Tourism Management Perspectives 28 (2018) 62–70

Contents lists available at ScienceDirect

Tourism Management Perspectives

journal homepage: www.elsevier.com/locate/tmp

Testing the role of tourism and human capital development in economic growth. A panel causality study of micro states☆

Amin Fahimi, Seyi Saint Akadiri*, Mehdi Seraj, Ada Chigozie Akadiri

Institute of Graduate Studies and Research, Faculty of Business and Economics, Eastern Mediterranean University, Famagusta, North Cyprus, via Mersin 10, Turkey

ARTICLE INFO

Keywords:
Tourism
Human capital
Economic growth
Granger causality
Panel approach
Micro states

JEL code:
C23
L82
O40

ABSTRACT

The tourism sector over the years has become an integral part of economic growth strategies and determinants. This study seeks to investigate the contribution of the tourism sector to economic growth of the micro states over the period 1995–2015, using second generation panel approach that accounts for cross-sectional dependence, by incorporating investment in human capital as an additional variable. The causal relationship and interaction between tourism, investment in human capital and economic growth is examined by employing the Granger causality testing approach introduced by Dumitrescu and Hurlin (2012). Our empirical results provide evidence in support of tourism-induced growth, tourism-induced human capital development and human capital development-induced growth. Over the sampled period, it appears tourism sector has not been contributing substantially to export earnings and economic growth. This might have led the policymakers in these states to diversify their economy from being tourism-dependent to human capital-based.

1. Introduction

Globally, the travel and tourism industry has experienced a tremendous increase in the recent years. In spite of the geopolitical agitation and moderate economic growth the developing and developed economies are experiencing, the travel and tourism industry is still performing well across the globe. The sector has been argued to account for a giant share of the World Gross Domestic Product (WTTC, 2008). Tourism industry is estimated to contribute about 9% share to global GDP, which is approximately about 7 trillion USD, and has also reduced global unemployment by creating employment opportunities in tourist centers (Koens & Wood, 2017), given the significant increase in the number of international tourists travelling around the world. Tourism over the years has led to positive exploitation of economies of scale in national firms (see Andriotis, 2002; Croes, 2006; Fagence, 1999; Lin & Liu, 2000). According to the World Travel and Tourism Council (WTTC, 2015), the sector (i.e. the travel and tourism industry) is expected to grow about 4% annually, a speedy rate when compared with the expected growth rate in the manufacturing, financial and transportation sectors respectively.

It is paramount to note that governments and policymakers in most of the micro states[1] have prioritized the travel and tourism industry in order to maximize economic growth and competitiveness. According to the report of the World Economic Forum 2015, out of 141 economies across 90 indicators that were sampled to estimate travel and tourism competitiveness index, micro states were reported to prioritize travel and tourism industry more than the other larger countries in their quest for economic growth and development. The travel and tourism sector has been made a primary concern of the governments of these economies (Louca, 2006), while huge shares of the public funds have been channeled to develop projects, coordinate actors and make available resources necessary to promote and develop the sector. With the huge support this sector has received from the government, the travel and tourism sector has become attractive to both individual and private investors. Prioritizing travel and tourism means the governments of these economies have been playing a bigger role in attracting tourists through various fairs, exhibitions and national marketing campaigns (Louca, 2006).

The gesture of increasing government spending, branding/rebranding and several marketing campaigns towards travel and tourism is indicative of the value these countries attach to their travel and tourism sector. This raises our curiosity to examine in a panel study the

☆ We would like to thank three anonymous referees for many helpful comments. However, any remaining errors are solely ours.

* Corresponding author.
E-mail addresses: seyi.saint@emu.edu.tr (S.S. Akadiri), ada.akadiri@emu.edu.tr (A.C. Akadiri).

[1] In this current study, micro states are small island developing states. These small island developing states are known to be tourism-dependent economies. For more information on SIDSs see Akadiri et al. (2017). Is there growth impact of tourism? Evidence from selected small island states. *Current Issues in Tourism*, 1–19.

https://doi.org/10.1016/j.tmp.2018.08.004
Received 3 April 2018; Received in revised form 18 July 2018; Accepted 10 August 2018

contribution of the tourism sector over the years (considering data availability) to the economic growth of these micro states who have prioritized and committed physical, human and economic resources to develop their tourism sector. We aim to achieve the study objective by examining the direction of dynamic causality relationships between tourism and economic growth in the case of the micro states.

There has been growing attention regarding the controversy surrounding the tourism-induced growth hypothesis. According to Balaguer and Cantavella-Jorda (2002), the motivation behind this argument has been fueled by the extensive literature on the export-led growth hypothesis coupled with the contemporary models of non-tradable goods. Few studies have been carried out on tourism-led growth hypothesis when compared with the extant literature on the export-led growth hypothesis. Rather, most of the existing literatures focus on the relationship that exists between tourism and economic growth (Albalate & Bel, 2010; Choi & Sirakaya, 2006; Dritsakis, 2004; Dwyer & Forsyth, 2008; Falk, 2010; Hall, 1998; Holzner, 2011; Sinclair, 1998), and some studies on the relationship that exists between foreign trade and international tourism (Kulendran & Wilson, 2000; Shan & Wilson, 2001). However, on the tourism-led growth hypothesis, Balaguer and Cantavella-Jorda (2002) found an argument in support of the tourism-induced economic growth hypothesis in their analysis for Spain. Gunduz and Hatemi-J (2005) confirmed the tourism-led hypothesis for Turkey, while Oh (2005) failed to provide evidence for the Korean economy. The contradictory outcomes obtained and reported from the studies discussed above emerge from a number of factors such as different policies regarding tourism development in these individual countries and statistical or econometric techniques employed in the estimation analyses.

An extensive number of studies have examined the tourism-induced growth hypothesis for various countries and regions. Most of these studies examine this relationship by using either time series (see Katircioğlu, 2010a; Katircioğlu, 2010b; Tang & Tan, 2015) and/or panel data (see Antonakakis, Dragouni, & Filis, 2015; Brida, Cortes-Jimenez, & Pulina, 2016; Ivanov & Webster, 2007; Seghir, Mostéfa, Abbes, & Zakarya, 2015; Tugcu, 2014) econometric techniques, either through cointegration analysis or causality analysis or both. Recent papers incorporate some additional and significant variables such as energy consumption, foreign direct investment, exchange rate and human capital development (Akadiri, Akadiri, & Alola, 2017; Roudi, Arasli, & Akadiri, 2018) among others so as to account for omitted variable bias and also for these additional variables to serve as alternative determinants of economic growth, especially when dealing with a tourism earnings-dependent economy, such as in the case of micro states. However, in this paper, we evaluate the relationship between tourism and economic growth by incorporating investment in human capital for two purposes, omitted variable bias and as an alternative growth indicator. The literature on the causal relationship between tourism and economic growth has been extensively researched for various countries and/or regions. For instance, recent studies of Katircioğlu (2010a), Lean and Tang (2010), Arslanturk, Balcilar, and Ozdemir (2011), Gunduz and Hatemi-J (2005), Tang and Abosedra (2014), Akadiri et al. (2017), and Roudi et al. (2018) are all in line with the findings of Katircioğlu (2010b) where evidence was found in support of tourism-led growth hypothesis. Most of the previous studies have come to a conclusion that the tourism sector has a significant role to play in the economic growth of any tourist destination. However, these studies (Akadiri et al., 2017; Arslanturk et al., 2011; Gunduz & Hatemi-J, 2005; Katircioğlu, 2010a; Lean & Tang, 2010; Roudi et al., 2018; Sokhanvar, Çiftçioğlu, & Javid, 2018; Tang & Abosedra, 2014) appear not to elaborately examined, channels, through which these inherent benefits of tourism were maximized and its contributions to economic growth. Thus, we aim to fill this gap in literature.

This study also seeks to add to the existing literature on tourism-led growth hypothesis and to provide unique and current evidence to this theory in the case of the economies discussed above. These micro state countries merit the attention of several authors in the tourism-growth literature as the significance of tourism to the panel of countries is well acknowledged. These countries include Malta (Boissevain, 1977; Katircioglu, 2009a), Cyprus (Katircioglu, 2009b; Sharpley, 2003), Mauritius (Durburry, 2004), Singapore (Heng & Low, 1990; Lee, 2008), Spain (Balaguer & Cantavella-Jorda, 2002; Nowak, Sahli, & Cortés-Jiménez, 2007), Estonia (Jaakson, 1996) Seychelles (Archer & Fletcher, 1996) Barbados (Archer, 1984; Chase & Alon, 2002; Levy & Lerch, 1991), Iceland (Jóhannesson & Huijbens, 2010; Olafsdottir & Runnström, 2009) and small island developing states (Akadiri et al., 2017; Roudi et al., 2018).

Tourism has been seen as the most crucial source of foreign currency earnings in most of the tourist destinations in the world. However, statistical data from the World Development Indicators (WID, 2017) reported in Table 1 reveal that on average over the last 20 years, increase observed in international tourist arrivals within these micro states are not commensurate with the share of tourism receipts, both in export earnings and real gross domestic product. In contrast to the rise in tourist arrivals, the share of tourism receipts in export and real gross

Table 1
Average number of tourist arrival, share of tourism receipts in export, GDP and human capital.

Countries	Sub-periods	Number of tourist arrivals	Share of tourism receipts in export earnings (%)	Share of tourism receipts in GDP (%)	Investment in human capital
Barbados	1995–1999	477,600	57.52	0.26	0.73
	2000–2004	526,600	55.99	0.23	0.75
	2005–2009	554,600	57.26	0.26	0.77
	2010–2015	543,000	46.32	0.15	0.79
Cyprus	1995–1999	2,159,000	41.71	0.19	0.79
	2000–2004	2,490,600	38.68	0.18	0.81
	2005–2009	2,366,400	27.22	0.12	0.84
	2010–2015	2,422,500	20.04	0.11	0.85
Dominican R.	1995–1999	2,174,200	44.92	0.10	0.63
	2000–2004	3,080,600	48.32	0.12	0.66
	2005–2009	3,921,600	46.13	0.09	0.68
	2010–2015	4,737,567	32.86	0.08	0.71
Fiji	1995–1999	359,600	32.54	0.14	0.67
	2000–2004	395,000	36.81	0.15	0.68
	2005–2009	552,200	45.72	0.24	0.70
	2010–2015	688,400	42.80	0.28	0.72
Cuba	1995–1999	1,169,000	00.00	0.04	0.66
	2000–2004	1,799,400	00.00	0.05	0.69
	2005–2009	2,250,200	00.00	0.04	0.76
	2010–2015	2,958,600	00.00	0.03	0.77
Iceland	1995–1999	217,600	17.82	0.04	0.83
	2000–2004	313,200	19.75	0.04	0.86
	2005–2009	455,400	17.73	0.04	0.89
	2010–2015	803,650	14.62	0.06	0.91
Malta	1995–1999	1,135,400	27.26	0.16	0.76
	2000–2004	1,162,600	20.11	0.17	0.79
	2005–2009	1,202,400	10.38	0.18	0.81
	2010–2015	1,542,000	8.64	0.14	0.84
Mauritius	1995–1999	516,200	26.34	0.16	0.65
	2000–2004	683,800	29.70	0.17	0.68
	2005–2009	851,400	34.37	0.18	0.72
	2010–2015	108,000	29.74	0.14	0.77
Haiti	1995–1999	146,800	35.63	0.01	0.42
	2000–2004	130,800	22.65	0.01	0.44
	2005–2009	250,200	27.74	0.03	0.46
	2010–2015	419,840	34.57	0.07	0.48
Trinidad	1995–1999	308,400	10.39	0.03	0.69
	2000–2004	403,600	7.81	0.02	0.72
	2005–2009	445,800	4.33	0.03	0.76
	2010–2015	434,400	3.57	0.03	0.78

Source: Authors' computation based on World Bank Indicators, 2017.

domestic product rapidly declined within the sampled periods.[2] It is expected that the more international tourists arrive in a tourist destination, the higher should be the amount of tourist receipts, leading to an increase in economic growth. International tourists are expected to influence positively the economic growth of their host countries through increase in their consumption of domestic goods and services. However, the reverse seems to be the case in the sampled micro states. Increase in international tourist arrivals appears not to justify its course on export earnings and real gross domestic product. In addition, we observe that as share of tourism receipts on export earnings and real GDP decline, investment in human capital impact increases due to diversification of the economy.

One possible reason for this might be as a result of poor tourism marketing to attract capable and influential tourism lovers who are willing and able to visit and spend their resources in tourism host countries (see Hunt, 1975; Okumus, Okumus, & McKercher, 2007; Vellas & Bécherel, 1999). On the other hand, high cost of hotels and housing prices are capable of discouraging some tourists from patronizing registered hotels (Pattullo, 2005). They would rather source alternative housing (in order to spend less during their visit) which are generally not registered and do not count in the economic production activities of such tourist destinations (see Sharma & Dyer, 2009). Lastly, environmental degradation in terms of global warming (Pattullo, 2005), terrorism, political and economic instability (Sönmez, 1998) might be possible reasons to justify this phenomena. If there is one lesson we learnt from this juxtaposition, it is the fact that in validating tourism-induced growth hypothesis (see Katircioglu, 2009a; Katırcıoğlu, 2010a), whether this proposition is valid or not is not enough in tourism-growth literature to substantiate the impact of tourism on economic growth of the host country. It is equally important to study the trend in tourism, whether its benefits over time actually justify the costs in a real sense. This among other things motivated us to carry out this study.

In this paper, we examine the direction of causal relationship between tourism, human capital and economic growth by taking into consideration cross-sectional dependence in a panel-based model using second generation panel data techniques. Since inability to account for cross-sectional dependence in panel study can lead to spurious results and unreliable deductions and policy implications, we employ cross-sectional dependence test as proposed by Pesaran (2004) to test whether cross-sectional dependence is present or not. We also use panel unit root tests introduced by Maddala and Wu (1999) Fisher-type, and Pesaran (2007) to confirm the non-stationarity properties of the variables, while we employ panel bootstrapping cointegration testing approach proposed by Westerlund and Edgerton (2007) in examining long-run equilibrium relationships of the model. Lastly, we apply the Granger non-causality in heterogeneous panel-based test proposed by Dumitrescu and Hurlin (2012) to examine direction of causality, whether the variables employed in this study have predictive power over one another. This method is new, reliable and suitable for estimating direction of Granger causality relationship in panel data analysis compared to the asymptotic techniques.

This study seems to be among the few studies which have examined tourism-induced growth hypothesis in the case of micro states (Akadiri et al., 2017; Roudi et al., 2018), using second generation panel-based approach and incorporating the human capital development as additional variable. The novelty of this study lies in its application of new and more robust econometric techniques to substantiate the fact that tourism-induced growth hypothesis is still valid; however, international tourist arrivals do not necessarily mean increase in tourism earnings, as share of tourism receipts in export earnings and real GDP has been declining over the years. Based on our empirical results, we are of the opinion that tourism contribution towards export earnings and GDP has been on a decline in the last 20 years, although tourism still stimulates and contributes to growth, just not as substantially as expected in the micro states. Simply put, tourism contribution to export earnings and growth is overrated in the case of micro states. As tourism contribution towards export earnings and economic growth declines, perhaps as a result of unfriendly tourism destination policies, environmental degradation (Akadiri & Akadiri, in press), costly airfares, high housing prices, terrorism and social unrest, governments and policymakers are diversifying their economies and shifting attention towards investment in human capital as an alternative determinant of economic growth in the case of micro states.

The rest of the paper is structured as follows; section 2 provides an overview of tourism and human capital development in the micro state, section 3 presents the data and methodology employed, results and empirical findings are discussed in section 4, and the final section concludes the study.

2. An overview of tourism and human capital development in the micro states

Tourism has been identified as a potential economic growth sector in micro states. As a growth sector, tourism offers one of the rare opportunities for economic diversification (see Lin & Sung, 1984; Morakabati, Beavis, & Fletcher, 2014 and Sharpley, 2002) especially in micro states. Tourism has various interconnections with other economic sectors in such a way that if the sector is adequately incorporated into any nation's strategic developmental plans, with sufficient provisions for intersectoral connections, it would contribute positively to the economic growth. Currently, the magnitude or scope of tourism activities in micro states differs extensively between countries and/or geographical regions. Similarly, the economic gains obtained from the sector are numerous. In some micro states, tourism has become the principal contributor to real GDP, whereas in others, it remains somewhat primitive (UNEP, 2006).

Meanwhile, under the agenda 21 of the Programme of Action for the Sustainable Development (PASD) setup for the micro states, it is identified that the strength of a nation to pursue sustainable development is resolved, among other things, through the capacity of such nation's human resources. Under the PASD, the micro states adopted (at the Global Conference held in Barbados 1994 on the sustainable development of human resources) human capital as the major consideration for sustainable development. In addition, recent development experience in most of these micro states substantiates the central role and significance of investing in human capital for sustainable development programs (United Nations publications, 1994).

Micro states are at distinct phases of development with health, education and per capita income, measures varying significantly from nation to nation (Knowles & Owen, 1995; Webber, 2002). With such variability however, micro states share common geographic and economic attributes that pose grievous concerns for their efforts to develop available human resources (UNESCO, 1996). Contemporary studies conducted on the vulnerability of micro states confirm that the micro states are affected by their population size. Majority of these micro states have populations less than a million inhabitants and even in some instances, less than half a million. Bringing in the dependency ratios of these micro states, one would realize that their economically active labor force is very small. For some micro states, their indigenous technical capacity is negligible. For example, workforce involved in research and development (R&D) in all sectors of Kiribati is 3, Tonga 15, Seychelles 33 and 366 in Cyprus (UNESCO, 1996). Over the years, this statistics has increased for Seychelles (146) and Cyprus (1032). In addition, with a very small labor force and population on which endogenous capacity will be built, micro states face higher challenges in developing indigenous expertise to meet the growing and diverse

[2] We reported countries' specific data on tourism, real gross domestic product and investment in human capital in Table 1 on a five-year average to show explicitly the trend between international tourist arrivals, share of tourism receipts earnings on export and real gross domestic product overtime in the sampled countries.

demands of sustainable development.

According to the UNESCO (1996) reports, issues regarding small population in several micro states is aggravated via poor health condition. Despite the fact that social measures in most micro states have improved significantly, infant mortality rates in most of these micro states that are categorized as least developed still remain extremely high. In addition, life expectancy and public expenditures on health in some of these micro states are relatively low, while health measures in terms of parental mortality rates are also a cause of concern. For instance, in Haiti, between the periods 1990–1995, annual public health expenditure was about 1.3% of GDP. However, on average, between the periods 2010–2015, this has increased to 8.4% of GDP (WDI, 2017).

Almost all the micro states have achieved moderate net enrolment ratios at elementary level of education (Mehtap-Smadi & Hashemipour, 2011). Enrolment ratios at college/secondary level in these states are somewhat lower, although reasonably high among developing nations. Illiteracy rates on the other hand are broadly low, although this is high in some least developed states. However, the ratios of tertiary education enrolment in most of these micro states are low, a situation which shows as a limitation to the development of indigenous technical capability. Even though most of the micro states devote substantial amount of resources to develop education sector, public allocations on education sector are low in others. In Haiti, for instance, total public expenditure on education was about 1.1% of its GDP in 1991, while in the Dominican Republic, it was about 1.9% of its GDP in 1994 (UNEP, 2006). However, in 2016, these statistics has increased from 1.1 to 1.5 and 1.9 to 2.5% of GDP for Haiti and Dominican Republic respectively (WDI, 2017).

Several economic factors in the micro states also impede their human capital development (UNEP, 2006). Although, with the exception of a scant number of larger states, most micro states have highly concentrated and specialized output structure, which is due to their small populations and local resource endowments. The massive and heavy dependence on tourism in many of the micro states, most especially in the Caribbean countries, is a case to examine. In some micro states, there is high dependence on some selected commodities as the major source of export earnings. Consequently, due to the heavy concentrated pattern of the economy on tourism, this leads to a narrow range of indigenous expertise, considering their small population and poor labor force which are not allowed to participate except in selected sectors, such as tourism. Inadequate workforce in other sectors naturally impedes micro states' efforts to diversify their economies when it is required due to variations in trade controls or market forces (Docquier, Lohest, & Marfouk, 2007; Reddy, Mohanty, & Naidu, 2004). In addition, concerns over sustainability of economic activities in the micro states also append a new scope to the development undertaken, necessitating additional current technical expertise. Thus, considering the fact that their local capacity is already limited, the current technical expertise required pose as an addition to the constraints that impede economic growth, and this necessitates extra efforts to improve their capacity (UNEP, 2006).

The regional or geographical features of micro states, on the other hand, appear to exasperate the difficulties mentioned above. The micro states have small landscapes coupled with a few forms of scattered archipelagos. In addition, their geographic designs, most especially in the archipelagic micro states with small populations, make it difficult to achieve economies of scale in both social and economic infrastructure. This situation stimulates an increase in cost of producing public services. In as much as human resources are concerned, it further creates more demands, both in technical and administrative levels. This leads to additional operational impediments of enhancing and providing education, training and health care services (Global Environment Facility Quarterly Report, 1996).

Over the past two decades, in the quest to ameliorate the difficulties facing the micro states in diversifying their economy, the United Nations (UN, 1994) has joined in the execution of PASD via provision of either project funding, technical assistance and/or program. As a matter of fact, human capital development has been one of the prioritized agendas of the UN movements and agencies. Some of the projects include a wide range of concrete areas, such as health care, educational training and expertise training in particular disciplines which include trade, communication, waste management and disaster relief. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 1996) on the other hand has shown its commitment to the individual needs of micro states in the wake of 1990s by founding Unit for Relations with Small Member States (URSMS). Projects and operation activities have been developed and executed under several major programs, such as environmental protection programs, provision of basic education, development of coastal regions and information circulation for micro states.

Human capital development has been one of the few prioritized areas that have received great attention and significant allocations of external funds and support compared to other program agendas of the PASD (Docquier et al., 2007; Reddy et al., 2004). This reflects the awareness of the significance of human capital and resources in accordance to the preferences established by the governments and policymakers of micro states. In 1994, information inferred from the resource commitment data show that bilateral assistance to human capital development in micro states summed up to 75.19 million US$, making human capital development program the fourth among 15 program agendas. In addition, multilateral organization financial commitments was about 14.85 million US$, making human capital development the second highest among the 15 program agendas in the same year (UNEP, 2006).

Conclusively, the importance of tourism and human capital development in micro states has been recognized by the governments, individuals and private institutions. Public authorities, regional organizations and the UN system in the micro states have placed priority on tourism and human capital development, as demonstrated in the drives by micro states' governments and support action programs by both the UN and regional organizations. However, the unique economic, geographic and demographic constraints faced by micro states necessitate a strengthening of the combined efforts at human capital development. In addition, policy measures by some micro states' governments towards educational reform, training, institutional building and geographical collaboration in environmental management yield practical experiences. This should be shared among other larger states in their quest to develop and execute human capital development policies.

3. Data and methodology

There are various possible ways one can measure the level of tourism. One of the means is through tourist receipts. Tourist receipts account for the level of earning generated by international tourists or foreign visitors. Another means is through the number of days or nights spent by foreign visitors and also through the number of international tourist arrivals. For the panel countries, the data on real GDP, tourist arrival and tourist receipt is obtained on the World Bank Database (online) while the data on human capital for the period 1995–2015 based on data availability for countries such as Barbados, Cuba, Cyprus, Dominican Republic, Fiji, Haiti, Iceland, Malta, Mauritius and Trinidad and Tobago is from United Nations Development Programme (UNDP, 2006). We make use of tourist arrival to proxy for tourism. This is done in order to eradicate the possibility of running into multicollinearity problem when tourist receipt is employed, considering the fact that the tourism-induced growth hypothesis is about the contribution of tourism sectors towards economic growth. The major objective of this study is to examine whether the tourism-induced growth hypothesis of the period 1995–2015 is still valid in the case of micro states. We discuss the variables as follows:

- Tourism (tourist arrivals): International inbound tourists are the

number of tourists who travel to a country other than that in which they have their usual residence, but outside their usual environment, for a period not exceeding twelve (12) months and whose main purpose in visiting is other than an activity remunerated from within the country visited (see Gunduz & Hatemi-J, 2005; Lee & Chang, 2008).

- Economic growth (Real GDP): Real GDP per capita is in constant 2010 USD. It is gross domestic product divided by population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. We make use of real GDP to proxy for economic growth (Brida & Risso, 2009; Katircioglu, 2009a, 2009b; Katircioğlu, 2010a; Katircioğlu, 2010b; Oh, 2005; Payne & Mervar, 2010).
- Human Capital: This can be referred to as the stock of knowledge, personality and social attributes, including habit and creativity incorporated in labor ability to produce economic value (Becker, 1993). In this study, we employ human development index to proxy for human capital. Human development index measures average achievement in key human development, a long and healthy life, being knowledgeable and having a decent standard of living (UNDP, 2016).

3.1. Cross-sectional dependence

The common occurrence that is usually observed when working with macro panel data is the presence of cross-sectional dependence (CSD). Once observed, this implies there is a presence of common unobserved factors that affect the rise of countries' variables over their individual time path. In addition, the peculiarity of the countries can lead to the existence of fixed effects. Though it is expected that countries that prioritized travel and tourism should share specific characteristics, this necessitates caution in the choice of estimators, bearing in mind that these countries should be able to deal with biased results, model misspecification and inefficiencies of the estimates. In order to capture the characteristics of cross-sections, that is, the countries and panel series, the cross-sectional dependence test should be performed. Table 2 reports the cross-sectional dependence results.

The cross-sectional dependence test strongly indicates that the countries share common features for the variables of interest. The presence of cross-sectional dependence suggests an interdependence among the cross-sections. According to Eberhardt and Teal (2011) in panel data analysis, panel countries mostly share common shocks. There are two basic types of dependence that exist between cross-sections as discussed in the literature—the spatial and the long-range dependence (Anselin, 2001; Moscone & Tosetti, 2010). The former takes into account distance between cross-sections while the latter arises when cross-sections respond in the same way to shocks. Regardless, the presence of interdependence across the cross-sections the assumption of no serial correlation still remains.

3.2. Panel unit root (PURT)

The presence of cross-sectional dependence across cross-sections necessitates the use of the second generation panel data techniques. The statistical techniques of testing for stationarity of a series is through unit root tests. Recent studies suggest that the panel-based unit root tests have higher power when compare to time series-based unit root tests (see Baltagi, 2008). There are several second generation panel-based tests of unit root that can be applied for a panel data analysis (see Maddala & Wu, 1999; Pesaran, 2007) The Maddala and Wu (1999) Fisher-type and Pesaran (2007) are simple unit root tests that allow for cross-sectional dependency. These tests were developed to asymptotically eradicate the cross-sectional dependence problem in the series. The CIPS test proposed by Pesaran (2007) has the required property of being robust to heterogeneity under the null hypothesis of non-stationarity. In order to observe the order of integration, the first[3] and the second generation panel unit root tests were carried out.

Table 2
Cross-sectional dependence test.

Variable	CD-Test	*P*-value	Corr.	Abs(corr.)
RGDP	16.74***	0.000	0.545	0.812
Tourism	21.81***	0.000	0.709	0.709
Human Capital	29.72***	0.000	0.967	0.967

Note: H_0: cross sectional independence
*** $p < .01$ significant level.

3.3. Panel cointegration test (PCT)

The use of panel cointegration methods to examine the existence of a long-run cointegration relationship across integrated variables with both cross-sectional dimension and time dimension has recently gained growing attention, specifically in empirical literature. One specific and crucial reason out of many that justify this growing attention is the increased power that perhaps would benefit by accounting for both time series dimension and cross-sectional dimension of a series. Despite this, several studies have failed to reject the null hypothesis of no cointegration, even when cointegration relationship is vehemently proposed by theory.

The reason behind this is that both time series and panel data analyses necessitate that the long-run parameter estimates for any variables in their level form should be equal to that of the short-run parameter estimates in their first difference. However, Westerlund and Edgerton (2007) developed and introduced four new panel cointegration tests to correct these inherent problems. The newly introduced panel cointegration test is not based on residuals unlike the others but on structural dynamics. Thus, it does not impose any common factor restriction. The reason behind this test is to examine the null hypothesis of no cointegration by assuming that the error-correction term in a conditional panel error correction model is equal to zero. The P_a and P_t are developed to test the alternative hypothesis (i.e. the whole panel model is cointegrated) for the entire model, while the other two (G_a, G_t) test the alternative hypothesis that at least one unit out of the panel model is cointegrated.

$$\Delta y_{it} = C_i + a_{oi}(y_{i,t-1} - b_{ixit-1}) + \sum_{j=1}^{k_{i1}} a_{11j}\Delta y_{i,t-j} + \sum_{j=-k_{2i}}^{k_{3i}} a_{2ij}\Delta x_{it-j} + \mu_{it} \quad (1)$$

a_{oi} is the speed of adjustment term (error term). It is worthy to note that, the penultimate term includes leads and lags ofΔx, else we need to presume erogeneity of x.

3.4. Panel granger causality test (PGCT)

For our analysis, we employ the Dumitrescu and Hurlin (2012)[4] Granger causality test for heterogeneous non-causality. Dumitrescu and Hurlin causality test can be put to use when cross-section dimension is growing and the time dimension is constant, although one can also apply this test when T is larger than N or vice versa. The test is built on vector autoregressive model (VAR) and it presumes absence of cross-sectional dependence, though the Monte Carlo simulations generated by this method reveal that even with the presence of cross-sectional dependence, this causality test still generates strong results. This

[3] For the sake of brevity, we could not report the first generational panel unit root tests in text. Results will be made available upon request.

[4] Also read Hurlin & Dumitrescu (2012). Testing for Granger non-causality in heterogeneous panels.

causality test is applied to both heterogeneous and balanced panels. Two distinct distributions are present in this test—the asymptotic and the semi-asymptotic. The asymptotic distribution is employed when T is larger than N, and the semi-asymptotic distribution when N is larger than T. In the presence of cross-sectional dependence, the simulated and estimated critical values derived from duplication are used. For panel data model, the linear model is given as follows:

$$z_{i,t} = \alpha_i + \sum_{j=1}^{J} \lambda_i^j z_{i.t-j} + \sum_{j=1}^{J} \beta_i^j T_{i,t-j} + \varepsilon_{i,t} \quad (2)$$

Where j depicts the lag length, $\lambda_i^{(j)}$is the autoregressive parameter while $\beta_i^{(j)}$represent the regression coefficient that vary within the groups. In addition, the DH causality test does not make use of random process. It is a fixed type of test and generates fixed coefficient model. All individual remainders for individual cross sectional unit are independent. DH causality test is normally distributed and allows for heterogeneity.

For the DH test, homogenous non-stationary hypothesis (HNC) is used for causality relationship analysis with heterogeneous models. The null hypothesis and alternative hypothesis for the HNC are given below:

$H_0 : \beta_i = 0 \forall_i = 1, \ldots N$

$H_1 : \beta_i = 0 \forall_i = 1, \ldots N_1$

$\beta_i \neq 0 \forall_i = N_1 + 1, N_1 + 2, \ldots N$

Here, N_1 represent the unknown parameter but it satisfies the condition$0 \leq N_1/N \prec 1$. In any situation, the ratio of N_1/N should be inevitably inferior to 1, because if$N_1 = N$, this implies no causality relationship for any of the individual (cross-section) in the panel. That is, we fail to reject the null hypothesis of HNC. On the other hand, when$N_1 = 0$, this indicates causality relationship for all the individuals in the panel.

However, for our study, the dynamic causality relationship models are specified as follows:

$$\Delta RGDP_{it} = \theta_{1j} + \lambda_{1t}\varepsilon_{it-1} + \sum_k \theta_{11,ik}\Delta RGDP_{it-k} + \sum_k \theta_{12,ik}\Delta tourism_{it-k} + \sum_k \theta_{13,ik}\Delta HCap_{it-k} + \mu_{1,it} \quad (3)$$

$$\Delta tourism_{it} = \theta_{2j} + \lambda_{2t}\varepsilon_{it-1} + \sum_k \theta_{21,ik}\Delta tourism_{it-k} + \sum_k \theta_{22,ik}\Delta RGDP_{it-k} + \sum_k \theta_{23,ik}\Delta HCap_{it-k} + \mu_{2,it} \quad (4)$$

$$\Delta HCap_{it} = \theta_{3j} + \lambda_{3t}\varepsilon_{it-1} + \sum_k \theta_{31,ik}\Delta HCap_{it-k} + \sum_k \theta_{32,ik}\Delta tourism_{it-k} + \sum_k \theta_{33,ik}\Delta RGDP_{it-k} + \mu_{3,it} \quad (5)$$

k is the optimum lag length, selected through Akaike Information Criteria (AIC).

4. Results and empirical discussion

In this section, we discuss the results obtained from the panel empirical estimations. Before reporting the Granger causality analysis, we estimate the panel unit root tests and the cointegration test. For the unit root, we perform the Maddala and Wu (1999) and Pesaran (2007) tests. The estimated results from these unit root tests are reported in Table 3. For both tests, the null hypothesis of order I(0), that is, the variables are integrated of zero order, the estimated statistic tests are found to be lower than the critical values at the standard significance levels; thus, the null hypothesis that each variable is stationary at level was rejected. This implies that the variables are non-stationary at levels. However, when we carry out stationary tests at first difference, we found that the variables are integrated at first order i.e. I(I). It is paramount to always pay attention to the stationarity and integration properties of data to avoid the possibility of making false or spurious inference.

Pedroni (1999, 2004) first generation panel cointegration test is commonly applied to investigate cointegration relationship. This cointegration test of Pedroni runs under the null hypothesis of no cointegration, although Pedroni (1999) cointegration tests take into consideration independence and heterogeneity within the cross-sections. The presence of cross-sectional dependence implies that Pedroni test is inappropriate for cointegration testing. According to Eberhardt and Presbitero (2013), if the presence of cross-sectional dependence is not controlled for, this could arouse vague estimates and grievous identifications problem. We also compute the Kao (1999)[5] cointegration test. The Kao test indicates no cointegration relationship as we could not reject the null hypothesis which is specified under the assumption of coefficients homogeneity. In a nutshell, both the Pedroni and Kao cointegration test reject the null hypothesis of cointegration relationships among the cross-sections.

Table 3
Pesaran & Fisher Panel unit root tests.

Variable	Pesaran		Fisher	
	Constant	Trend	Constant	Trend
RGDP	−0.829	−1.541	11.894	13.443
Tourism	−1.209	−1.721	23.870	28.480
Human Capital	−1.334	−2.985	9.099	21.392

Note: variables are not stationary at level but first difference.

To confirm our results, we compute the second generation panel bootstrapping cointegration testing approach proposed by Westerlund and Edgerton (2007). As discussed earlier, this test deals with dynamic structure and not residuals. Having confirmed the presence of cross-sectional dependence, the Westerlund and Edgerton (2007) panel bootstrapping cointegration testing approach automatically becomes an appropriate technique to examine cointegration relationship among the cross-sections. Table 4 reports the cointegration results obtained from the panel bootstrapping cointegration method that generates sound coefficients, confidence interval, standard errors and robust critical values. Since it is necessary in a sound econometric doctrine to advocate for resampling to be conducted in order to obtain robust results, 400 repetitions were conducted for estimation accuracy purpose. As reported in Table 4, we could not reject the null hypothesis of no cointegration.

The results show absence of cointegration relationships, under the assumption of cointegration as a whole and within the individual cross-sections. One explanation for this might be due to short study coverage period, although in this study, we do not place emphasis on the long-run cointegration relationship but rather on the direction of causality relationships that exist between the variables of interest. After considering the cointegration relationship whether long-run equilibrium relationship exist between the variables, we then analyze the potential causal relationship that exists among the variables.

We employ causality test proposed by Dumitrescu and Hurlin (2012) which has been reported to produce a stable and reliable result even in the presence of cross-sectional dependence. Following the results reported in Table 5, we found bidirectional causality relationship running from tourism to real GDP. That is, tourism Granger causes real GDP, and vice versa at ($p < .01$) significance level. By implication, tourism and real GDP appear to have predictive power over one another. This result confirms the tourism-induced growth hypothesis in the case of the micro states. Enhancement of tourism sector with sound and efficient policy in place appears to play a role in the level of economic growth in these region, and vice versa. This result answers our research question and is in line with the findings of Akadiri et al. (2017)

[5] For the sake of brevity, we could not report the estimated results for both Pedroni (1999) and Kao (1999) in the main text. Results will be made available upon request.

Table 4
Westerlund and Edgerton panel bootstrapping cointegration test.

Statistic	Value	Z-value	P-value	Robust P-value
G_t	−1.500	3.096	0.999	0.880
G_a	−3.980	3.735	1.000	0.970
P_t	−3.924	3.151	0.999	0.850
P_a	−2.696	3.217	0.999	0.950

Bootstrapping regression with 400 repetitions. Gt and Ga test the cointegration for each country individually, while the Pa and Pt test cointegration of the panel as a whole. xtwest stata command was used. (p-value obtained is greater than all the conventional significance levels, i.e. 0.01, 0.05 and 0.10 respectively) This signifies no cointegration at all levels.

Table 5
Causality test based on Dumitrescu and Hurlin Panel techniques.

Null hypothesis	W-stat	Zbar-stat	P-value	Causality
Tourism → RGDP	3.390***	5.346	0.000	Yes
RGDP → Tourism	2.312***	2.934	0.003	Yes
Tourism → Human Cap.	3.698***	6.034	0.000	Yes
Human Cap. →Tourism	3.799***	6.260	0.000	Yes
RGDP → Human Cap.	3.073***	4.637	0.000	Yes
Human Cap. →RGDP	2.349***	3.016	0.002	Yes

Note: the notation $\neq >$ implies that the variables does not Granger cause one another. Causality is confirmed at *** 0.01% significant level.

and Roudi et al. (2018) for selected small island developing states.

In addition, our empirical results show a bidirectional causality running from tourism to investment in human capital in the case of the micro states, over the sampled period at ($p < .01$) significance level. The implication of this is that tourism and investment in human capital have predictive power over one another in this region. A well-developed tourism sector would enhance human capital development of the host countries. This is evident through transfer of knowledge, either through technology importation, managerial skills or educating (both formal and informal education) the local residents by their international visitors. Increased investment in human capital in these micro states also has a reverse role to play in tourism sector development. This result is in line with studies by Fayissa, Nsiah, and Tadasse (2008) and Bennett, Lemelin, Koster, and Budke (2012), and it also confirms tourism-induced human capital development hypothesis in the case of the micro states.

Lastly, from the Granger causality results presented in Table 5, we also found evidence to support human capital development-induced growth hypothesis in case of the panel countries. Our empirical results show that the real GDP Granger cause investment in human capital, and vice versa at ($p < .01$) significance level. That is, increased investment in human capital development and economic growth have a predictive power over one another. It appears that diversification of the micro states economy from tourism-dependent economy to increased investment in human capital has been productive over the years. Increased investment in human capital seems to be a suitable alternative growth determinant in these regions. This finding confirms the results presented earlier in Table 1, and is in line with the findings of Benhabib and Spiegel (1994), Barro (2001), Krueger and Lindahl (2001), and Lucas Jr (2015).

5. Concluding remarks

The tourism-induced growth hypothesis was analyzed within the context where the level of tourism, economic growth and investment in human capital across micro states were controlled for. To establish reliability and trustworthiness of employing the recent panel data techniques which are sensitive to asymptotic attribute of time, we make use of annual frequency data for the available periods. We take into consideration cross-sectional dependence in order to observe the presence of common unobserved shocks that are mostly inherent in panel data analysis. Results from the cross-sectional dependence tests indicate the presence of interdependence among the variables. Thus, the decision to involve second generation panel data that generate sound, reliable and robust results even in the presence of cross-sectional dependence constitute a logical contribution to the literature of the tourism-induced growth hypothesis in the case of micro states.

Our empirical results provide evidence in support of tourism-induced growth, tourism-induced human capital development and human capital development-induced growth. We also reaffirm that tourism-induced growth hypothesis is still valid, most especially in the micro states over the period 1995–2015, although from our findings, we discover that over the years, the contribution of the tourism sector in terms of its share on export earnings and real gross domestic product has been on a decline. In addition, we found that increase in international tourist arrivals do not translate to or necessarily mean increase in tourism receipts in the host countries. Thus, we infer that the decline in tourism contribution towards export earnings and economic growth might be associated with poor tourism marketing, high cost of hotels and housing in tourist destinations, environmental degradation, rise in terrorism, unfavorable and unfriendly environmental, economic and tourism policies (Akadiri, Bekun, Taheri, & Akadiri, in press). In addition, Pattullo (2005), referring to the Butler model of tourism life cycle, argued that an unspoiled area of tourism is subject to exploration, to phases of involvement, development, consolidation, stagnation and then, deterioration. In Pattullo's words, “what was once poor and unspoiled is again poor but now spoiled”. He claimed tourism offers new form of slavery and that its environmental impact on the host is alarming, while Koens and Wood (2017) highlight that in many different countries, the impact of tourism remains relatively limited. It appears the micro states are not totally exempted. These among many others factors might have stimulated governments and policymakers in these regions to diversify their respective economies from tourism earnings-dependent to increased investment in human capital as an alternative growth determinant.

Tourism has grown to be such a crucial sector in today's modern economies (Giaoutzi, 2017; Mowforth & Munt, 2015; Tugcu, 2014), that if well-developed, it has the capacity to maximize export earnings and enhance economic growth. In line with this, governments of these various countries have invested enough funds in promoting the travel and tourism sector, and much is expected in terms of its contribution towards economic growth.

However, learning from our empirical result, it seems tourism sector has not been contributing substantially to growth of these states over the past 20 years. Thus, in order to augment the falling hero (tourism sector) in the micro states, attention has been shifted to human capital development as an alternative measure of growth. This is a wake-up call for governments and policymakers in these regions to revitalize and restore the tourism industry to its past glory. This can be achieved by engaging in sound and productive tourism marketing and exhibitions (Williams, 2006). Affordable hotels (Saad, Badran, & Abdel-Aleem, 2016) and housing schemes for international visitors should also be put in place, as well as stable economic and political atmosphere and sound environmental policies to curtail pollution that might pose a threat to the health of the visitors (Mihalič, 2000). Although diversifying one economy towards improving its human capital as a vital component of growth is not a bad policy, the influence of tourism sector on the host country, through transfer of knowledge in the form of technology, management and education should not be thrown to dust.

Conclusively, the good news from this juxtaposition in terms of benchmark concern is that the possibilities of a sustained growth (through tourism sector) in the case of micro states and most especially the larger ones that solely depend on tourism are not gloomy. To be precise, the tourism industry has developed and improved over time. However, more effort is required in order to fully maximize tourism

potentials. We are of the opinion that sound economic and tourism policies alongside adequate investment in human capital development (within the sampled region and across all other tourist destination countries) will go a long way in maximizing and sustaining economic growth. At this juncture, we recommend that further studies be conducted for generalization of these findings in developed, developing and emerging economies that are tourist destinations or that perceive tourism as a means of enhancing economic growth by applying these new, reliable and sound econometric techniques of panel-based approach.

Conflict of interest declaration

There is no conflict of interest for this submission.

Authors contribution

Amin Fahimi is a postgraduate student as the Department of Banking and Finance at Eastern Mediterranean University. I am currently supervising his postgraduate thesis. This manuscript is an extract from his thesis.

Seyi Saint Akadiri is an Instructor at the Department of Economics at Eastern Mediterranean University. I supervise, edit, correct and make suggestions where necessary for Amin's thesis and on this manuscript.

Mehdi Seraj is a PhD candidate at Department of Economics at Eastern Mediterranean University. He is a Research Assistant at the department. He was responsible for empirical estimations based on my suggestions and in line with this manuscript objectives.

Ada Chigozie Akadiri is a PhD student in the Department of Economics at the Eastern Mediterranean University. She was responsible for data collection, she proofread the revised paper and also gave valuable contribution.

References

Akadiri, S. S., & Akadiri, A C. (in press). Interaction between CO2 emissions, energy consumption and economic growth in the Middle East: Panel causality evidence. International Journal of Energy Technology and Policy.

Akadiri, S. S., Akadiri, A. C., & Alola, U. V. (2017). Is there growth impact of tourism? Evidence from selected small island states. *Current Issues in Tourism,* 1–19.

Akadiri, S. S., Bekun, V. F., Taheri, E., & Akadiri, A C. (in press). Carbon emissions, energy consumption and economic growth: A causality evidence. International Journal of Energy Technology and Policy.

Albalate, D., & Bel, G. (2010). Tourism and urban public transport: holding demand pressure under supply constraints. *Tourism Management, 31*(3), 425–433.

Andriotis, K. (2002). Scale of hospitality firms and local economic development—evidence from Crete. *Tourism Management, 23*(4), 333–341.

Anselin, L. (2001). Spatial econometrics. *A companion to theoretical econometrics, 310330.* United Kingdom: First published in paperback 2003 by Blackwell Publishing Ltd.

Antonakakis, N., Dragouni, M., & Filis, G. (2015). How strong is the linkage between tourism and economic growth in Europe? *Economic Modelling, 44*, 142–155.

Archer, B., & Fletcher, J. (1996). The economic impact of tourism in the Seychelles. *Annals of Tourism Research, 23*(1), 32–47.

Archer, E. (1984). Estimating the relationship between tourism and economic growth in Barbados. *Journal of Travel Research, 22*(4), 8–12.

Arslanturk, Y., Balcilar, M., & Ozdemir, Z. A. (2011). Time-varying linkages between tourism receipts and economic growth in a small open economy. *Economic Modelling, 28*(1–2), 664–671.

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

Baltagi, B. (2008). *Econometric analysis of panel data.* John Wiley & Sons.

Barro, R. J. (2001). Human capital and growth. *American Economic Review, 91*(2), 12–17.

Becker, G. S. (1993). *Human capital.* Chicago IL: University of Chicago Press. United States.

Benhabib, J., & Spiegel, M. M. (1994). The role of human capital in economic development evidence from aggregate cross-country data. *Journal of Monetary Economics, 34*(2), 143–173.

Bennett, N., Lemelin, R. H., Koster, R., & Budke, I. (2012). A capital assets framework for appraising and building capacity for tourism development in aboriginal protected area gateway communities. *Tourism Management, 33*(4), 752–766.

Boissevain, J. (1977). Tourism and development in Malta. *Development and Change, 8*(4), 523–538.

Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2016). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism, 19*(5), 394–430.

Brida, J. G., & Risso, W. A. (2009). Tourism as a factor of long-run economic growth: An empirical analysis for Chile. *European Journal of Tourism Research, 2*(2), 178.

Chase, G., & Alon, I. (2002). Evaluating the economic impact of cruise tourism: a case study of Barbados. *Anatolia, 13*(1), 5–18.

Choi, H.-C., & Sirakaya, E. (2006). Sustainability indicators for managing community tourism. *Tourism Management, 27*(6), 1274–1289.

Croes, R. 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*(3), 453–465.

Docquier, F., Lohest, O., & Marfouk, A. (2007). Brain drain in developing countries. *The World Bank Economic Review, 21*(2), 193–218.

Dritsakis, N. (2004). Cointegration analysis of German and British tourism demand for Greece. *Tourism Management, 25*(1), 111–119.

Dumitrescu, E. I., & Hurlin, C. (2012). Testing for Granger non-causality in heterogeneous panels. *Economic Modelling, 29*(4), 1450–1460.

Durburry, R. (2004). Tourism and economic growth: the case of Mauritius. *Tourism Economics, 10*(4), 389–401.

Dwyer, L., & Forsyth, P. (2008). Economic measures of tourism yield: what markets to target? *International Journal of Tourism Research, 10*(2), 155–168.

Eberhardt, M., & Teal, F. (2011). Econometrics for grumblers: a new look at the literature on cross-country growth empirics. *Journal of Economic Surveys, 25*(1), 109–155.

Eberhardt, M. M., & Presbitero, A. (2013). *This time they are different: heterogeneity and nonlinearity in the relationship between debt and growth (No. 13–248).* International Monetary Fund.

Fagence, M. (1999). Tourism as a feasible option for sustainable development in Small Island developing states (SIDS): Nauru as a case study. *Pacific Tourism Review, 3*(2), 133–142.

Falk, M. (2010). A dynamic panel data analysis of snow depth and winter tourism. *Tourism Management, 31*(6), 912–924.

Fayissa, B., Nsiah, C., & Tadasse, B. (2008). Impact of tourism on economic growth and development in Africa. *Tourism Economics, 14*(4), 807–818.

Giaoutzi, M. (2017). *Tourism and regional development: New pathways.* Routledge.

Global Environment Facility (1996). *Global Environment Facility, quarterly operational report.* United States: World Bank.

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

Hall, D. R. (1998). Tourism development and sustainability issues in Central and Southeastern Europe. *Tourism Management, 19*(5), 423–431.

Heng, T. M., & Low, L. (1990). Economic impact of tourism in Singapore. *Annals of Tourism Research, 17*(2), 246–269.

Holzner, M. (2011). Tourism and economic growth: the beach disease? *Tourism Management, 32*(4), 922–933.

Hunt, J. D. (1975). Image as a factor in tourism development. *Journal of travel research, 13*(3), 1–7.

Hurlin, C., & Dumitrescu, E. (2012). *Testing for Granger non-causality in Heterogeneous Panels.* https://halshs.archives-ouvertes.fr/halshs-00224434.

Ivanov, S., & Webster, C. (2007). Measuring the impact of tourism on economic growth. *Tourism Economics, 13*(3), 379–388.

Jaakson, R. (1996). Tourism in transition in post-Soviet Estonia. *Annals of Tourism Research, 23*(3), 617–634.

Jóhannesson, G. T., & Huijbens, E. H. (2010). Tourism in times of crisis: exploring the discourse of tourism development in Iceland. *Current Issues in Tourism, 13*(5), 419–434.

Kao, C. (1999). Spurious regression and residual-based tests for cointegration in panel data. *Journal of Econometrics, 90*(1), 1–44.

Katircioglu, S. (2009a). Tourism, trade and growth: the case of Cyprus. *Applied Economics, 41*(21), 2741–2750.

Katircioglu, S. (2009b). Testing the tourism-led growth hypothesis: The case of Malta. *Acta Oeconomica, 59*(3), 331–343.

Katircioğlu, S. (2010a). Research note: Testing the tourism-led growth hypothesis for Singapore–an empirical investigation from bounds test to cointegration and Granger causality tests. *Tourism Economics, 16*(4), 1095–1101.

Katircioğlu, S. T. (2010b). International tourism, higher education and economic growth: The case of North Cyprus. *The World Economy, 33*(12), 1955–1972.

Knowles, S., & Owen, P. D. (1995). Health capital and cross-country variation in income per capita in the Mankiw-Romer-Weil model. *Economics Letters, 48*(1), 99–106.

Koens, A., & Wood, R. C. (2017). An analysis of international employment levels in hospitality occupations using secondary statistics. *International Journal of Tourism Research, 19*(5), 496–504.

Krueger, A. B., & Lindahl, M. (2001). Education for growth: Why and for whom? *Journal of Economic Literature, 39*(4), 1101–1136.

Kulendran, N., & Wilson, K. (2000). Is there a relationship between international trade and international travel? *Applied Economics, 32*(8), 1001–1009.

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.

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

Lee, C. G. (2008). Tourism and economic growth: the case of Singapore. *Regional and Sectorial Economic Studies, 8*(1), 89–98.

Levy, D. E., & Lerch, P. B. (1991). Tourism as a factor in development implications for gender and work in Barbados. *Gender and Society,* 67–85.

Lin, B. H., & Liu, H. H. (2000). A study of economies of scale and economies of scope in Taiwan international tourist hotels. *Asia Pacific Journal of Tourism Research, 5*(2), 21–28.

Lin, T. B., & Sung, Y. W. (1984). Tourism and economic diversification in Hong Kong. *Annals of Tourism Research, 11*(2), 231–247.

Louca, C. (2006). Income and expenditure in the tourism industry: time series evidence from Cyprus. *Tourism Economics, 12*(4), 603–617.
Lucas, R. E., Jr. (2015). Human capital and growth. *American Economic Review, 105*(5), 85–88.
Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics, 61*(S1), 631–652.
Mehtap-Smadi, S., & Hashemipour, M. (2011). In pursuit of an international education destination: Reflections from a university in a small island state. *Journal of Studies in International Education, 15*(5), 409–428.
Mihalič, T. (2000). Environmental management of a tourist destination: A factor of tourism competitiveness. *Tourism Management, 21*(1), 65–78.
Morakabati, Y., Beavis, J., & Fletcher, J. (2014). Planning for a Qatar without oil: Tourism and economic diversification, a battle of perceptions. *Tourism Planning & Development, 11*(4), 415–434.
Moscone, F., & Tosetti, E. (2010). Testing for error cross section independence with an application to US health expenditure. *Regional Science and Urban Economics, 40*(5), 283–291.
Mowforth, M., & Munt, I. (2015). *Tourism and sustainability: Development, globalisation and new tourism in the third world.* Routledge.
Nowak, J. J., Sahli, M., & Cortés-Jiménez, I. (2007). Tourism, capital good imports and economic growth: theory and evidence for Spain. *Tourism Economics, 13*(4), 515–536.
Oh, C. O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management, 26*(1), 39–44.
Okumus, B., Okumus, F., & McKercher, B. (2007). Incorporating local and international cuisines in the marketing of tourism destinations: The cases of Hong Kong and Turkey. *Tourism Management, 28*(1), 253–261.
Olafsdottir, R., & Runnström, M. C. (2009). A GIS approach to evaluating ecological sensitivity for tourism development in fragile environments. A case study from SE Iceland. *Scandinavian Journal of Hospitality and Tourism, 9*(1), 22–38.
Pattullo, P. (2005). *Last resorts: The cost of tourism in the Caribbean.* NYU Press.
Payne, J. E., & Mervar, A. (2010). Research note: The tourism–growth nexus in Croatia. *Tourism Economics, 16*(4), 1089–1094.
Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics, 61*(s1), 653–670.
Pedroni, P. (2004). Panel cointegration: asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory, 20*(03), 597–625.
Pesaran, M. H. (2004). *General diagnostic tests for cross section dependence in panels*.
Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of Applied Econometrics, 22*(2), 265–312.
Reddy, M., Mohanty, M., & Naidu, V. (2004). Economic cost of human capital loss from Fiji: Implications for sustainable development. *International Migration Review, 38*(4), 1447–1461.
Roudi, S., Arasli, H., & Akadiri, S. S. (2018). 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,* 1–21.
Saad, H. E., Badran, N., & Abdel-Aleem, M. (2016). Sharia-compliant hotels in Egypt: Concept and challenges. *International Journal of Heritage, Tourism, and Hospitality, 7*(2).
Seghir, G. M., Mostéfa, 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.
Shan, J., & Wilson, K. (2001). Causality between trade and tourism: empirical evidence from China. *Applied Economics Letters, 8*(4), 279–283.
Sharma, B., & Dyer, P. (2009). An investigation of differences in residents' perceptions on the Sunshine Coast: tourism impacts and demographic variables. *Tourism Geographies, 11*(2), 187–213.
Sharpley, R. (2002). The challenges of economic diversification through tourism: the case of Abu Dhabi. *International Journal of Tourism Research, 4*(3), 221–235.
Sharpley, R. (2003). Tourism, modernisation and development on the island of Cyprus: Challenges and policy responses. *Journal of Sustainable Tourism, 11*(2–3), 246–265.
Sinclair, M. T. (1998). Tourism and economic development: A survey. *The journal of development studies, 34*(5), 1–51.
Sokhanvar, A., Çiftçioğlu, S., & Javid, E. (2018). Another look at tourism-economic development nexus. *Tourism Management Perspectives, 26*, 97–106.
Sönmez, S. F. (1998). Tourism, terrorism, and political instability. *Annals of Tourism Research, 25*(2), 416–456.
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, C. F., & Tan, E. C. (2015). Does tourism effectively stimulate Malaysia's economic growth? *Tourism Management, 46*, 158–163.
Tugcu, C. T. (2014). Tourism and economic growth nexus revisited: A panel causality analysis for the case of the Mediterranean Region. *Tourism Management, 42*, 207–212.
United Nations (1994). Report of the United Nations Conference on Environment and Development. *Resolution adopted by the Conference. Vol. 1*.
United Nations Educational, Scientific and Cultural Organization (1996). *Statistical Yearbook*.
United Nations Environment Programme (2006). *Practical guide to good practice: Managing environment social issues in accommodations sector.* Last accessed, December, 2006.
United Nations Development Programme (2016). *Human Development for Everyone: UN Plaza.* Last accessed, August, 2018.
Vellas, F., & Bécherel, L. (1999). *The international marketing of travel and tourism: A strategic approach.* Basingstoke, UK: Macmillan.
Webber, D. J. (2002). Policies to stimulate growth: should we invest in health or education? *Applied Economics, 34*(13), 1633–1643.
Westerlund, J., & Edgerton, D. L. (2007). A panel bootstrap cointegration test. *Economics Letters, 97*(3), 185–190.
Williams, A. (2006). Tourism and hospitality marketing: fantasy, feeling and fun. *International Journal of Contemporary Hospitality Management, 18*(6), 482–495.
World Development Indicators (2017). *World Bank.* Washington, DC.
World Travel and Tourism Council (2015). *Travel and tourism economic impact: European Union.* London, UK: World Travel and Tourism Council.
World Travel Tourism Council (2008). *Country league tables.* World Travel and Tourism Council.

Amin Fahimi is a postgraduate student as the Department of Banking and Finance at Eastern Mediterranean University. His research interest include environmental tourism, tourism economics, and financial management.

Seyi Saint Akadiri is an Instructor at the Department of Economics at Eastern Mediterranean University. He is currently teaching finance related courses. His research interests include economic growth, energy economics, environmental economics, tourism economics, food policy and forecasting.

Mehdi Seraj is a PhD candidate at Department of Economics at Eastern Mediterranean University where he is a PhD candidate in Economics. His research interests include economic growth, environmental economics, and tourism economics.

Ada Chigozie Akadiri is a PhD student in the Department of Economics at the Eastern Mediterranean University. Her research interest includes economic growth, macroeconomics theory and policy, energy economics, environmental tourism and development economics.