Khatai Aliyev / Nargiz Ahmadova

Testing tourism-led economic growth and economic-driven tourism growth hypotheses: The case of Georgia

Abstract

This paper empirically investigates a causal relationship between tourism and economic growth in Georgia for 1997-2018 period by employing ARDLBT approach to cointegration. Results reject economic-driven tourism growth hypothesis for Georgia and reveal that impact of tourism development over economic growth is negative in the long-run, in contrary positive in the short-run. Obtained results suggest that there is a possibility to have a tourism resource curse in the long-term in Georgia. Georgian government should build a tourism strategy to avoid crowding out of human capital from industrial production and decrease the share of imports for the needs of tourism sector.

Key words: tourism-led growth; economic-driven tourism; tourism resource curse; crowding out; Georgia

1. Introduction

In recent years, international tourism has been considered to be an important contributor to economic growth alongside conventional determinants such as capital. Tourism sector supports governments in creating employment and tax revenues, gaining foreign exchange which can be used to import capital or finance foreign debts and stimulating other sectors through its linkages with the rest of the economy. Besides, tourism sector triggers investments in new infrastructure and human capital, stimulates diffusion of technological knowledge and competition, all of which contribute to economic growth.

Due to the essential role that tourism industry plays in an economy, the sector has been receiving a lot of attention. According to research by World Travel &Tourism Council, tourism sector accounted for 10.4% of global GDP and 10% of total employment in 2018. As the research highlights, an increase in the number of the middle class and decent growth in worldwide consumer spending facilitated the sector's growth to reach 3.9 percent, outperforming the global economy. As a matter of fact, tourism ranks third as a worldwide export category after chemicals and fuels, and in many developing countries, it is in the top export category (World Tourism Organization, 2018).

Given its increasing importance in the global economy, tourism development is one of the main priorities for Georgia. The country's natural, historical and cultural resources have enabled the government to develop its tourism sector. According to Georgian National Tourism Administration (GNTA), international traveler trips reached a record number of 8.7 million in 2018, representing annual growth of 10 percent. The country's most visited city is the capital city, Tbilisi, followed by Batumi, Marneuli and Kazbegi. Majority of visitors come from neighboring countries, Azerbaijan occupying the first place. Recently, Georgia has developed long-term tourism strategy for 2015-2025, which aims to further increase the size and profitability of tourism industry in a sustainable way (A Tourism Strategy for Georgia, 2015).

Prof. **Khatai Aliyev**, PhD, UNEC Empirical Researches Center, Azerbaijan State University of Economics (UNEC); Department of World Economy, Baku Engineering University, Baku, Azerbaijan; e-mail: khatai.aliyev@unec.edu.az

Nargiz Ahmadova, Junior Economist, Central Bank of the Republic of Azerbaijan, Monetary Policy Department, Financial Programming Division, Baku, Azerbaijan; e-mail: nahmadova2019@ada.edu.az

Original scientific paper
Khatai Aliyev / Nargiz Ahmadova
Vol. 68/ No. 1/ 2020/ 43 - 57
UDC: 338.485(479.22)
https://doi.org/10.37741/t.68.1.4

The country is ranked the first in Tourism and Travel (T&T) Competitiveness Index in the South Caucasus and ranked second only to Russia in the whole Eurasia region (World Economic Forum, 2017). In 2018, the capital city of the country, Tbilisi, was listed among the top 21 best trip destinations by National Geographic (Best Trips, 2018). Besides, according to the International Congress and Convention Association rankings, Georgia held leading position in the region in terms of hosting international meetings (2017). Along with a rapid increase in the international tourist arrivals by around 25 times from 1995 to 2018, there has been a surge in the share of tourism receipts in export, and particularly in the service export earnings as shown in Table 1. Since 1995 the share of tourism in the service export has substantially increased, accounting more than half of service export earnings. Meanwhile, tourism earnings as a share of GDP have increased by around eight-folds during just fourteen years, reaching to 16.5 percent. Tourism boom in the country is more apparent in compared with the world's top international tourism destinations; for example, during 2017, Georgia is ranked the first for the share of tourism in export earnings among France, Spain, United States, and China (World Development Indicators, 2017).

Table 1
Average number of tourist arrivals and average share of tourism receipts in export earnings, service exports, and GDP

	International tourist arrivals	% of tourism receipts in export earnings	% of tourism receipts in service exports	% of tourism receipts in GDP
1995-1999	243,200	12.1%	28.5%	2.2%
2000-2004	333,600	13.0%	33.3%	3.8%
2005-2009	1,077,000	12.5%	35.2%	3.9%
2010-2014	3,761,600	21.4%	52.3%	8.5%
2015-2018	6,459,000	34.0%	66.2%	16.5%

Source: Author's calculation based on data retrieved from National Bank of Georgia, World Development Indicators and World Bank.

Such a surge in the industry can be associated with government's policies including improving infrastructure, simplifying international travel requirements, implementing marketing activities at international and domestic markets, and developing of new tourism products. As a matter of the fact, GNTA participated in 23 international and domestic tourism fairs, and hosted 113 presses in 2017, along with advertising campaigns through international channels as Discovery channels, BBC and Euro news (GNTA, 2018). Another significant issue is the enhancement of service quality through the training of representatives of the tourism and hospitality industry as GNTA adds in its 2018 report. Besides, several international events were held in Georgia in 2015, such as the European Youth Olympiad and UEFA Super Cup match.

Despite the close focus of the government and marked progress of tourism industry, little attention has been given to empirical analysis of the relationship between tourism development and long-term economic growth in Georgia. Although there are some researches about tourism sector in Georgia (Gugushvili, Salukvadze, & Salukvadze, 2017; Paresishvili, Kvaratskhelia, & Mirzaeva, 2017), to our best knowledge, there is no empirical study to investigate causality between international tourism and economic growth in the case of Georgia. Thus, the findings of this study are expected to provide important implications not only for academicians but also for the policy makers in Georgian government.

Hence, the objective of this study is to investigate causal relationship between tourism development and economic growth in Georgia. It answers the question of whether tourism expansion positively affects economic growth in Georgia, or economic growth stimulates tourism. The study employs trivariate system methodology of Katircioglu (2009) for the annual data of 1997-2018. The rest of the paper

is organized as follows: Section 2 describes literature review, Section 3 defines data and methodology, Section 4 provides empirical results and Section 5 presents discussion and conclusion.

2. Literature review

The relationship between international tourism and economic growth has been long explored in the literature. Deriving from export-led growth hypothesis which proposes that economic growth can be achieved not only through increasing factors of production, but also stimulating exports, international tourism is recognized to have positive effect on long-run economic growth.

However, the question of whether tourism indeed causes economic growth or economic growth actually contributes to international tourism has been inconclusive. Gunduz and Hatemi-J (2005), Proença and Soukiazis (2008), Cortés-Jimenez and Pulina (2010), Tang and Abosedra (2016), Belloumi (2010), Kreishan (2015), Hatemi-J (2015), Zhang and Gao (2016), Lean and Tang (2009), Kadir and Karim (2012), Trang, Duc, and Dung (2014), Fayissa, Nsiah, and Tadesse (2011), Brida, Lanzilotta, Lionetti, and Risso (2010), and Brida, Pereyra, and Risso (2008) confirm validity of tourism-led growth hypothesis (TLGH), while Payne and Mervar (2010), Bouzahzah and El Menyari (2013), Oh (2005), Kyophilavong, Gallup, Charoenrat, and Nozaki (2018) and Suresh and Senthilnathan (2014) reveal evidence of economic-driven tourism hypothesis (EDTH). On the other hand, Demiroz and Ongan (2005), Bilen, Yilanci, and Eryüzlü (2017), Tang and Ozturk (2017), Gautam (2011) and Khalil, Kakar, and Waliullah (2007) present validity of both hypotheses, more precisely, reciprocal relationship. There are a group of researchers including Kasimati (2011), Katircioglu (2009), Jin (2011) and Ghosh (2011) who indicate that tourism and economic growth are not affected by each other, supporting neutrality hypothesis. In the following, above mentioned studies are grouped by the region of study interest and explained in detail.

Gunduz and Hatemi-J (2005), Proença and Soukiazis (2008), Cortés-Jimenez and Pulina (2010), Tang and Abosedra (2012), Belloumi (2010), Payne and Mervar (2010), Bouzahzah and El Menyari (2013), Kasimati (2011), Katircioglu (2009), Demiroz and Ongan (2005), Bilen, Yilanci, and Eryüzlü (2017) and Tang and Ozturk (2017) examined TLGH in different countries of Mediterranean region, where top tourism destinations are located. More specifically, Gunduz and Hatemi-J (2005) has found unidirectional causality from tourism to economic growth in Turkey using a data set of tourist arrivals, real gross domestic product and real exchange rates and applying the leveraged bootstrap causality test. Proença and Soukiazis (2008) studied the importance of tourism as a conditional growth factor in four Mediterranean countries including Italy, Greece, Portugal and Spain and supported TLGH in all selected countries, which is consistent with the result of Cortés-Jimenez and Pulina (2010), who examined the hypothesis specifically for Italy and Spain. Tang and Abosedra (2012) examined tourism-growth nexus in Lebanon for the time period of 1995-2010 applying the bounds testing approach to cointegration and Granger causality tests and provided evidence that support the TLGH in Lebanon. Belloumi (2010) tested the hypothesis for Tunisia applying the Johansen technique and revealed one-way causality from tourism to economic growth. Payne and Mervar (2010) examined the impact of tourism activity on the economic growth of Croatia using quarterly data from 2000:1 to 2008:3 and proposed that economic growth leads to tourism growth in Croatia, but not vice-verse. Bouzahzah and El Menyari (2013) studied the relationship in Morocco and Tunisia by adopting the error correction model framework, the cointegration and Granger causality tests for the annual period of 1980-2010 and indicated that EDTH is better suited for studied economies. Kasimati (2011) investigated the role of tourism on Greek economy using Granger causality test and show that there is no relationship

between two variables. Katircioglu (2009) also supported neutrality hypothesis for Turkey by employing the bounds test and Johansesn approach, suggesting that tourism and economic growth are indeed independent of each other. Similarly, Demiroz, and Ongan (2005) studied the relationship for Turkey, showing that economic growth in Turkey leads to tourism growth as tourism growth contributes to the economic growth. Bilen, Yilanci, and Eryüzlü (2017) show mutual influence of economic and tourism growth on each other for twelve Mediterranean countries from 1995 to 2012, congruous with the analysis of Tang and Ozturk (2017) who supported reciprocal hypothesis in case of Egypt over the period of 1982–2011.

Alhowaish (2016), Kreishan (2015) and Hatemi-J (2015) assessed the causality in GCC countries, where the tourism has gained much attention as a way for economic diversification. Alhowaish, A. (2016) examined the impact of tourism development on economic growth in GCC countries as a whole and individually, for the period of 1995-2012. The results show that EDTH is valid for the region as a whole, also for individual countries including Kuwait, Saudi Arabia, Qatar, and the United Arab Emirates (UAE), while no causality has been found in case of Oman. Furthermore, the study shows unidirectional causality from tourism development to the economic growth for Bahrain, which is consistent with the study of Kreishan (2015) for Bahrain. Hatemi-J (2015) also confirmed validity of TLGH in case of UAE by using bootstrapped causality tests with leverage adjustments.

Zhang and Gao (2016), Jin (2011), Lean and Tang (2010), Kadir and Karim (2012), Trang et al. (2014), Chen and Chiou-Wei (2009), Oh (2005) and Kyophilavong et al. (2018) have studied the relationship in selected East Asian countries. Of all the studies, all of them supported TLHG in respective countries, except the study of Jin (2011), Oh (2005) and Kyophilavong et al. (2018). More specifically, Zhang and Gao (2016) revealed that tourism development causes economic growth in China for the panel data of 1995–2011. Jin (2011) examined dynamic effects of tourism on economic growth in Hong Kong through unrestricted vector autoregressive (VAR) model and could not confirm long-term effect of tourism on economic growth, supporting neutrality theory. Lean and Tang (2010) supported TLGH in Malaysia, similar to the study of Kadir and Karim (2012) and proposed that the relationship is stable over time by incorporating the rolling subsample procedures into the Granger causality test. Trang et al. (2014) investigated the same hypothesis in Vietnam during the period 1992–2011 using two-step procedures, Granger causality test and growth decomposition method and claimed support for TLGH hypothesis in Vietnam. Chen and Chiou-Wei (2009) argue that tourism-led economic growth hypothesis is supported for Taiwan while a reciprocal (bidirectional) causal relationship is found for South Korea. However, Oh (2005) indicated one-way causal relationship from economic growth to tourism growth in South Korea during the period 1975-2001, similar to the research by Kyophilavong et al. (2018) for Laos for the period.

Ghosh (2011), Suresh and Senthilnathan (2014), Gautam (2011) and Khalil, Kakar, and Waliullah (2007) have studied the causal relationship between tourism expansion and economic growth in the individual countries of South Asia. Ghosh (2011) investigated TLGH in India using annual data of 1980 to 2016 and proposed that there is no relationship between international tourist arrivals and economic activity in India in an unrestricted vector autoregression framework. Similarly, Suresh and Senthilnathan (2014) have rejected TLGH for Sri-Lanka during the period 1977- 2012, showing that it is the economic growth that affects tourism, not the other way around. Gautam (2011) indicated that there is two-way causality between tourism earnings and economic growth in case of Nepal for time span from 1974 to 2010, which is similar to the study of Khalil et al. (2007) for Pakistan.

Fayissa, Nsiah, and Tadesse (2011), Brida et al. (2010), Brida et al. (2008), and Sokhanvara, Çiftçioğlu, and Javid (2018) have examined the tourism- economic development nexus in Latin America countries. Fayissa et al. (2011) studied the impact of tourism within the neoclassical growth model and show that tourism industry contribute positively to both the level and growth rate of the per capita GDP of the countries in the region. On the country level, Brida et al. (2010) show that tourism growth affects economic growth, but not vice-verse, in Uruguay using quarterly data from 1987:1 to 2006:4. In his another study, Brida et al. (2008) found causality going from tourism expenditures to real GDP per capita in Columbia by applying Johansen and the Granger Causality test. Sokhanvara, Çiftçioğlu and Javid (2018) highlighted that the direction of causality is country dependent, showing that TLGH is supported in case of Brazil and Mexico, while the reverse hypothesis (EDLH) holds for Peru and reciprocal hypothesis is proven for Chile.

Salifou and Haq (2016) have examined the relationship for 11 countries of Economic Community of West African States (ECOWAS) in presence of FDI and economic globalization index as control variables along with physical capital and confirmed TLGH for ECOWAS. Nene and Taivan (2017) has gained mixed results for Sub-Saharan Africa (SSA) countries, supporting TLGH and EDTH for 60% and 40% of the SSA countries respectively.

Overall, the literature review shows that there are contradicting results for the existence of TLGH and EDTH, which may come from different methods and data sets used in the studies or different characteristics of the countries. As a matter of fact, the study based on a panel dataset of 167 countries proposes that the effect of tourism on economic growth is contingent on levels of income and institutional qualities of the host tourism countries (Ivanov & Webster, 2012). Another research using the evidence of 116 articles to identify critical success factors for tourism-led growth has concluded that countries with more developed human capital and financial systems have better chances of achieving growth through tourism development (Chingarande & Saayman, 2018). The tourism–economy relationship can also differ from one country to another depending on the size and openness of the economy (Kim, Chen, & Jan, 2006) linkages between businesses within a destination (Dwyer, Forsyth, Madden, & Spurr, 2000). As the research further explains, the greater the extent to which tourism development generates increased production in other sectors the greater impact tourism will have on economic output. Furthermore, Gwenhure and Odhiambo (2017) through the review of various literatures proposed that tourism-economic growth relationship differs across countries and it is dependent on the methodology employed.

Having few studies investigating empirical relationship between tourism and economic growth in various regions, the relevant research on the South Caucasus is lacking. Hence, the purpose of this study is to investigate the TLGH for Georgia, which is the most visited country of South Caucasus.

3. Data and methodology

3.1. Variables

To assess the association between tourism development and economic growth, trivariate system methodology of Katircioglu (2009b) is employed. Considering suggestions by Oh (2005), Gunduz and Hatemi-J (2005), Balaguer, J., & Cantavella-Jordá, M. (2002) and Katircioglu (2009b) real exchange rate is added as the control variable to the developed empirical model to overcome potential omitted variable bias.

As a measure of tourism development, recent studies take variety of indicators such as number of tourism arrivals (Tang & Abosedra, 2016; Suresh & Tiwari, 2017), per capita international tourist arrivals (Tang

& Ozturk, 2017), international tourism receipts (Muhtaseb & Daoud, 2017; Sokhanvar, Çiftçioğlu, & Javid, 2018; Dogru & Bulut, 2018; Mitra, 2019) as well as per capita real tourism receipts (Tang & Tan, 2018). Here, we use number of international tourism arrivals on which information is more accurate and easily achievable.

In the research, yearly data of 1997-2018 period is used. Due to economic and political instabilities in the country, the period before 1997 is not included during which the performance of tourism sector is indeed weak and highly volatile. Basic definition of the variables is as follows.

Real GDP (RGDP) is the total amount of output produced in the country, measured in million AZN. GDP deflator is used to transform the values from nominal to real.

International tourism arrivals (ITA) display number of international tourists visiting the country during a year, measured in thousand persons.

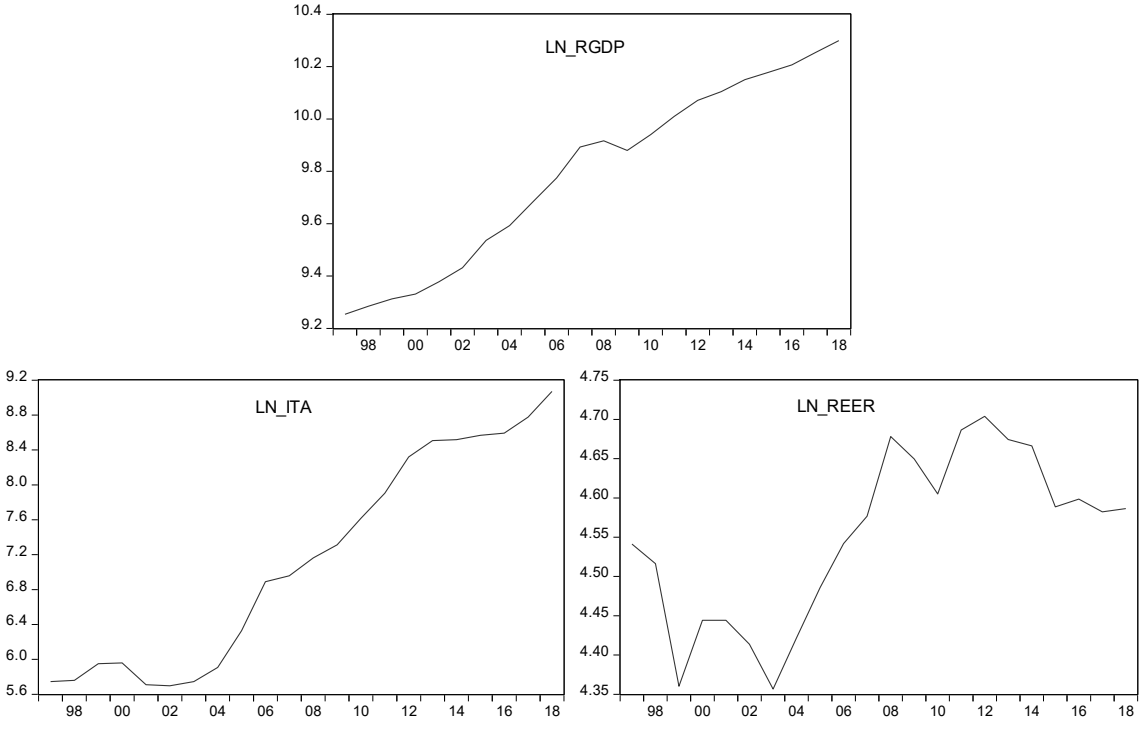
Real effective exchange rate (REER) weighted average of a Georgia's currency, lari compared to an index or basket of other main currencies.

Table 2
Descriptive statistics of the variables

Variable	Obs. no.	Mean	Maximum	Minimum	Std. dev.
RGDP	22	18,989.4	29,719	10,446.7	6,346.02
ITA	22	2,395.96	8,700	298	2,519.57
REER	22	95.252	110.39	77.987	10.071

Source: Authors' own compilation.

Figure 1
Time profile of the logs of variables



Source: Authors' own creation.

Related statistics are obtained from World Development Indicators. Table 2 and the Figure 1 display basic descriptive statistics, and natural logarithm profile of the variables.

3.2. Analytical approach

Within time-series analyses framework, the base models for estimation are:

$$\ln(rgdp)_t = \alpha_0 + \alpha_1 * \ln(ita)_t + \alpha_2 * \ln(reer)_t + u_t' \qquad (1)$$

$$\ln(ita)_t = \beta_0 + \beta_1 * \ln(rgdp)_t + \beta_2 * \ln(reer)_t + u_t'' \qquad (2)$$

Equation (1) is the base model specification for testing TLGH while equation (2) will be used to examine EDTH. Here, α and β are regression coefficients; t denotes the time and u is the error term.

Before choosing appropriate estimation method, stationarity of each variable should be tested. For this purpose, Augmented Dickey-Fuller (ADF, see Dickey & Fuller, 1981) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS, see Kwiatkowski, Phillips, Schmidt, & Shin, 1992) unit root tests are employed. Note that ADF tests null hypothesis of "variable is not stationary". In contrary, null hypothesis in KPSS is that "variable is stationary". Existence of unit root is examined with intercept, and with intercept and trend.

To estimate long-run and short-run relationship, we employ Autoregressive Distributed Lag Bounds Testing (ARDLBT) approach to cointegration developed by Pesaran, Shin, and Smith (2001). Advantages of the ARDLBT compared to alternative cointegration methods are: (1) no endogeneity problem, (2) can be estimated with I(0), I(1) series or combination of them, (3) long-run and short-run coefficients can be estimated simultaneously, (4) can be easily estimated by using Ordinary Least Squares and applicable in small samples. Considering unit root test results (will be discussed below) and working with small sample size, ARDLBT seems to be the best applicable alternative method.

The estimation procedure of ARDLBT starts with construction of the unstructured Error Correction Model (ECM). For three variable case:

$$\Delta y_t = c_0 + \theta_1 y_{t-1} + \theta_2 x_{t-1} + \theta_3 z_{t-1} + \sum_{i=1}^{n} \gamma_i \Delta y_{t-i} + \sum_{i=0}^{n} \varphi_i \Delta x_{t-i} + \sum_{i=0}^{n} \omega_i \Delta z_{t-i} + u_t \qquad (3)$$

Where c_0 is the intercept, and θs denote long-run coefficients. γ_i , φ_i and ω_i represent short-term relationships. u_t is the error term. In our case, $\ln(rgdp)_t$ is the dependent variable, $\ln(ita)_t$ and $\ln(reer)_t$ are independent variables while testing TLGH. In order to test EDTH, $\ln(ita)_t$ and, $\ln(rgdp)_t$ will replace each other, as explained explanatory variables respectively.

Next stage is testing for existence of cointegration relationship (H_0: $\theta_1 = \theta_2 = \theta_3 = 0$) in the estimated model by using Wald test. If the calculated F-statistic value is less than lower bound of the critical value, then there is no cointegration relationship, and vice versa if the calculated value is more than upper bound, i.e., cointegration relationship exists. If the value falls between low and upper bound, then the result is inconclusive – we can not decide whether cointegration association exists or not.

It should be noted that F-statistic in the ARDLBT cointegration test has non-standard distribution. That is why conventional critical values of F-statistic should not be used. Instead, critical values calculated and Pesaran et al. (2001) should be used. However, those critical values are calculated on the basis of large sample size of 500, 1000, 20000 and 40000 respectively. Critical values calculated by Narayan (2005) is more accurate for small sample size. For robustness of results, we will use both Pesaran et al. (2001) and Narayan (2005) critical values of F-statistics in order to minimize the biasedness due to small sample size.

If the cointegration found, next stage is calculating long-run equation by applying Bewley transformation (Bewley, 1979) which means setting $c_0 + \theta_1 y_{t-1} + \theta_2 x_{t-1} + \theta_3 z_{t-1}$ equal to zero, and finding in the following way:

$$y_t = \frac{c_0}{\theta_1} + \frac{\theta_2}{\theta_1} x_t + \frac{\theta_3}{\theta_1} z_t + u'''_t \qquad (4)$$

The last stage is testing stability of cointegration relationships. For this purpose, long-run residuals should be calculated in equation (4) ($u'''_t = y_t - (\frac{c_0}{\theta_1} + \frac{\theta_2}{\theta_1} x_t + \frac{\theta_3}{\theta_1} z_t)$), and employing that in the equation (3) instead of long-run part. More precisely:

$$\Delta y_t = c_0 + \vartheta_1 u'''_{t-1} + \sum_{i=1}^{n} \gamma'_i \Delta y_{t-i} + \sum_{i=0}^{n} \varphi'_i \Delta x_{t-i} + \sum_{i=0}^{n} \omega'_i \Delta z_{t-i} + u''''_t \qquad (5)$$

Stability condition is that ϑ_1 should be statistically significant, and $-1 < \vartheta_1 < 0$. Here, stability of cointegration relationship means that short-run deviations from the long-run equilibrium is temporary and will return back within a period of time.

4. Results

Before coming to ARDLBT model specification, unit root characteristics of all variables should be discussed. Table 3 presents ADF and KPSS unit root test result with intercept, and with trend and intercept. Without trend, RGDP and REER is found to be non-stationary at level, but stationary at first difference, i.e., I(1). However, neither ADF nor KPSS concludes ITA to be I(0) or I(1) without trend.

When trend is included, ADF and KPSS commonly concludes that RGDP is I(0) while ITA and REER are I(1) which means that RGDP is trend-stationary at level, ITA and REER are trend-stationary at first difference. In other words, our variables are combination of I(0) and I(1) series when trend is included.

Table 3
The unit root tests results

	Variable	The ADF test				The KPSS test	
		Level	k	First difference	k	Level	First difference
Intercept	RGDP	1.065	0	-3.610**	1	0.654**	0.192
	ITA	3.959	4	-0.185	4	0.604**	0.558**
	REER	-1.231	0	-4.343***	0	0.414*	0.146
Intercept and trend	RGDP	-3.734**	1	-3.678**	1	0.093	0.098
	ITA	0.761	4	-5.469***	3	0.182**	0.057
	REER	-1.903	0	-4.219**	0	0.118*	0.146**

Notes: ADF and KPSS denote the Augmented Dickey-Fuller and Kwiatkowski-Phillips-Schmidt-Shin tests respectively. Maximum lag order is set to 4 and optimal lag order (k) is selected based on Schwarz criterion in the ADF test; ***, ** and * indicate rejection of the null hypotheses at the 1%, 5% and 10% significance levels respectively; The critical values are taken from MacKinnon (1996) and Kwiatkowski et al., (1992) for the ADF, and KPSS tests respectively. Estimation period: 1997-2018.

ARDLBT approach to cointegration is applicable in this situation. To take into account trend factor in estimation process, detrending variable ($@trend$) is added to the equation (3) and (5) in estimation process.

Due to small sample size, ECMs with maximum 2 lags are estimated to select optimal model for the next stages. Table 4 tabulates the results for choosing optimal lag size.

Table 4
Statistics for choosing optimal lag size for ARDL

k	AIC	SBC	$\chi^2_{SC}(1)$	$\chi^2_{SC}(4)$
Panel A: Testing TLGH				
0	-3.711	-3.363	0.0003 [0.9871]	3.6985 [0.0425]
1	-3.993	-3.495	4.8182 [0.0558]	1.8011 [0.2474]
2	**-4.447**	**-3.801**	**1.1549 [0.3316]**	**1.0474 [0.5418]**
Panel B: Testing EDTH				
0	-0.511	-0.163	1.3196 [0.2714]	3.7481 [0.0410]
1	**-0.408**	**0.089**	**0.3232 [0.5836]**	**1.9136 [0.2275]**
2	-0.703	-0.057	8.2418 [0.0350]	18.829 [0.0511]

Note: k is a lag order while AIC and SBC are Akaike and Schwarz information criteria respectively. $\chi^2_{SC}(1)$ and $\chi^2_{SC}(4)$ are LM statistics for testing no residual serial correlation against lag orders 1 and 4 respectively. Probabilities are in brackets.

In panel A, ECMs with 0 lag has serial correlation problem at 5% significance level. At 1 lag, there is weak serial correlation ($0.05 < p < 0.10$) while no serial correlation is detected at 2 lags. SBC value at 2 lag ECM is also smaller than the value at 1 lag. Therefore, optimal lag size equals 2 in Panel A. In Panel B, serial correlation problem is detected at 0 lag and 2 lag ($p < 0.05$). At 1 lag, serial correlation does not exist ($p > 0.10$). Therefore, optimal lag size is 1 in this case.

Next stage is testing for existence of long-run association among the variables. Table 5 display cointegration test results. While testing tourism-led growth hypothesis, tests results show existence of long-run association in the models. Calculated F-statistic value is greater than the upper bound of Pesaran et al. (2001) and Narayan (2005) critical values at 1% significance level. This confirms *validity of tourism-led growth hypothesis in case of Georgia*.

Table 5
F-statistic for testing an existence of cointegration

The sample F-statistic	Significance level	Pesaran et al. (2001) critical values		Narayan (2005) critical values	
		Low bound	Upper bound	Low bound	Upper bound
Null hypothesis: No cointegration					
Panel A: Testing TLGH					
$\mathbf{F_W = 10.7170}$	1%	4.30	5.23	5.666	6.988
	5%	3.38	4.23	4.048	5.090
	10%	2.97	3.74	3.378	4.274
Panel B: Testing EDTH					
$\mathbf{F_W = 2.8525}$	1%	3.88	3.99	5.666	6.988
	5%	2.27	3.28	4.048	5.090
	10%	1.99	2.94	3.378	4.274

Notes: F_W is the F-value of testing the null hypothesis that $\theta_1 = \theta_2 = \theta_3 = 0$. Critical values are taken from the combination of 3 lagged level regressors, unrestricted intercept and restricted trend (See: Pesaran et al., 2001, pp. 301) and 30 observations (Narayan, 2005, pp. 1989).

In contrary, tests results do not display long-run bi-directional causality between tourism development and economic growth. Cointegration is not found in Panel B. Calculated F-statistic value is less than low bound of Narayan (2005) critical values at all significance levels. The value only falls to inconclusiveness area with Pesaran et al. (2001) critical values at 10% significance level. Therefore, *validity of economic-driven tourism hypothesis in Georgia is not supported* by cointegration test results.

Because cointegration relationship is found only in Panel A of table 5, further stages will be only about TLGH. Table 6 presents final ARDL specification for TLGH with both long-run and short-run coefficients. Residual diagnostics test results show that there is no serial correlation, heteroscedasticity and functional misspecification problems, and residuals are normally distributed.

Table 6
Final ARDL specification for TLGH

Panel A: The estimated final ARDL specification			
	Coefficient	**Standard error**	**p-values**
$\ln(rgdp)_{t-1}$	-0.8639***	0.188696	0.0004
$\ln(ita)_{t-1}$	-0.1081***	0.028647	0.0036
$\ln(reer)_{t-1}$	0.222791	0.143846	0.1525
$\Delta \ln(rgdp)_{t-1}$	0.245749	0.205935	0.2603
$\Delta \ln(ita)_{t-1}$	0.1264***	0.031671	0.0026
$\Delta \ln(reer)_{t-1}$	-0.146002	0.108807	0.2093
$\Delta \ln(ita)_{t-2}$	0.14341**	0.046402	0.0114
$@trend$	0.0626***	0.012071	0.0004
c	7.4971***	1.452048	0.0004
Panel B: Statistics and residuals diagnostics tests results			
σ=0.020412; $\chi^2_{SC}(4)$=2.220716 [0.1828]; $\chi^2_{ARCH}(4)$=0.567532 [0.6921]; χ^2_{HETR} = 0.733790 [0.6628]; JB_N= 0.804234 [0.6689]; F_{FF}= 0.287321 [0.7804]			

Notes: Dependent variable is $\ln(rgdp)_t$; σ is standard error of regression; χ^2_{SC}, χ^2_{ARCH}, and χ^2_{HETR} denote chi-squared statistics to test the null hypotheses of no serial correlation, no autoregressive conditioned heteroscedasticity, and no heteroscedasticity in the residuals; JB_N and F_{FF} indicate Jarque-Bera and no functional form mis-specification statistics to test the null hypotheses of normal distribution and no functional mis-specification respectively; ***, **, and * denote statistical significance at 1%, 5%, and 10%, respectively. Exact probabilities for each coefficient is given in last column; Method: Least Squares; Estimation period: 1997-2018.

Surprisingly, results display statistically significant negative long-run impact of international tourism arrivals over the economic growth in Georgia ($p < 0.01$). However, the impact is positive in the short run ($p < 0.05$). The coefficient of both $\Delta \ln(ita)_{t-1}$ and $\Delta \ln(ita)_{t-2}$ are significant at 5% level of significance. Effect of real effective exchange rate is significant neither in the long- nor short-run ($p > 0.10$).

Applying Bewley (1979) transformation according to equation (4), long-run equation is calculated:

$$\ln(rgdp)_t = 8.677 - 0.125 * \ln(ita)_t + 0.258 * \ln(reer)_t + u'''_t \qquad (6)$$

The result implies that when number of international tourism arrivals increase 1%, real economic growth in Georgia is expected to be 0.125% lower in the long-run.

To examine stability of cointegration relationship, equation (5) for TLGH is estimated. Results of the estimation are tabulated in table 7. The coefficient of u'''_{t-1} is statistically significant ($p < 0.01$) and negative which confirms stability of cointegration relationship in the corresponding model. According to residual diagnostics test results, the model has no serial correlation, heteroscedasticity and functional misspecification problem ($p > 0.1$). Meanwhile, residuals are normally distributed ($p > 0.1$).

Table 7
Cointegration stability check for TLGH

Panel A: The estimated final ARDL specification			
Regressors	**Coefficients**	**Standard error**	**p-values**
u'''_{t-1}	-0.8644***	0.139158	0.0000
$\Delta \ln(rgdp)_{t-1}$	0.246199*	0.134943	0.0931
$\Delta \ln(ita)_{t-1}$	0.12631***	0.028905	0.0009
$\Delta \ln(reer)_{t-1}$	-0.145973	0.078420	0.0873
$\Delta \ln(ita)_{t-2}$	0.14337***	0.041090	0.0045
$@trend$	0.06256***	0.010305	0.0001
c	-0.000825	0.015552	0.9586
Panel B: Statistics and residuals diagnostics tests results			
σ=0.018633; $\chi^2_{SC}(4)$= 1.283537 [0.3529]; $\chi^2_{ARCH}(4)$=0.565388 [0.6935]; χ^2_{HETR}=1.091045 [0.4207]; JB_N=0.803311 [0.6692]; F_{FF}=0.043360 [0.8389]			

Notes: Dependent variable is $(rgdp)_t$; σ is standard error of regression; χ^2_{SC}, χ^2_{ARCH} and χ^2_{HETR} denote chi-squared statistics to test the null hypotheses of no serial correlation, no autoregressive conditioned heteroscedasticity, and no heteroscedasticity in the residuals; JB_N and F_{FF} indicate Jarque-Bera and no functional form mis-specification statistics to test the null hypotheses of normal distribution and no functional mis-specification respectively; ***, **, and * denote statistical significance at 1%, 5%, and 10%, respectively. Exact probabilities for each coefficient is given in last column; Method: Least Squares; Estimation period: 1997-2018.

The coefficient of u'''_{t-1} is , means that more than 86% of short-run deviations from long-run equilibria returns back to the equilibrium within 1 year. More precisely, all short-run deviations adjust within 1.5 years.

5. Conclusion and discussion

As a post-Soviet country, Georgia has been attracting attention with its booming tourism sector for the recent two decades. Considering tourism-led growth hypothesis, tourism industry can affect the overall growth and economic development in the country. However, to our best knowledge, there is no any empirical study testing the causality between tourism development and economic growth, or more precisely, validity of TLGH and EDGH in Georgia. However, understanding the characteristics of association between these indicators is very important for long-term macro planning. In this context, the study attempts to fill the major gap in the existing literature on Georgia's tourism boom.

Following trivariate system methodology of Katircioglu (2009b) in the research, validity of TLGH and EDGH in Georgia is tested by employing ARDLBT approach to cointegration method for 1997-2018 period. The results reveal unidirectional causality between tourism development and economic growth. In other words, results confirm validity of TLGH while rejects EDGH. At the first sight, research outcome is plausible as there are numerous studies in the existing literature, proposing the existence of bidirectional, unidirectional or even no significant association between tourism development and economic growth. Surprising output is about the sign of causality from tourism development to economic growth in the short- and long-term. According to the estimation outcomes, in the short run the impact of tourism on the economic growth in Georgia is positive, while the negative impact is observed in the long-term. The obtained result requires further scientific justification and has a high practical significance.

In the existing literature, there are several attempts to explain the possibility of negative causality from tourism development to economic growth. Adamou and Clerides (2009) stress the level of specialization

and the issue of diminishing returns. It is explained that an independent contribution of tourism for economic growth is very low at high levels of specialization (measured as the share of tourism receipts in GDP), and tourism can even "become a hindrance to further growth" (Adamou & Clerides, 2009). According to the authors, the threshold level of specialization is 20.8%, which means that after this point the tourism can still contribute to the economic growth, but at a decreasing rate. Considering that the tourism receipts have been 16.5% of GDP in Georgia (see table 1) during 2015-2018, on average, so the argument of Adamou and Clerides (2009) can be valid for the case of Georgia as well.

On the other hand, Deng, Ma, and Cao (2014) underline the issue of "tourism resource curse" in the long-term suggesting that tourism development "tends to reduce economic growth" through crowding out human capital. The paper further adds that tourism resource development has crowding out effect over industrial production. Here, the authors mention two most important channels – investment channel through which tourism promotes growth, and human capital channel through which the tourism exerts negative impact on the growth. Another research explains that expansion in tourism sector increases the price of non-tradable products, leading to "diversion of resources from the manufacturing sector to the nontraded sector" (Chao, Hazari, Laffargue, Sgro, & Yu, 2006). A decline in the manufacturing sector decreases demand for capital, and accordingly decreases capital accumulation, which may make tourism welfare reducing (Chao et al., 2008). Considering the literature review, most probably, tourism boom in Georgia crowded out human capital from industrial production to the non-tradable sector, as a result of which positive short-run impact turned to be negative in the long-term. This can be called as an ineffective use of human capital. Whether tourism turned to have negative impact on economic growth through capital decumulation requires more detailed research.

Another major concern about tourism-led growth strategies in Georgia is about supplier structure of the tourism sector demand. As Erkomaishvili, Kharaishvili, Chavleishvili, and Sagareishvili (2016) emphasize tourism becomes profitable when the inputs are provided by country's own production. However, approximately 80% of consumer basket in the Georgian tourism sector is supplied by imported products (Papava, 2018). That is one reason why Erkomaishvili et al. (2016) emphasizes that expensive tourism projects will be unprofitable in Georgia unless agriculture and industry sectors are developed. Papava (2018) calls the situation as "tourist trap" – economy grows, but not develops.

Finally, finding negative long-term association can be also partially due to taking number of international visitors as the proxy variable for tourism development, considering that a visitor in Georgia spends less than global average. According to a Tourism Strategy for Georgia – New Path Ahead (2015), per visitor in Georgia spend 74 USD on average, which is less compared with a worldwide tourist spending. It is no coincidence that Georgia today is especially attractive for those with low budget. However, as economic growth is directly linked to tourism receipts or tourist spending, tourism strategy in Georgia should also focus on attracting wealthy group of tourists.

Overall, research results have high scientific and practical significance. Georgian government should re-consider its own tourism strategy to turn "growth" to development, and to minimize the effects of crowding out of human capital from industries to tourism sector. In current situation, there is strong possibility to have tourism resource curse in the long-term.

Despite the significance of the results, research has some limitations. Firstly, the data is yearly which makes sample size relatively small. It would be better to re-estimate the association by employing quarterly data for a longer period. Meanwhile, it would be better to do estimations on the regional basis within the country in order to understand better the linkage.

References

A Tourism Strategy for Georgia – New Path Ahead. (2015). Retrieved from https://www.worldbank.org/en/news/feature/2015/12/07/a-tourism-strategy-for-georgia-new-path-ahead.

Adamou, A., & Clerides, S. (2009). Prospects and limits of tourism-led growth: The international evidence. *The Rimini Centre for Economic Analysis WP*, 41-09.

Alhowaish, A. (2016). Is Tourism Development a Sustainable Economic Growth Strategy in the Long Run? Evidence from GCC Countries. *Sustainability, 8*(7), 605.

Balaguer, J., & Cantavella-Jordá, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied economics, 34*(7), 877-884.

Belloumi, M. (2010). The relationship between tourism receipts, real effective exchange rate and economic growth in Tunisia. *International journal of tourism research, 12*(5), 550-560.

Best Trips 2018. Retrieved from https://www.nationalgeographic.com/travel/features/best-trips-destinations-2018/

Bewley, R., A. (1979). The direct estimation of the equilibrium response in a linear dynamic model. *Economics Letters, 3*(4), 357–361.

Bilen, M., Yilanci, V., & Eryüzlü, H. (2017). Tourism development and economic growth: a panel Granger causality analysis in the frequency domain. *Current Issues in Tourism, 20*(1), 27–32.

Bouzahzah, M., & El Menyari, Y. (2013). International tourism and economic growth: the case of Morocco and Tunisia. *The Journal of North African Studies, 18*(4), 592–607.

Brida, J. G., Lanzilotta, B., Lionetti, S., & Risso, W. A. (2010). Research Note: The Tourism-Led Growth Hypothesis for Uruguay. *Tourism Economics, 16*(3), 765–771.

Brida, J. G., Pereyra, J. S., Risso, W. A., Such Devesa, M. J., & Zapata, S. (2008). The Tourism-led Growth Hypothesis: Empirical Evidence from Colombia. *An International Multidisciplinary Journal of Tourism , 4*(2), 13-27.

Chao, C.-C., Hazari, B. R., Laffargue, J.-P., et al. (2008) Tourism, jobs, capital accumulation and the economy: a dynamic analysis. In R. B. Lanza & S. Usai (eds), *Tourism and Sustainable Economic Development* (pp. 105–123). Cheltenham: Edward Elgar.

Chao, C. C., Hazari, B. R., Laffargue, J. P., Sgro, P. M., & Yu, E. S. (2006). Tourism, Dutch disease and welfare in an open dynamic economy. *The Japanese Economic Review, 57*(4), 501-515.

Chen, C. F., & Chiou-Wei, S. Z. (2009). Tourism expansion, tourism uncertainty and economic growth: New evidence from Taiwan and Korea. *Tourism Management, 30*(6), 812-818.

Chingarande, A., & Saayman, A. (2018). Critical success factors for tourism-led growth. *International Journal of Tourism Research, 20*(6), 800-818.

Cortes-Jimenez, I., & Pulina, M. (2010). Inbound tourism and long-run economic growth. *Current Issues in Tourism, 13*(1), *61–74.*

Demiroz, D. M., & Ongan, S. (2005). The contribution of tourism to the long-run Turkish economic growth. *Ekonomický časopis, 53*(9), 880-894.

Deng, T., Ma, M., & Cao, J. (2014). Tourism Resource Development and Long-Term Economic Growth: A Resource Curse Hypothesis Approach. *Tourism Economics, 20*(5), *923–938.*

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: journal of the Econometric Society*, 1057-1072.

Dogru, T., & Bulut, U. (2018). Is tourism an engine for economic recovery? Theory and empirical evidence. *Tourism Management, 67*, 425-434.

Dwyer, L., Forsyth, P., Madden, J., & Spurr, R. (2000). Economic Impacts of Inbound Tourism under Different Assumptions Regarding the Macroeconomy. *Current Issues in Tourism, 3*(4), 325–363.

Erkomaishvili, G., Kharaishvili, E., Chavleishvili, M., & Sagareishvili, N. (2016). Economic Policy of Tourism and the Development Tendencies of Medical Wellness Resorts in Georgia. *World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 10*(11), 3620-3626.

Fayissa, B., Nsiah, C., & Tadesse, B. (2011). Research Note: Tourism and Economic Growth in Latin American Countries – Further Empirical Evidence. *Tourism Economics, 17*(6), 1365–1373.

Gautam, B. P. (2011). Tourism and economic growth in Nepal. *NRB Economic Review, 23*(2), 18-30.

Georgian National Tourism Administration. (2019). Retrieved from https://gnta.ge/statistics/.

Ghosh, S. (2011). Examining tourism-led growth hypothesis for India. *International Journal of Indian Culture and Business Management, 4*(3), 347.

GNTA. (2018). *Georgian Tourism in Figures* [PDF]. Retrieved from https://gnta.ge/wp-content/uploads/2018/07/2017-ENG.pdf.

Gugushvili, T., Salukvadze, G., & Salukvadze, J. (2017). Fragmented development: Tourism-driven economic changes in Kazbegi, Georgia. *Annals of Agrarian Science, 15*(1), 49-54.

Gunduz, L., & Hatemi-J, A. (2005). Is the tourism-led growth hypothesis valid for Turkey? *Applied Economics Letters, 12*(8), 499-504.

Gwenhure, Y., & Odhiambo, N. M. (2017). Tourism and economic growth: A review of international literature. *Tourism: An International Interdisciplinary Journal*, *65*(1), 33-44.

Hatemi-J, A. (2016). On the tourism-led growth hypothesis in the UAE: A bootstrap approach with leveraged adjustments. *Applied Economics Letters, 23*(6), 424-427

International Congress and Convention Association. (2017). *ICCA Statistics Report Country & City Rankings*. Retrieved from ICCA%20Statistics%20Report%202017%20Public%20Abstract%20(1).pdf.

Ivanov, S., & Webster, C. (2012). Tourism's impact on growth: The role of globalization. *Annals of Tourism Research, 41*, 231–236.

Jin, J., & C. (2011). The Effects of Tourism on Economic Growth in Hong Kong. *Cornell Hospitality Quarterly, 52*(3), 333–340.

Kadir, N., & Karim, M. Z. A. (2012). Tourism and Economic Growth in Malaysia: Evidence from Tourist Arrivals from Asean-S Countries. *Economic Research-Ekonomska Istraživanja, 25*(4), *1089–1100.*

Kasimati, E. (2011). Economic impact of tourism on Greece's economy: Cointegration and causality analysis. *International Research Journal of Finance and Economics, 79*(5), 79–85.

Katircioglu, S. T. (2009). Revisiting the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration. *Tourism Management, 30*(1), *17–20.*

Khalil, S., Kakar, M. K., & Waliullah. (2007). Role of tourism in economic growth: empirical evidence from Pakistan economy. *Pakistan Development Review, 46*(4), 985-994.

Kim, H. J., & Chen, M. H. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism management, 27*(5), 925-933.

Kreishan, F. M. (2015). Empirical study on tourism and economic growth of Bahrain: An ARDL bounds testing approach. *International Journal of Economics and Finance, 7*(11), 1

Kwiatkowski, D., Phillips, P. C., Schmidt, P. & Shin, Y. (1992). Testing the null hypothesis of stationarity against the alternative of a unit root: How sure are we that economic time series have a unit root? *Journal of econometrics, 54*(1-3), 159-178.

Kyophilavong, P., Gallup, J. L., Charoenrat, T., & Nozaki, K. (2018). Testing tourism-led growth hypothesis in Laos? *Tourism Review, 73*(2), 242-251.

Lean, H. H., & Tang, C. F. (2010). Is the tourism-led growth hypothesis stable for Malaysia? A note. *International Journal of Tourism Research, 12*(4), 375–378.

MacKinnon, J. G. (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of applied econometrics, 11*(6), 601-618.

Mitra, S. K. (2019). Is tourism-led growth hypothesis still valid? *International Journal of Tourism Research, 21*(5), 615-624.

Muhtaseb, B. M., & Daoud, H. E. (2017). Tourism and economic growth in Jordan: Evidence from linear and nonlinear frameworks. *International Journal of Economics and Financial Issues, 7*(1), 214-223.

Narayan, P. K. (2005). The saving and investment nexus for China: evidence from cointegration tests. *Applied economics, 37*(17), 1979-1990.

Nene, G., & Taivan, A. (2017). Causality Between Tourism And Economic Growth: Evidence From Sub Saharan Africa (SSA). *The Journal of Developing Areas, 51*(2), 155–169.

Oh, C.-O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management, 26*(1), 39–44.

Papava, V. (2018). *Georgia's Economy in a "Tourist Trap".* Retrieved from https://www.gfsis.org/blog/view/854.

Paresishvili, O., Kvaratskhelia, L., & Mirzaeva, V. (2017). Rural tourism as a promising trend of small business in Georgia: Topicality, capabilities, peculiarities. *Annals of Agrarian Science, 15*(3), 344-348.

Payne, J. E., & Mervar, A. (2010). Research Note: The Tourism–Growth Nexus in Croatia. *Tourism Economics, 16*(4), *1089–1094.*

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics, 16*(3), 289-326.

Proença, S., & Soukiazis, E. (2008). Tourism as an Economic Growth Factor: A Case Study for Southern European Countries. *Tourism Economics, 14*(4), 791–806.

Salifou, C. K., & Haq, I. U. (2017). Tourism, globalization and economic growth: a panel cointegration analysis for selected West African States. *Current Issues in Tourism, 20*(6), 664-667.

Sheng, L. (2011). Specialisation versus diversification*: A simple model for tourist cities. Tourism Management, 32*(5), 1229–1231.

Sokhanvar, A., Çiftçioğlu, S., & Javid, E. (2018). Another look at tourism-economic development nexus. *Tourism management perspectives, 26*, 97-106.

Suresh, J., & Senthilnathan, S. (2014). Relationship between Tourism and Economic Growth in Sri Lanka. *SSRN Electronic Journal*.

Suresh, K. G., & Tiwari, A. K. (2018). Does international tourism affect international trade and economic growth? The Indian experience. *Empirical Economics*, *54*(3), 945-957.

Tang, C. F., & Abosedra, S. (2016). Tourism and growth in Lebanon: new evidence from bootstrap simulation and rolling causality approaches. *Empirical Economics, 50*(2), 679-696.

Tang, C. F., & Ozturk, I. (2017). Is tourism a catalyst of growth in Egypt? Evidence from Granger non-causality and the generalised variance decomposition analysis. *Anatolia, 28*(2), 173-181.

Tang, C. F. & Tan, E. C. (2018). Tourism-Led growth hypothesis: A new global evidence. *Cornell Hospitality Quarterly, 59*(3), 304-311.

Trang, N. H. M., Duc, N. H. C., & Dung, N. T. (2014). Research Note: Empirical Assessment of the Tourism-Led Growth Hypothesis: The Case of Vietnam. *Tourism Economics, 20*(4), 885–892.

World Bank. (2017). *World Development Indicators*. Washington, DC: Author.

World Economic Forum. (2017). *The Travel & Tourism Competitiveness Report*. Retrieved from https://www.weforum.org/reports/the-travel-tourism-competitiveness-report-2017.

World Tourism Organization. (2018). *UNWTO Tourism Highlights*. Retrieved from https://www.e-unwto.org/doi/pdf/10.18111/9789284419876.

World Travel and Tourism Council. (2019). *Travel & Tourism Economic Impact*. Retrieved from https://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2019/world2019.pdf .

Zhang, J., & Cheng, L. (2019). Threshold Effect of Tourism Development on Economic Growth Following a Disaster Shock: Evidence from the Wenchuan Earthquake, PR China. *Sustainability, 11*(2), 371.

Zhang, L., & Gao, J. (2016). Exploring the effects of international tourism on China's economic growth, energy consumption and environmental pollution: Evidence from a regional panel analysis. *Renewable and Sustainable Energy Reviews, 53*, 225–234.

Received: 22/08/2019
Accepted: 20/01/2020