associated cost thereby increasing international tourist arrivals and their expenditure (Khan et al., 2020; Shahbaz, Kumar, Ivanov & Loganathan, 2017). Also, the role of FDI inflows in the development of the tourism sector has been emphasized in the literature (Boora & Dhankar, 2017; Fauzel, Seetanah & Sannassee, 2016; Matiza & Perks, 2017; Samimi et al., 2013; Selvanathan, Selvanathan & Viswanathan, 2012; Tang et al., 2007). Therefore, we considered the indicators of financial development and foreign direct investment flows in the tourism-augmented growth model. Based on the above discussions, we propose the following augmented neo-classical model of long-run economic growth for BRICS economies.

$$EG_{it} = \left(CF_{it}, LF_{it}, HD_{it}, BM_{it}, FDI_{it}, ITA_{it}, ITR_{it}, ITE_{it} \right) \qquad \text{………} \qquad (1)$$

Here, *EG* stands for economic growth, *CF* is the gross capital formation, *HD* is the human development, *BM* is the broad money, *FDI* is the inflow of foreign direct investments, *ITA* is

the international tourist arrivals, *ITR* is the international tourism receipts, and *ITE* is the international tourism expenditure. It is hypothesized that in this controlled framework, international tourism positively contributes to the long-run economic growth in BRICS countries.

Empirical framework

Given the abovementioned theoretical construct, we estimated the impact of tourism development on economic growth in BRICS countries in a panel data framework using the following specifications:

$$EG_{it} = \alpha_0 + \alpha_1 CF_{it} + \alpha_2 LF_{it} + \alpha_3 HD_{it} + \alpha_4 BM_{it} + \alpha_5 FDI_{it} + \upsilon_{it} \qquad \text{............} \qquad (2)$$

$$EG_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 LF_{it} + \beta_3 HD_{it} + \beta_4 BM_{it} + \beta_5 FDI_{it} + \beta_6 ITA_{it} + \theta_{it} \qquad \text{............} \qquad (3)$$

$$EG_{it} = \gamma_0 + \gamma_1 CF_{it} + \gamma_2 LF_{it} + \gamma_3 HD_{it} + \gamma_4 BM_{it} + \gamma_5 FDI_{it} + \gamma_6 ITA_{it} + \gamma_7 ITR_{it} + \varepsilon_{it} \qquad \text{.........} \qquad (4)$$

$$EG_{it} = \varphi_0 + \varphi_1 CF_{it} + \varphi_2 LF_{it} + \varphi_3 HD_{it} + \varphi_4 BM_{it} + \varphi_5 FDI_{it} + \varphi_6 ITA_{it} + \varphi_7 ITE_{it} + \phi_{it} \qquad \text{.........} \qquad (5)$$

$$EG_{it} = \xi_0 + \xi_1 CF_{it} + \xi_2 LF_{it} + \xi_3 HD_{it} + \xi_4 BM_{it} + \xi_5 FDI_{it} + \xi_6 ITA_{it} + \xi_7 ITR_{it} + \xi_8 ITE_{it} + \nu_{it} \ ... \ (6)$$

Specification (2) is the baseline model. Specification (3) estimates the impact of tourism development on economic growth in BRICS countries by measuring the former through international tourist arrivals. Specification (4) does the same by measuring the tourism development through international tourist arrivals and international tourism receipts in current USD. Specification (5) does the same by measuring the tourism development through international tourist arrivals and international tourism expenditure in current USD. Specification (6) measures the tourism development by international tourist arrivals, international tourism receipts in current USD and international tourism expenditure in current USD. For these estimation purposes, GDP per capita in constant 2010 USD has been taken as the proxy measure of the real economic growth in BRICS economies. The gross capital formation has been taken in constant 2010 USD, foreign direct investment inflows have been taken in current USD, and broad money has been taken as a percentage of gross domestic product. All these variables have been taken in their natural logarithms except the human development index (a proxy measure of human development) to avoid the likely problems of heteroskedasticity. All these correlates are expected to have positive effects on the real economic growth in BRICS nations. The relevant data on these underlying variables have been compiled from the web sources including the World Development Indicators database of the UNDP, World Bank, the UNWTO and the WTTC for the period 1995 to 2019.

The estimations of the specifications (2), (3), (4), (5) and (6) require proceeding through the following steps. *First*, the panel unit root test as proposed by Im, Pesaran & Shin (2003), generally abbreviated as IPS, has been employed to analyse the stationary properties of the underlying variables with heterogeneous cross-sections. The IPS unit roots test takes into consideration the autoregressive properties of each cross-section and uses the below-mentioned

t-bar statistic: $\bar{t} = \dfrac{1}{N} \sum_{i=1}^{N} t_{\rho_i}$ where t_{ρ_i} is the individual t-statistic for $H_0 : \rho_i = 1 \, vs. \, H_a : |\rho_i| < 1$,

given the regression model: $y_{it} = \rho_i y_{i,t-1} + \sum_{j=1}^{p_i} \phi_{ij} \Delta y_{it-j} + Z_{it}' \gamma + \varepsilon_{it}$. The results reported in table-

3 in the next section, indicates that the underlying variables are a mix of integrated of order zero and one. *Second*, the specifications (2), (3), (4), (5) and (6) needs to be estimated in the Autoregressive Distributive Lag (ARDL) framework based on the Pooled Mean Group (PMG)

estimators (Pesaran et al., 1999). This ARDL framework has been designed by including one lag of the dependent variable, and also one lag of each dynamic regressor as suggested by AIC in each case. In this framework, equations (7), (8), (9), (10) and (11) have been used to estimate the short-run and long-run relationships.

$$\Delta EG_{it} = \varphi_i ECT_{it} + \sum_{j=1}^{p-1} \lambda_{ij} \Delta EG_{i,t-j} + \sum_{i=1}^{q-1} \eta_{1ij} \Delta CF_{i,t-j} + \sum_{i=1}^{r-1} \eta_{2ij} \Delta LF_{i,t-j} + \sum_{i=1}^{s-1} \eta_{3ij} \Delta HD_{i,t-j} + \qquad \text{.............} \qquad (7)$$

$$\sum_{i=1}^{u-1} \eta_{4ij} \Delta BM_{i,t-j} + \sum_{i=1}^{v-1} \eta_{5ij} \Delta FDI_{i,t-j} + \kappa_{it}$$

$$\Delta EG_{it} = \varphi_i ECT_{it} + \sum_{j=1}^{p-1} \lambda_{ij} \Delta EG_{i,t-j} + \sum_{i=1}^{q-1} \eta_{1ij} \Delta CF_{i,t-j} + \sum_{i=1}^{r-1} \eta_{2ij} \Delta LF_{i,t-j} + \sum_{i=1}^{s-1} \eta_{3ij} \Delta HD_{i,t-j} + \qquad \text{.............} \qquad (8)$$

$$\sum_{i=1}^{u-1} \eta_{4ij} \Delta BM_{i,t-j} + \sum_{i=1}^{v-1} \eta_{5ij} \Delta FDI_{i,t-j} + \sum_{i=1}^{w-1} \eta_{6ij} \Delta ITA_{i,t-j} + \omega_{it}$$

$$\Delta EG_{it} = \varphi_i ECT_{it} + \sum_{j=1}^{p-1} \lambda_{ij} \Delta EG_{i,t-j} + \sum_{i=1}^{q-1} \eta_{1ij} \Delta CF_{i,t-j} + \sum_{i=1}^{r-1} \eta_{2ij} \Delta LF_{i,t-j} + \sum_{i=1}^{s-1} \eta_{3ij} \Delta HD_{i,t-j} + \qquad \text{......} \qquad (9)$$

$$\sum_{i=1}^{u-1} \eta_{4ij} \Delta BM_{i,t-j} + \sum_{i=1}^{v-1} \eta_{5ij} \Delta FDI_{i,t-j} + \sum_{i=1}^{w-1} \eta_{6ij} \Delta ITA_{i,t-j} + \sum_{i=1}^{x-1} \eta_{7ij} \Delta ITR_{i,t-j} + u_{it}$$

$$\Delta EG_{it} = \varphi_i ECT_{it} + \sum_{j=1}^{p-1} \lambda_{ij} \Delta EG_{i,t-j} + \sum_{i=1}^{q-1} \eta_{1ij} \Delta CF_{i,t-j} + \sum_{i=1}^{r-1} \eta_{2ij} \Delta LF_{i,t-j} + \sum_{i=1}^{s-1} \eta_{3ij} \Delta HD_{i,t-j} + \qquad \text{......} \qquad (10)$$

$$\sum_{i=1}^{u-1} \eta_{4ij} \Delta BM_{i,t-j} + \sum_{i=1}^{v-1} \eta_{5ij} \Delta FDI_{i,t-j} + \sum_{i=1}^{w-1} \eta_{6ij} \Delta ITA_{i,t-j} + \sum_{i=1}^{y-1} \eta_{7ij} \Delta ITE_{i,t-j} + \lambda_{it}$$

$$\Delta EG_{it} = \varphi_i ECT_{it} + \sum_{j=1}^{p-1} \lambda_{ij} \Delta EG_{i,t-j} + \sum_{i=1}^{q-1} \eta_{1ij} \Delta CF_{i,t-j} + \sum_{i=1}^{r-1} \eta_{2ij} \Delta LF_{i,t-j} + \sum_{i=1}^{s-1} \eta_{3ij} \Delta HD_{i,t-j} + \qquad \text{.. } (11)$$

$$\sum_{i=1}^{u-1} \eta_{4ij} \Delta BM_{i,t-j} + \sum_{i=1}^{v-1} \eta_{5ij} \Delta FDI_{i,t-j} + \sum_{i=1}^{w-1} \eta_{6ij} \Delta ITA_{i,t-j} + \sum_{i=1}^{x-1} \eta_{7ij} \Delta ITR_{i,t-j} + + \sum_{i=1}^{y-1} \eta_{8ij} \Delta ITE_{i,t-j} + \zeta_{it}$$

Findings and discussion

The orders of integration of underlying variables have been found out by employing the IPS unit root test, and the outcomes are presented in Table 3.

Table 3: Results of IPS panel unit root test

Variables	At Level with Intercept	At 1st Difference with Intercept	Order of Integration
EG_{it}	2.001 (0.977)	-3.407 (0.000)*	I(1)
CF_{it}	0.739 (0.770)	-5.101 (0.000)*	I(1)
LF_{it}	-1.735 (0.041)**	-	I(0)
HD_{it}	-0.067 (0.473)	-3.183 (0.000)*	I(1)
BM_{it}	-1.734 (0.041)*	-	I(0)
FDI_{it}	-1.633 (0.051)***	-	I(0)
ITA_{it}	-0.929 (0.176)	-8.013 (0.000)*	I(1)
ITR_{it}	-0.116 (0.453)	-4.773 (0.000)*	I(1)
ITE_{it}	0.137 (0.554)	-5.660 (0.000)*	I(1)

*Note: Values within parentheses are p-values; *, **, *** significant at 0.01, 0.05 and 0.10 levels respectively*
Source: Authors' Estimation

It is observed that all the variables except labour force, broad money, and foreign direct investment inflows are integrated of order one. The variables viz., labour force, broad money, and foreign direct investment inflows are all integrated of order zero. So this mixed outcome of the order of integration of the variables under consideration justifies the use of the PMG based ARDL model for estimations of the specifications (2) to (6). The results of long-run ARDL estimations are reported in Table 4.

Table 4: Results of long-run relationship (PMG based ARDL estimation)

Coefficients	Baseline Model	Model-1	Model-2	Model-3	Model-4
CF_{it}	0.208 (0.064)*	0.347 (0.118)*	0.074 (0.216)	0.769 (0.174)*	0.415 (0.117)*

LF_{it}	-0.271 (0.508)	-4.096 (2.045)**	-2.944 (1.350)**	-0.274 (0.380)	-1.842 (0.758)**
HD_{it}	4.330 (0.765)*	4.038 (1.202)**	6.224 (2.772)**	1.062 (0.918)	4.546 (2.008)**
BM_{it}	-0.147 (0.094)	-0.283 (0.185)	-0.792 (0.531)	-0.187 (0.217)	-0.564 (0.386)
FDI_{it}	0.044 (0.017)**	0.084 (0.045)***	-0.022 (0.033)	-0.045 (0.033)	-0.014 (0.031)
ITA_{it}	-	0.239 (0.186)	0.262 (0.216)	0.376 (0.190)**	0.325 (0.20)
ITR_{it}	-	-	0.494 (0.258)***	-	0.306 (0.159)**
ITE_{it}	-	-	-	-0.118 (0.074)	-0.125 (0.082)

Note: S.E in parentheses;, **, *** sig. at 0.01, 0.05 and 0.10 levels respectively;*
Dependent Variable: Δ(Economic Growth); Dependent & Dynamic Regressors Lags: (1,1)
Model Selection by AIC: Baseline Model (-5.76), Model-1 (-5.81), Model-2 (-5.86), Model-3 (-5.93), Model-4 (-5.97)
Source: Authors' Estimation

The Table 4 presents a comparative picture of the statistical significance of regressors in augmented growth equations presented in specifications from (2) to (6) obtained estimating the PMG based RADL models specified vide the equations (7) to (11). In the baseline model without the inclusion of any tourism variables, gross capital formation, human development and foreign direct investment inflows have been noticed to be the significant determinants of long-run economic growth in BRICS countries. However, the convergence of this baseline model is lacking as the error correction term (see Table 5) is not statistically significant. So to increase the model efficiency, we augmented the baseline model by including international tourism arrivals as a plausible determinant of long-run economic growth in BRICS countries. The contributions of gross capital formation, human development and foreign direct investment inflows to the long-run economic growth in model 1 have been found positive and statistically significant in BRICS economies, but that of international tourist arrivals is not statistically significant.

Table 5: Results of short-run relationship (PMG based ARDL Estimation)

Coefficients	Baseline Model	Model-1	Model-2	Model-3	Model-4
$Δ CF_{it}$	0.145 (0.047)*	0.169 (0.042)*	0.175 (0.044)*	0.122 (0.038)*	0.144 (0.035)*
$Δ LF_{it}$	0.341 (0.303)	0.411 (0.327)	0.611 (0.368)	0.397 (0.281)	0.572 (0.333)***
$Δ HD_{it}$	0.787 (0.503)	0.775 (0.579)	0.588 (0.670)	0.479 (0.625)	0.456 (0.657)
$Δ BM_{it}$	-0.053 (0.085)	-0.056 (0.072)	-0.050 (0.084)	-0.066 (0.059)	-0.060 (0.072)
$Δ FDI_{it}$	0.001 (0.001)	0.001 (0.002)	0.005 (0.001)*	0.006 (0.001)	0.005 (0.0.001)*
$Δ ITA_{it}$	-	0.006 (0.027)	0.010 (0.036)	-0.004 (0.029)	0.012 (0.038)
$Δ ITR_{it}$	-	-	-0.009 (0.014)	-	-0.011 (0.008)
$Δ ITE_{it}$	-	-	-	0.015 (0.015)	0.012 (0.013)
C	0.712 (0.649)	4.408 (2.238)***	2.311 (1.047)**	-0.377 (0.162)**	1.236 (0.641)***
ECT_t	-0.076 (0.071)	-0.059 (0.031)***	-0.044 (0.021)**	-0.049 (0.022)*	-0.045 (0.024)***

Note: S.E in parentheses;, **, *** sig. at 0.01, 0.05 and 0.10 levels respectively;*
Dependent Variable: Δ(Economic Growth); Dependent & Dynamic Regressors Lags: (1,1)
Source: Authors' Estimation

Table 6: Dynamic forecasting of economic growth in BRICS countries

Criteria	Baseline Model	Model-1	Model-2	Model-3	Model-4
RMSE	0.0127	0.0128	0.0108	0.0102	0.0082
MAE	0.0102	0.0100	0.0084	0.0074	0.0063
MAPE	0.1197	0.1157	0.0998	0.0892	0.0774

Note: RMSE: Root Mean Squared Error; MAE: Mean Absolute Error; MAPE: Mean Absolute Percentage Error
Source: Authors' Estimation

When we checked the growth forecasting ability of model 1, reductions in root mean squared error, mean absolute error and mean absolute percentage error have been observed (see Table 6). This motivated us to augment model-1 by including another tourism development indicator, viz., international tourism receipts to formulate model 2. The estimation of model 2 as presented in Table-4 reveals that tourism development in terms of increase in international tourism receipts can be a positive determinant of long-run economic growth. However, the

efficacy of this model is marred by the non-significance of other correlates except human development.

So we decided to consider another variant of the tourism-augmented growth equation where tourism development can be proxied by international tourist arrivals and international tourism expenditures, and by doing so we obtained the model 3. The estimation of this model predicted international tourist arrivals as one of the positive determinants of long-run economic growth in BRICS economies along with another significant determinant, namely gross capital formation. Further, we included all the three indicators of tourism development, viz international tourist arrivals, international tourism receipts and international tourism expenditures to define model 4. The estimation outcomes of this model 4 as reported in table-4 infer that capital formation, human development and international tourism receipts have statistically significant positive impacts on long-run economic growth in BRICS nations. The forecasting ability of model 4 is the best amongst the models we estimated as the values of root mean squared error, mean absolute error and mean absolute percentage error are least (see Table-6). The model 4 ensures the stability of the long-run equilibrium as the error correction term is negative and statistically significant (see Table 5). It was surprising to note that the contribution of the labour force in all the variants of the tourism-augmented model was negative in the long-run may be due to low productivity of labour, presence of structural and non-structural unemployment, and a high degree of skill gaps in BRICS countries. However, its contribution is positive and significant in model 4 in the short-run. Since tourism is primarily a labour-intensive sector, this observation is critical from the policy point of view. The models (2), (3) and (4) lend to support the tourism-led growth hypothesis in BRICS economies. Therefore, the policy implication is that the activities which cause the growth of the tourism sector need to be fostered by increasing investments and by enhancing the levels of human development. This finding corroborates the outcomes of Banday and Ismail (2017), Balsalobre-Lorente et al. (2020), Belke et al. (2021), Liu and Wu (2019) and Roudi Arasli and Akadiri (2019).

Conclusions

The empirical research on the tourism-growth nexus has recently caught the attention of researchers, academicians, and policy makers may be because tourism is an important activity having resourceful socio-economic, political, cultural and environmental implications both for the source and destination territories. It has been regarded as an important contributor to economic growth in countries facing capital deficiency. Its contribution in open market economies such as BRICS is noteworthy. In these nations, inbound tourism is an important contributor to the gross domestic product, foreign exchange reserves, and employment. In this context, we hypothesized the positive impact of tourism sector development on the economic growth in BRICS nations. Thus, we adopted an augmented neo-classical growth framework to study the impact of tourism development on economic growth in BRICS countries. When the tourism sector development is represented by international tourist arrivals, international tourism receipts and international tourism expenditure, we observed that the augmented neo-classical model minimizes the dynamic forecasting errors thereby establishing the robustness of the findings. This augmented neo-classical model of long-run economic growth indicates the validity of the tourism-led growth hypothesis for the panel of BRICS economies when the capital formation and human development have statistically positive impacts on real economic growth. The immediate policy implication is that the schemes/strategies meant for tourism sector expansion can contribute to higher economic growth in the long-run. Thus, the policy circle should reorient its focus towards the robust development of tourism in these nations. It is imperative to optimize the resource mobilization process and allocate appropriate quantum

of economic resources for tourism sector expansion and development. Emphasis should be laid on increasing investments, infrastructure development, human development through improved health & education, and also on ensuring the prevalence of a congenial regulatory framework to achieve economic efficiency.

References

Alhowaish, A. K. (2016). Is tourism development a sustainable economic growth strategy in the long run? Evidence from GCC countries. *Sustainability*, 8 (7), 605-624.

Ambardar, A. (2017). Tourism and hospitality industry in BRIC Nations: An analysis. In M. Dhiman (Eds.), *Opportunities and Challenges for Tourism and Hospitality in the BRIC Nations* (pp. 83-94). Pennsylvania, USA: IGI Global.

Azeez, R. O. (2019). Is tourism a sustainable haven for economic growth in North African countries? An evidence from Panel Analysis, *MPRA Working Paper No.93449*, 1-28. Available at https://mpra.ub.uni-muenchen.de/93449/1/MPRA_paper_93449.pdf [Retrieved 29 March 2021].

Balsalobre-Lorente, D., Driha, O. M. & Sinha, A. (2020). The dynamic effects of globalization process in analyzing N-shaped tourism led growth hypothesis. *Journal of Hospitality and Tourism Management*, 43 (1), 42-52.

Banday, U. J. & Ismail, S. (2017). Does tourism development lead positive or negative impact on economic growth and environment in BRICS countries? A panel data analysis, *Economics Bulletin*, 37(1), 553-567.

Barro, R. (1996). Determinants of economic growth: A cross-country empirical study, *NBER Working Paper No. 5698*, National Bureau of Economic Research, Massachusetts Avenue: Cambridge.

Barro, R. (2003). Determinants of economic growth in a panel of countries. *Annals of Economics and Finance*, 4 (1), 231-274.

Bayar, Y., Odabas, H. & Sakar, E. (2021). Impact of globalization on inbound tourism in Mediterranean Countries: A Panel Regression Analysis. In Y. Bayar (Ed.), *Handbook of Research on Institutional, Economic, and Social Impacts of Globalization and Liberalization* (pp. 87-95). Pennsylvania, USA: IGI Global.

Belke, M., Bolat, S. & Hatemi-J, A. (2021). The impact of tourism on the economic growth in the Mediterranean countries: Evidence from hidden panel cointegration test. *Journal of Economics and Administrative Sciences Faculty*, 8 (1), 399-419.

Biagi, B., Ladu, M. G. & Royuela, V. (2017). Human development and tourism specialization: Evidence from a panel of developed and developing countries. *International Journal of Tourism Research*, 19 (2), 160-178.

Bilen, M., Yilanci, V. & Eryüzlü, H. (2015). Tourism development and economic growth: a panel Granger causality analysis in the frequency domain, *Current Issues in Tourism*, 20 (1), 27-32.

Blake, A., Sinclair, M. T. & Campos, J. A. (2006). Tourism productivity: Evidence from the United Kingdom. *Annals of Tourism Research*, 33 (1), 1099-1120.

Boga, S. & Erkisi, K. (2019). The relationship between international tourism receipts and economic growth in Asia Pacific Countries: A panel data analysis. *The Academic Elegance*, 6 (11), 31-46.

Boora, S. S. & Dhankar, S. (2017). Foreign direct investment and its impact upon the Indian hospitality industry. *African Journal of Hospitality, Tourism and Leisure*, 6 (1), 1-17.

Brida, J.G., Cortes-Jimenez, I. & Pulina, M. (2014). Has the tourism-led growth hypothesis been validated? A Literature Review. *Current Issues in Tourism*, 19 (5), 394-430.

Cernat, L. & Gourdon, J. (2012). Paths to success: Benchmarking cross-country sustainable tourism. *Tourism Management*, 33 (1), 1044-1056.

Croes, R. (2006). A paradigm shift to a new strategy for small island economies: Embracing demand-side economics for value enhancement and long term economic stability. *Tourism Management*, 27 (1), 453-465.

Croes, R., Ridderstaat, J. & Shapoval, V. (2020). Extending tourism competitiveness to human development. *Annals of Tourism Research,* 80 (1), 102825.

Croes, R., Ridderstaat, J., Bak, M. & Zientara, P. (2021). Tourism specialization, economic growth, human development and transition economies: the case of Poland. *Tourism Management*, 82 (1), 104181.

Danish & Wang, Z. (2018). Dynamic relationship between tourism, economic growth, and environmental quality. *Journal of Sustainable Tourism*, 26 (11), 1928-1943.

Datta, B. (2014). Tourism a critical analysis of the tourism policies of the BRICS Nations: A new approach to understand the importance of Tourism. *Indian Journal of Research*, 3 (1), 209-212.

Fauzel, S., Seetanah, B. & Sannassee, A.V. (2016). Analysing the impact of tourism foreign direct investment on economic growth: Evidence from a small island developing state. *Tourism Economics,* 23 (5), 1042-1055.

Govdeli, T. & Direkci, T. B. (2017). The Relationship between Tourism and Economic Growth: OECD Countries. *International Journal of Academic Research in Economics and Management Sciences*, 6 (4), 104-113.

Helpman, E. & Krugman, P. R. (1985). *Market structure and foreign trade: increasing returns, Imperfect competition, and the international economy.* MIT Press, Cambridge.

Huseyni, I., Doru, O. & Tunc, A. (2017). The Effects of Tourism Revenues on Economic Growth in the Context of Ne-Classical Growth Model: In the Case of Turkey. *Ecoforum Journal*, 6 (1), 1-6.

Im, K. S., Pesaran, M. H. & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics,* 115 (1), 53-74.

Isik, C., Dogru, T. & Turk, E. S. (2018). A nexus of linear and non-linear relationships between tourism demand, renewable energy consumption, and economic growth: Theory and evidence. *International Journal of Tourism Research,* 20(1), 38-49.

Khan, A., Bibi, S., Lorenzo, A., Lyu, J. & Babar, Z. U. (2020). Tourism and development in developing economies: a policy implication perspective. *Sustainability*, 12 (1), 1618.

Kirca, M. & Ozer, M. (2021). The effects of tourism demand on regional sectoral employment in turkey. *Regional Statistics,* 11 (1), 78-109.

Kostakis, I. (2020). Is tourism a key factor for economic growth? Fresh evidence from South Europe using panel cointegration and PVAR analysis. *World Journal of Applied Economics*, 6 (2), 123-138.

Krueger, A. O. (1980). Trade policy as an input to development. *American Economic Review*, 70 (2), 288-292.

Kruja, A. (2012). The Impact of Tourism Sector Development in the Albanian Economy. *Economia. Seria Management*, 15 (1), 205-218.

Kum, H., Aslan, A. & Gungor, M. (2015). Tourism and Economic Growth: The Case of Next-11 Countries. *International Journal of Economics and Financial Issues*, 5(4), 1075-1081.

Kumar, D. S., Sharma, R. & Kautish, P. (2018). Foreign tourist arrival in India: An analytical study on seasonal variations of tourist arrival and its impact on the growth of foreign exchange earnings. *African Journal of Hospitality, Tourism and Leisure*, 7 (2), 1-10.

Lee, C. C. & Chang, C. P. (2008). Tourism development and economic growth: A closer look at panels. *Tourism Management*, 29 (1), 180-192.

Lemmetyinen, A. & Go, F. M. (2009). The key capabilities required for managing tourism business networks. *Tourism Management*, 30 (1), 31-40.

Li, K. X., Jin, M. & Shi, W. (2018). Tourism as an important impetus to promoting economic growth: A critical review. *Tourism Management Perspectives*, 26 (1), 135-142.

Lionetti, S. & Gonzalez, O. (2012). On the relationship between tourism and growth in Latin America. *Tourism & Hospitality Research*, 12 (1), 15-24.

Liu, A. & Wu, D. C. (2019). Tourism productivity and economic growth. *Annals of Tourism Research,* 76 (1), 253-265.

Liu, H. & Song, H. (2018). New evidence of dynamic links between tourism and economic growth based on mixed-frequency granger causality tests. *Journal of Travel Research*, 57 (7), 899-907.

Mankiw, N. G., Romer, D. & Weil, D. N. (1992). A contribution to the empirics of economic growth. *The Quarterly Journal of Economics*, 107 (2), 407-437.

Manzoor, F., Wei, L., Asif, M., Zia-ul-Haq, M. & Rehman, H. (2019). The contribution of sustainable tourism to economic growth and employment in Pakistan. *International Journal of Environmental Research and Public Health*, 16 (19), 3785.

Matiza, T. & Perks, S. (2017). The role of socio-demographic investor profile factors in predicting tourism appeal as a determinant of FDI to Zimbabwe. *African Journal of Hospitality, Tourism and Leisure*, 6(3), 1-18.

McKinnon, D. R. I. (1964). Foreign exchange constraint in economic development and efficient aid allocation. *Economic Journal*, 74 (1), 388-409.

Meivitawanli, B. (2018). Foreign direct investment in tourism and economic growth: panel data of OECD countries. *International Journal of Advanced Engineering Research and Science*, 5 (9), 287-295.

Mishra, P. K. & Mishra, S. K. (2021). Is the impact of covid-19 significant in determining equity market integration? Insights from BRICS economies. *Global Journal of Emerging Market Economies* (in press).

Mishra, P. K., Rout, H. B. & Chaini, S. R. (2021). Tourism, governance and economic growth in India. *Journal of Environmental Management and Tourism*, 12 (2), 521-528.

Mishra, P. K., Rout, H. B. & Kestwal, A. K. (2020). Tourism, foreign direct investment and economic growth in India. *African Journal of Hospitality, Tourism and Leisure*, 9(1). 1-7.

Mishra, P.K., Rout, H.B. & Kestwal, A. K. (2019). Tourism-energy-environment-growth nexus: Evidence from India. *Journal of Environmental Management and Tourism* 10 (5), 1180-1191.

Mishra, P.K., Rout, H.B. & Mohapatra, S. (2011). Causality between tourism and economic growth: Empirical evidence from India. *European Journal of Social Sciences*, 18 (1), 518-527.

Mishra, P.K., Rout, H.B. & Pradhan, B. B. (2018). Seasonality in tourism and forecasting foreign tourist arrivals in India. *Iranian Journal of Management Studies*, 11 (4), 629-658.

Muslija, A., Satrovic, E. & Erbas, C. U. (2017). Panel analysis of tourism-economic Growth Nexus. *International Journal of Economic Studies*, 3(4), 535-545.

Nunkoo, R., Seetanah, B., Jaffur, Z. R. K., Moraghen, P. G. W. & Sannassee, R. V. (2020). Tourism and economic growth: A meta-regression analysis. *Journal of Travel Research*, 59(3), 404-423.

OECD. (2018). OECD Tourism Trends and Policies 2018. Paris: OECD Publishing. Available at https://doi.org/10.1787/tour-2018-en [Retrieved 18 March 2021].

Ohlan, R. (2017). The relationship between tourism, financial development and economic growth in India. *Future Business Journal*, 3(1), 9-22.

Padmasree, K. & Anchula, B. D. (2011). The performance of the Indian tourism industry in the era of globalization – A conventional study. *African Journal of Hospitality, Tourism and Leisure*, 1 (4), 1-4.

Palamalai, S. & Kalaivani, M. (2016). Tourism expansion and economic growth in Asia-Pacific Nations: A Panel Causality Approach. *IUP Journal of Applied Economics*, 15(2), 53-82.

Paramati, S. R., Alam, M. S. & Chen, C.F. (2017). The effects of tourism on economic growth and co2 emissions: A comparison between developed and developing economies. *Journal of Travel Research*, 56 (6), 712–724.

Perez-Rodriguez, J. V., Rachinger, H. & Santana-Gallego, M. (2021). Does tourism promote economic growth? A fractionally integrated heterogenous panel data analysis. *Tourism Economics*, 1-22. doi: 10.1177/1354816620980665.

Pesaran, M. H., Shin, Y. & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association,* 94(446), 621-634.

PoP, I. (2014). The role of tourism in the economies of BRICS countries. *Knowledge Horizons – Economics*, 6(2), 136-141.

Pop, I. (2020). Tourism in the BRICS Countries in the Context of the COVID-19 Pandemic. *Proceedings of the 3rd International Conference on Economics and Social Sciences*, 275-283. Available at https://doi.org/10.2478/9788366675162-030

Pulido-Fernandez, J. & Cardenas-Garcia, P. (2020). Analyzing the Bidirectional Relationship between Tourism Growth and Economic Development. *Journal of Travel Research*, 60 (3), 583-602.

Rasool, H., Maqbool, S. & Tarique, M.D. (2021). The relationship between tourism and economic growth among BRICS countries: a panel co integration analysis. *Future Business Journal*, 7(1), 1-11.

Ren, T., Can, M., Paramati, S. R., Fang, J. & Wu, W. 2019. The impact of tourism quality on economic development and environment: evidence from Mediterranean Countries. *Sustainability*, 11 (2296), 1-17.

Roudi, S, Arasli, H. & Akadiri, S. S. (2019). New insights into an old issue – examining the influence of tourism on economic growth: evidence from selected small island developing states. *Current Issues in Tourism, 22*(11), 1280-1300.

Samimi, A. J., Sadeghi, S. & Sadeghi, S. (2013). The relationship between foreign direct investment and tourism development: Evidence from developing countries. *Institutions and Economies*, 5(2), 59-68.

Samimin, A. J., Sadeghi, S. & Sadeghi, S. (2011). Tourism and economic growth in developing countries: P-VAR approach. *Middle-East Journal of Scientific Research*, 10(1), 28-32.

Sanford, D. M. & Dong, H. (2000). Investment in familiar territory: tourism and new foreign direct investment. *Tourism Economics*, 6(3), 205–219.

Seghir, G. M., Mostefa, B., Abbes, S. M. & Zakarya, G. Y. (2015). Tourism spending-economic growth causality in 49 countries: A dynamic panel data approach. *Procedia Economics and Finance*, 23, 1613-1623.

Selimi, N., Sadiku, L. & Sadiku, M. (2017). The impact of tourism on economic growth in the Western Balkan countries: An empirical analysis. *International Journal of Business and Economic Sciences Applied Research* 10(2), 19-25.

Selvanathan, S., Selvanathan, E.A. & Viswanathan, B. (2012). Causality between foreign direct investment and tourism: empirical evidence from India. *Tourism Analysis*,17(1), 91-98.

Shahbaz, M., Kumar, R. R., Ivanov, S. & Loganathan, N. (2017). The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia. *Tourism Economics*, 23 (1), 168-186.

Sharma, N. (2018). Tourism-Led Growth Hypothesis: Empirical Evidence from India. *African Journal of Hospitality, Tourism and Leisure*, 7(2), 1-11.

Simundic, B. & Kulis, Z. (2016). Tourism and economic growth in mediterranean region: dynamic panel data approach. *Acta Economica Et Turistica,* 2(1), 65-84.

Skrinjaric, T. (2019). Examining the causal relationship between tourism and economic growth: spillover index approach for selected CEE and SEE countries. *Economies*, 7(19), 1-19.

Sokhanvar, A., Ciftcioğlu, S. & Javid, E. (2018). Another look at tourism-economic development nexus. *Tourism Management Perspectives,*26 (1), 97-106.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics,* 70 (1), 65-94.

Solow, R. M. (1957). Technical change and the aggregate production function. *Review of Economics and Statistics,* 39(1), 312-320.

Steyn, R. & Jansen van Vuuren, O. (2016). The relationship between quality of governance and foreign tourist numbers. *African Journal of Hospitality, Tourism and Leisure*, 5(4), 1-10.

Swan, T. W. (1956). Economic Growth and Capital Accumulation. *Economic Record,* 32 (2), 334-361.

Tang, C. F. & Tan, E. C. (2018). Tourism-Led Growth Hypothesis: A New Global Evidence. *Cornell Hospitality Quarterly*, 59(3), 304-311.

Tang, C. F. & Abosedra, S. (2014). Small sample evidence on the tourism-led growth hypothesis in Lebanon. *Current Issues in Tourism, 17*(3), 234-246.

Tang, S., Selvanathan, E. A. & Selvanathan, S. (2007). The relationship between foreign direct investment and tourism: Empirical evidence from China. *Tourism Economics*, 13(1), 25-39.

Tasos, S., Sarwar, M. & Waqas, M. (2019). The Tourism growth nexus in European and Asian countries: A Panel Data Analysis. *International Journal of Sciences: Basic and Applied Research*, 43(2), 151-163.

Usmani, G., Akram, V. & Praveen, B. (2020). Tourist arrivals, international tourist expenditure, and economic growth in BRIC countries. *Journal of Public Affairs*, 21(2), 1-8.

Van der Schyff, T., Meyer, D. & Ferreira, L. (2019). An analysis of impact of the tourism sector as a viable response to South Africa's growth and development challenges. *Journal of International Studies,* 12 (1), 168-183.

Vellas, F. (2007). *Economics and Politics of International Tourism*. Economica (2nd ed).

Weng, C. C. & Wang, K. K. (2004). Scale and scope economies of international tourist hotels in Taiwan. *Tourism Management*, 25 (1), 761-769.

Wibowo, E. W, Widayat, W. & Siswandi. (2019). Effect of tourism GDP to human development: case study of ASEAN countries. *Proceedings of the 3rd International*

Seminar on Toursim (ISOT 2018), *Advances in Social Sciences, Education and Humanities Research*, 259, 107-110.

Wu,T. P.& Wu, H.C.(2019). Tourism and economic growth in Asia: A bootstrap multivariate panel granger causality. *International Journal of Tourism Research*, 21 (1), 87-96.

Yap, G. & Saha, S. (2013). Do political instability, terrorism, and corruption have deterring effects on tourism development even in the presence of UNESCO heritage? A cross-country panel estimate. *Tourism Analysis,* 18(5), 587-599.

Yazdi, S. K., Salehi, K. H. & Soheilzad, M. (2017). The relationship between tourism, foreign direct investment and economic growth: evidence from Iran. *Current Issues in Tourism*, 20(1), 15-26.

Zhang, J. & Cheng, L. (2019). Threshold effect of tourism development on economic growth following a disaster shock: Evidence from the Wenchuan Earthquake, P.R. China. *Sustainability*, 11(371), 1-22.