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Investigation of Convergence in the Tourist Markets of Greece

Constantinos Katrakilidis[1], George Konteos[2],
Nikolaos Sariannidis[3], Chrysi Manolidou[4]

***Abstract**:*

This study aims at exploring the issue of convergence in the tourist market of Greece based on tourist arrivals from different destinations. The period of the analysis covers the years 1995-2015.

The sample includes 18 countries, namely Albania, Australia, Austria, Belgium, France, Germany, Denmark, Switzerland, United Kingdom, USA, Spain, Italy, Canada, Cyprus, Netherlands, Romania, Russia, and Czech Republic.

Initially, conventional panel unit root tests were applied, which showed no signs of convergence. Subsequently, panel unit root test was used, based on which a break point is calculated endogenously.

It was found that (except in the case of Russia), countries show signs of convergence, with time points of disruption that correspond to the years of the recent crisis as well as the Olympic Games.

The analysis revealed these countries for which tourism policies are effective and therefore should be in the center of interest for Greece. Regarding the case of Russia, tourism policy seems to be ineffective and should be redefined.

***Keywords:** Tourism, panel unit root tests, convergence.*

[1] Professor, Department of Economics, Aristotle University of Thessaloniki, Thessalonikii, Greece, katrak@econ.auth.gr
[2] Assistant Professor, Department of Business Administration, Western Macedonia University of Applied Science, gkonteos@teiwm.gr
[3]Professor, Department of Financial Applications, Western Macedonia University of Applied Science, nsarianni@teiwm.gr
[4] Department of Financial Applications, Western Macedonia University of Applied Science, manolidou_c@yahoo.gr

1. Introduction

Tourism is considered an international industry and the largest provider of jobs that not only constitutes a modern driving force for the development process but also helps accelerate the recovery of the global economy. International tourism revenue is an important source of foreign exchange. In many cases, it helps to eliminate current account deficits and the negative balance of payments. In addition, the increase in foreign exchange income through other activities related to tourism provides the security for a further increase in foreign exchange reserves and further contributes to improving the balance of payments of each economy. Moreover, increased tourist activity enhances the chances of importing capital goods used to produce goods and services and increasing tax revenues in the country receiving each time the tourist influx. The positive effects of tourism in an economy are commonly accepted for all economies, regardless of the level of growth or size of each economy. Therefore, based on the above, the tourism industry has a positive contribution to economic growth (McKinnon, 1964; Oh, 2005; Kim & Chen, 2006; Katircioglu, 2009).

The growing global role of tourism has mobilized researchers who have attempted to study its various aspects, with an emphasis on the causal relation between tourism (arrivals or revenue) and economic development (Katircioğlu, 2010; Lee, 2012; Savaş, *et al.*, 2012). Despite the importance of the tourism industry, most empirical studies on tourism were based on the functions of tourism demand (Luzzi & Flückiger, 2003).

According to Shan and Wilson (2001), several fields remain incomplete in this type of study and therefore require further investigation. A relatively new and still under investigation issue concerning tourism is also the case of the convergence of tourist markets. The importance of studying the case of convergence in the tourism sector is a way of measuring and evaluating the successful implementation of the strategies that contribute to the promotion of the tourism product as well as the basis for planning the strategies to be implemented in the future for attracting tourists from different destinations to a specific country.

According to Narayan (2006), who first raised this issue to be investigated, the convergence case refers to the effectiveness of the marketing policies for the tourist product targeted at a specific country of origin, which is ascertained if the arrivals of visitors from the country of origin converge with the total of the international arrivals of visitors in the destination country. Therefore, if the increase in arrivals from these markets of origin positively affects the total international arrivals of visitors in the host country, then the increase in total international arrivals is based on the specific country of origin, which converges. Consequently, strategies focusing on boosting the arrivals of visitors from a converging country improve the overall volume of international arrivals of visitors. The convergence case, therefore, provides a way of measuring the success of the marketing strategies and can help in the design of future strategies. More specifically, if a marketing campaign on a certain market - source of tourism is effective, then the rate of arrivals from this market in the total arrivals will increase.

In this way, it is found out that a policy is effective. If this is not the case, the strategy should either be withdrawn or re-adjusted.

Based on all the above mentioned, there is a keen interest in exploring the case of convergence in the tourism industry. Particularly, if the markets of origin converge with the host country, this shows to the policymakers that the tourist industry in the host country is heading towards the right direction and the potential of the industry can be exploited through the appropriate tourism policies. If the arrivals of visitors from a specific country of origin converge with the total arrivals of the host country, this indicates that this market contributes significantly to the increase in the total arrivals of the host country.

Moreover, if there are smaller tourist markets to which a country is seeking to aim, it is important to be clear whether the arrivals of visitors from these smaller markets converge. The confirmation of the convergence suggests that targeting smaller markets through policies, such as cheaper holiday packages, will boost overall arrivals of visitors. If all or most of the markets converge, this suggests that a country is not based on a few markets for the arrivals of visitors. Convergence is also more likely to be seen when incomes are increasing, and prices are falling because under these circumstances people tend to travel more. Of course, incomes and prices are important determinants of tourism demand, based on several relevant studies, such as, for example, by Vogt and Wittayakorn (1998) by Song *et al.* (2000), Narayan (2004), Athanaseas *et al.* (2015), Zaman and Meunier (2017) and Saayman and Saayman (2008). However, the size of convergence cannot be ascertained by exploring the determinants of the demand, although the convergence of the tourism market can be considered as an indirect control of the importance of income, prices and other determinants of the tourism demand. Besides, income is the most important factor in the tourism demand, which leads to convergence (Narayan, 2003).

This study will focus on Greece, a country for which tourism is considered a key sector of the economy and the sector that will lead it to a development course in the future. According to recent data from the Bank of Greece, Greece "*is driven to a two-speed tourism for 2017, widening the gap between positive and negative performance in sectors, businesses and destinations*". According to the President of the Association of Greek Tourist Enterprises, although the indications for tourism are positive for 2017, "*the destabilization of Turkey is a cause for concern, as in the long run it is not a positive development for tourism... The security or insecurity coming from the destinations that are supplied by the same markets of visitors proves to be the factor that determines the tourism developments in the Mediterranean*" (Kousounis and Rousanoglou, 2017).

This study aims to explore the issue of convergence in the tourist market of Greece based on the tourist arrivals from different destinations. The period of analysis covers the period 1995-2015. It seeks to identify the converging countries where the policies of the Greek tourism product should focus, so that Greece can enjoy all the

developmental benefits. In addition, it is interesting to study which countries do not converge, as the tourism policy needs to be redefined as it is not effective. More specifically, the research objectives are:

- The analysis of the academic empirical bibliography on the issue of convergence and the identification of relevant surveys for Greece.
- The investigation of the countries that converge with the total arrivals of Greece.

The paper consists of five sections. Its structure is as follows: The first section includes an introduction to the subject under investigation. In addition, this section mentions the purpose, objectives and structure of the study. The second section includes the theoretical framework of the study. More specifically, the role of tourism, the theory of the convergence of tourist markets, the review of the relevant bibliography and the empirical bibliography on tourism concerning Greece. The third section includes a description of the sample and the methodological framework. The fourth section includes the results of the empirical analysis. The fifth and final section presents the conclusions of the analysis.

2. Literature Review

2.1 The role of tourism in an economy

Tourism is found to be a modern driving force and a sector capable of accelerating the recovery of the global economy. Especially since the 1970s, tourism has been a dynamic branch of the global economy, as a significant number of tourism-related industries acquire an international identity through tourism. The growth of the tourism sector refers to the gradual development of the tourism sector and is achieved through the evaluation and rational exploitation of tourism resources, by increasing the productivity and the quality of tourism and the orientation of the tourist product to the wishes of the visitors (Dritsakis, 2004). The increase in foreign exchange revenue through tourist expenses and other tourism-related activities provides the means to deepen the foreign exchange reserves and improve the balance of payments of the various countries. Moreover, tourism revenue enhances the chances of importing necessary capital goods and increases the tax revenue in the host countries (Katircioglu, 2009).

The impact of tourism on the economy of a country is a matter of continuous investigation, since, as initially demonstrated by Hunziker and Krapf (1941), the effect may be positive or negative based on the flows of incoming and outgoing tourism. Tourism thus generates a redistribution of income both at level of countries and at in-country level, between sectors and businesses involved in tourism. Studying the relationship between tourism and economic growth, the most popular approach of researchers is to study the multiplying effect of tourism on a country's economy. The reasoning of this effect lies in the fact that an economy needs to spend large amounts

of money on tourism which initially causes a negative effect on economic growth as the economic benefits have not yet been created in the economy. For this reason, there is an urgent need for a strategy and policy that supports these costs in order for the benefits of tourism to appear.

More specifically, the effects of tourism are direct and indirect depending on whether they have a short-term or long-term effect on the economy. In the first level, direct effects come from the additional tourist expenses on goods and services in the host economy, the tourism investment, the government expenditures and the exports of goods due to tourism. In a second level, tourism contributes to the creation of new income, jobs and tax revenues, as it contributes to the expansion of the productive base of the economy and the sub-sectors of the economy. Thus, the initial increased tourist expenditure may negatively affect the economic development of an economy, but in the long run this outcome changes to a positive one (Williams & Shaw, 1988).

Tourism causes major changes both at the economic level and the social, cultural and environmental levels. On a financial level, the impacts of the tourism industry relate to the employment, the balance of payments, the tax revenues, the inflation, the regional development and the local economy, as mentioned above (Williams & Shaw, 1988). More specifically, tourism is considered to be an industry with volume of work, as it contributes drastically to job creation, although these jobs are seasonal and usually take place together with some other employment. The balance of payments is positively and negatively affected, which depends on the general function of tourism in an economy.

The balance is negatively affected by the increased need for imports but positively by the foreign exchange inflows. In addition, tax revenues are rising as many small business units are created and there are enough self-employed people in the areas that develop in the tourism industry. Tourism, of course, has made a dramatic contribution to the development of the region, as it increased the income and employment, mainly in areas with increased tourist resources, by significantly reducing the migratory flows, given that there have been incentives in the region, and by improving the living standards. At a local level, tourism has also had positive effects on many other productive sectors. Throughout this context inflationary pressures have developed and local living costs have increased.

According to Robinson and Boniface (1999), tourism has not only economic impacts but also socio-cultural influences on a country's economy. Particularly, there is a change in the structure of a society, which is more noticeable in regions that are geographically isolated. Also, there is a tendency in the sectors involved in tourism to prevail while the sectors that are not related to tourism are correspondingly downgraded. This turn towards tourism-related industries also changes the professional structure of a society. Also, there are changes in the social relations, the manners and customs, that lead to the commercialization of these so as to attract incoming tourism. In the same direction work as well the activities and the products

with organized infrastructure and tourism services which systematically promote the culture of each society. Certainly, often, the quality does not have the level that should have and the characteristics of the local cultural heritage are not highlighted.

Finally, based on Briassoulis and van der Straaten (2000), the impacts of tourism also have environmental impacts. The development of tourism requires new infrastructures of large size and extent, thus affecting the balance of the environment. Exactly this need in infrastructure as well as in activities leads to intense land plotting phenomena as it demands more space from the natural environment. In addition, settlements are quite often created on the basis of the tourist resources that can become a very important tourist product, in an effort to create new areas of tourist attraction, which at the same time should not burden the environment. Thus, in recent years, tourism development has to be sustainable in the sense that the type of tourism development will be appropriate according to the characteristics of the local community concerned.

2.2 The convergence theory and tourism

A rather new area of empirical research in the context of studies of tourism is the case of convergence for the tourist arrivals. The importance of the convergence control is a way of assessing the success of the existing strategies for tourism promotion and gives the margin for planning future strategies to attract tourists from different countries to a specific destination.

According to Narayan (2006), who was the first to highlight the convergence case for the tourism industry, the convergence case states that the tourism marketing policies which aim at a specific country of origin are effective if the arrivals of visitors from the country of origin converge with the total of the international arrivals of visitors to the destination country. As a result, the increase in arrivals from these markets of origin positively affects the increase in total international arrivals of visitors to the host market, so that the increase in total international arrivals will substantially rely on this source market, which converges. Consequently, the strategies to increase the arrivals of visitors from the converging market improve the overall volume of international arrivals of visitors.

Based on the theory of convergence, tourism is a sector that contributes to the reduction of the differences in terms of economic growth between developed and less developed economies. The link between tourism and the theory of convergence takes place in two ways, according to Bryden (1973:72). Tourism can make a positive contribution to the economic development of a country, reducing the inequalities between regions and urban centers. At the same time, the development of the tourism industry has also effects at a global level by reducing the inequalities between developed and developing countries, meaning that tourism tends to develop as a sector away from the urban centers in less developed areas. According to Shaw and Williams (1998), although the poorest economies have traditionally been subsidized by the tourism, the emergence of thematic types of tourism, such as the cultural, the urban,

the concert one, has benefited the large urban centers. This change in the demand for the tourist product creates tourism patterns based on the tourist demand. According to Swarbrooke (2000), tourism, on the side of supply, revives the economies that have lost their potential in the traditional industry.

The convergence of growth rates is achieved by the ability of the tourism businesses to add value to each economy. If this value is smaller than the equivalent value generated by other financial activities in the richer economies, then the poorer economies will not be able to reach the richer ones. Although tourism contributes positively to a country's economy, as foreign capital inflows and its infrastructure is improved, at the same time it is possible for the economy to greatly depend itself on tourism, which is dangerous for an economy. To the negative effects of tourism development, belong also the non-economic consequences for the natural and cultural environment.

The reasons for investigating this case are firstly related to the tourism policy followed. Policy makers usually increase the percentage of tourists coming from a specific destination, which is achieved by the suitable tourist holidays' packages and air tickets offers to attract more visitors. If policies prove to be effective, then there is indeed an increase in the percentage of the total arrivals. In addition, over time, as income increases, people tend to travel more (Narayan, 2005a).

According to Narayan (2006; 2007), convergence is expressed as the reduction in the difference between the total arrivals of tourists in natural logarithm in the country that is the reference point for each survey and the arrivals of tourists per market of interest in natural logarithm, that is:

$$\mathrm{DTA}_{i,t} = \ln\left(\mathrm{TA}_{j,t}\right) - \ln(\mathrm{TA}_{i,t})$$

where $\mathrm{DTA}_{i,t}$ is the logarithmic difference between the total arrivals of the country under investigation from the tourist market concerned, $\ln\left(\mathrm{TA}_{j,t}\right)$ are the logarithm of total tourist arrivals in the country under investigation at time t, $\ln(\mathrm{TA}_{i,t})$ are logarithm of the tourist arrivals in the country of interest from each tourist market at time t. The convergence case is confirmed if $\mathrm{DTA}_{i,t}$ is found to be a stationary process.

At an international level, at least in relation to Europe, according to Williams and Shaw (1991), tourism seems to create a wealth distribution network from the north to the south and from the richer in the poorer states, thus contributing in the process of convergence. At a regional level, tourism naturally tends to decongest urban centers and drive its growth potential to less developed regions. Thus, tourism is likely to contribute to the regional development and the reduction of regional financial inequalities.

2.3 Review of the literature

The relevant literature on the study of the tourism industry has several extensions. Several researchers have dealt with the study of the contribution of tourism to the economic growth (Dritsakis, 2004; Durbarry, 2004; Ivanov and Webster, 2010), while another section of researchers has dealt with the identification of the key determinants of the incoming tourism (Hanly & Wade, 2007; Mervar & Payne, 2007; Saayman & Saayman, 2008). In addition, the interest of other researchers has focused on the nature of the disorders in the indicators of tourism, such as the arrivals of tourists and the tourist expenses *(Narayan, 2005a; Narayan, 2005b; Lean & Smyth, 2008; Smyth, et al.,* 2009). More specifically, they investigated whether the disturbances have a permanent or no impact on the tourism industry. In addition, the issue of convergence has been investigated from time to time by the researchers mainly in terms of income (Barro, 1991; Barro & Sala-i-Martin, 1992; Mankiw, *et al.*, 1992). However, there are limited studies that have analyzed convergence in the tourism sector. The basic idea of this analysis is whether the smaller tourist markets manage to reach the larger ones over the years.

The first empirical study of the investigation of the convergence case in tourism was by Narayan (2006), who assessed how much the thirteen major Australian tourist markets converge for the period 1991: 01-2003:09. For this purpose, he used LM unit root tests with structural changes in the framework of the analysis of the time series and panel in order to investigate whether the differences between Australia's total tourist arrivals and tourist arrivals from any other tourist market to Australia follow a stationary process and thus if they converge. All tests have led to the conclusion that markets converge. The same researcher one year later investigated the convergence case in the eight major tourist markets of Fiji Islands for the period 1970-2002. He carried out unit root checks and tests of co-integration between the Fiji's total tourist arrivals and the tourist arrivals from each of the eight tourist markets to Fiji. He reached similar conclusions with his previous study, which is that markets converge.

Lean and Smyth (2008) studied the convergence case for Malaysia, considering its ten major tourist markets in the period from January 1995 till December 2005. They applied LM panel unit root tests, considering one and two structural changes. They found out that there was confirmation of the convergence, which means that each of the ten tourist markets in Malaysia contributed to the increase in the tourist arrivals in Malaysia. Thus, the initiatives aimed at increasing the number of tourists from the major markets, which are a source of visitors to Malaysia, were effective. This result is a good omen for the Malaysian economy, given the increased importance of the travel and tourism sector during the last quarter of the century, as the Malaysian government's goal is the continuous effort for the development of the tourism sector with a view to diversifying the structure of the Malaysian economy.

Lorde and Moore (2008) examined the case for twenty-two tourist markets in the Caribbean for the period 1977-2004 (monthly data) using unit root tests. The empirical

results showed that there is no convergence but that there are similarities in the growth rates of the tourist arrivals.

Lee (2009) investigated the case of long-term convergence and convergence as a catching up effect between the international tourist arrivals in Singapore from Asia and other tourist destinations (USA, Oceania, Africa and Europe) for the period 1993:05-1997:01 and 2004:01-2007:09. The results showed that there is a convergence between the markets of USA, Oceania and Asia in Singapore. The results of the first period are consistent with the results of the second study period. The difference between the international arrivals of visitors to Singapore from Asia and Africa is diminishing over time, but they still have a long time ahead of them so to converge. The results for both periods show strong signs of long-term convergence in international arrivals of visitors to Singapore from Asia and America.

The results reveal that the gap between the international arrivals of tourists in Singapore from Asia and Europe during the first period changed into a convergence trend during the second period. Also, the signs of convergence for the cases of the international arrivals of visitors to Singapore from Asia and Oceania during the first period were boosted by signs of long-term convergence in the second period. These results have shown that the international arrivals of visitors to Singapore present either a long-term convergence or a convergence trend for the international arrivals of visitors from Asia during the second period. Therefore, tourism marketing strategies are effective in continents except from Asia. Also, in this study, 70% of the international tourist arrivals in Singapore were from Asia, and for this reason it was a point of reference for the study, since the differences, that were checked for the existence or lack of convergence, were among the international arrivals of visitors to Singapore from each continent, that is Africa, America, Europe and Oceania, as well as among the international arrivals of visitors to Singapore from the key market, Asia.

Tang (2011) checked the convergence case for ten tourist markets in Malaysia for the period 1995:01-2008:12. He applied the unit root tests of m-disturbances of Kapetanios (2005). The results showed that five of the selected markets show signs of convergence. In addition, eight of the ten selected markets present two major disturbances. According to these findings, the existing tourism marketing policy is not effective in some tourist markets.

Yilanci and Eris (2012) investigated the convergence case for Turkey's tourist markets during the period 1996:01-2010:12. They applied the Fourier static control (Becker, et al., 2006), which does not lose its potential in the event of an unknown structural change. The results have shown that ten of the fourteen tourist markets converge, indicating that the tourism policies are effective and that new strategies for attracting tourists should be established.

Abbott *et al.* (2012) investigated the convergence case for twenty major Turkish tourist markets for the period 1996:01-2009:12. The pairwise approach was applied in

the stochastic convergence analysis framework (Pesaran, 2007; Pesaran, et al., 2009). This new approach allows unit root tests to be carried out on all possible pairs of differences between the Turkey's total tourist arrivals and the twenty major tourist markets of Turkey without choosing a market as a reference point. They reached the conclusion that, despite the significant common "movements" of international tourist arrivals in Turkey, there is no confirmation of a long-term convergence between the large tourism markets of Turkey.

Tan and Tan (2013) investigated the existence or not of convergence for the fifteen largest tourist markets of Singapore for the period 1994:01 - 2011:06. Convergence was observed on the 80% of the tourist markets when structural changes are taken into account while no convergence was found in thirteen of the fifteen tourist markets when structural changes are not taken into account. When the control is conducted by panel analysis, there was a convergence. Therefore, tourism policies seem to promote tourism and are found to be successful.

Hepsag (2016) studied the convergence case for the twenty tourist markets of Turkey. He used unit root tests taking into account the seasonality (Beaulieu & Miron, 1993). The sample he studied concerned the period 1996:1-2014:12. He found out that the tourist markets converge on the long term and more specifically in the months of January, March, April, May, July, September and October. He concluded that the current tourism strategies aiming to increase the tourist arrivals need to be redefined to increase the number of markets converging for the months mentioned above.

2.4 Empirical studies for Greece

The present study will attempt to investigate the relations between the total international tourist arrivals in Greece and the tourist arrivals from European countries, taking into consideration all the relevant bibliography. Few studies have been found that study the tourism of Greece. Most of the published papers concerning tourism in Greece focus on its designing and its economic dimensions, with no study being carried out by the convergence analysis. The relevant bibliography, therefore, for Greece requires further investigation. The most recent studies found and concerning the study of tourism in Greece are presented briefly below.

Dritsakis (2004) empirically studied the impact of tourism on the long-term economic growth of Greece for the period 1960:I-2000:IV. He used causal analysis using real GDP, real exchange rate and tourist revenue, as well as cointegration analysis on a multivariable VAR model. The results confirmed the existence of cointegration between the three variables. It was also found a strong causality according to Granger between the tourist revenue and the economic growth but also a simple causality between the economic growth and the tourist revenue as well as between the real exchange rate and the tourist revenue.

Dritsakis and Gialetaki (2004) studied the tourism in Greece based on the most important tourist markets for Greece. Particularly, they have been investigating any long-term changes in tourism revenue from fifteen European countries to Greece. The period of the investigation was that of 1960:1-2000:4. Dickey-Fuller unit root tests and the Johansen co-integration method were applied. The results showed that the real EU income and the exchange rate have a positive impact on Greek tourism revenue while the variable that was placed for the political crisis seems to have a negative impact on tourism revenue.

Papatheodorou and Arvanitis (2014) studied the effect of the crisis on the inflows and outflows of tourists (based on tourists' overnight stays) to Greek tourism at a regional level. The study covered the period 2005-2012 and a graphical analysis was used. They found out that a new map of tourism is being formed in Greece where the areas that were specialized in domestic tourism are at a loss. From a political point of view, this situation has highlighted the need to internationalize the tourist product of each region in order to overcome the negative effects of the crisis.

3. Methodological Issues

3.1 Stochastic convergence

Barro and Sala-i-Martin (1992) have been the first to address the concept of convergence and have raised the issue of faster growth of poorer economies than developed countries. They have argued that economies are converging over the long term, and over time their income disparities tend to be eradicated. Econometric evidence was later provided by Quah (1993), who set out the framwork of cross-sectional analysis, and among others, Carlino and Mills (1993) and Bernard and Durlauf (1995), supported the use of time series aanalysis as more appropriate than cross-sectional analysis on this issue.

According to Bernard and Durlauf (1995), economies tend to converge if and only if a common trend a_t and finite parameters δ_i exists such that the following relation holds:

$$\lim_{t\to\infty}\left(y_{i,t} - a_t\right) = \delta_i \tag{1}$$

Where $y_{i,t}$ is the real per capita income for i time series. In order to take account of the unobserved common trend, the mean of the N economies is defined, and the above relationship is modified as follows:

$$\lim_{t\to\infty}(\bar{y}_t - a_t) = {}^{1}/_{N}\sum_{i=1}^{N}\delta_i \tag{2}$$

Where $\bar{y}_t = {}^{1}/_{N} \sum_{i=1}^{N} y_{i,t}$ is the mean per capita income, which is the benchmark for the time series. If the common trend level is defined based on the limit $\lim_{t\to\infty}(\bar{y}_t - a_t) = 0$ and by subtracting relation (2) from (1), then stochastic convergence is confirmed if and only if:

$$\lim_{t\to\infty}\left(y_{i,t} - \bar{y}_t\right) = \delta_i \tag{3}$$

In this context, convergence is characterized as absolute in the case where $\delta_i = 0$, while convergence is characterized as conditional if $\delta_i \neq 0$. Bernard and Durlauf (1995), state that stochastic convergence occurs when per capita income of an economy in relation with the reference economy is stable, and therefore the economy is close to the steady state.

The present analysis does not refer to the classic approach of income convergence but to the investigation of the convergence between the relevant tourist arrivals in Greece form certain destinations with reference to the total arrivals in Greece.

3.2 Panel unit root tests

Assessing stationarity is an important issue to be investigated when one analyzes time series data, as their behavior and properties can be significantly affected. Panel Unit root tests have been extensively used in recent years to conduct stochastic convergence analysis. For example, Fleissig and Strauss (2001) used these tests to analyze OECD and European countries for the period 1900-1987. They concluded that real per capita GDP for the OECD countries and a European sample of countries converged over the period 1948-1987 but not across the whole sample period 1900-1987. However, use of panel unit roots tests which do not consider the indication of structural changes, may be responsible for not finding evidence for convergence over the whole period.

The Levin, Lin, and Chu (2002), Breitung (2000) and Hadri (2000), tests assume that there is a common unit root process that is identical among the cross-sectional units. The first two tests have as null hypothesis the existence of a unit root, while the test of Hadri has as a null hypothesis the case of stationarity.

The Levin, Lin, and Chu (2002) and Breitung (2000) tests are grounded on a basic ADF regression:

$$\Delta Y_{it} = \beta Y_{i,t-1} + \sum_{j=1}^{p_i} \gamma_{ij}\, \Delta Y_{i,t-j} + X'_{it}\delta + \omega_{it} \tag{4}$$

Where β is a common parameter and p_i lags, which may differ along the cross-sections.
The hypotheses are:

H_0: $\beta = 0$ – unit root

H_1: $\beta < 0$ - stationarity

The Im, Pesaran and Shin (1997) test, as well as the ADF and PP-Fischer Chi-square tests, assume that there are isolated unit root processes such that p_i differs among cross-sections.

As presented in the work of Levin, Lin and Chu (2002) the test assumes initially a stochastic process $\{ Y_{it} \}$ of a panel of variables i=1, …,N, with each variable having t=1, …, T observations over time and aims at investigating the integration order of the panel variables. It is based on relation (4), as described above, and the ADF regression can include a constant term and / or time trend. The error ω_{it} is distributed independently to the variables and follows a stationary invertible ARMA process for each variable:

$$\omega_{it} = \sum_{j=1}^{\infty} \theta_{ij}\omega_{it-j} + \varepsilon_{it} \quad (5)$$

Individual time series may have serial correlation. Also, for each i=1, …, N and t=1,…,T, we have $E(\omega_{it}^4) < \infty$, $E(\varepsilon_{it}^2) \geq B_e > 0$ and $E(\omega_{it}^2) + 2\sum_{j=1}^{\infty} E(\omega_{it}\omega_{it-j}) < B_\omega < \infty$. These conditions correspond to the Phillips (1987) and Phillips-Perron (1988) unit root tests for weak convergence.

Since pi is unknown, the following procedure is used to perform the test:
First, based on relationship (5), separate ADF regressions are estimated for each panel unit. The lag of the term p_i may vary among the series. After the lags are determined, two auxiliary regressions of ΔY_{it} and $Y_{i,t-1}$ on $\Delta Y_{i,t-j}$ (j=1, …, p_i) and the appropriate explanatory variables X'_{it} are performed, which result in two orthogonal residuals $\hat{e}_{it}$ and $\hat{u}_{it-1}$:

$$\hat{e}_{it} = \Delta Y_{i,t} - \sum_{L=1}^{P_i} \hat{\pi}_{iL}\Delta Y_{i,t-j} - \hat{a}_{mi}X'_{it} \quad (6)$$

$$\hat{u}_{it-1} = \Delta Y_{i,t} - \sum_{L=1}^{P_i} \tilde{\pi}_{iL}\Delta Y_{i,t-j} - \tilde{\alpha}_{mi}X'_{it} \quad (7)$$

We normalize further the residuals to control for heteroscedasticity: $\tilde{e}_{it} = \frac{\hat{e}_{it}}{\hat{\sigma}_{\varepsilon i}}$, $\tilde{u}_{it-1} = \frac{\hat{u}_{it-1}}{\hat{\sigma}_{\varepsilon i}}$. The relevant test statistic which follows the Normal distribution is:

$$t_\beta^* = \frac{t_\beta - N\tilde{T}\hat{S}_N\hat{\sigma}_{\tilde{\varepsilon}}^{-2}STD(\hat{\beta})\mu_{m\tilde{T}}^*}{\sigma_{m\tilde{T}}^*} \quad (8)$$

where $\tilde{T} = T - \bar{\rho} - 1$ is the mean of the number of observations for each series in the panel and $\bar{\rho} \equiv \frac{1}{N}\sum_{i=1}^{N} \rho_i$ is the mean of the lags for each ADF regression.

As presented in the work of Breitung (2000) the test generalizes the process in a model with heterogeneous trends and short-term dynamics. It shows that the resulting test statistic has a typical normal distribution and is stronger than the Levin Lin and Chu

test (2002). However, this test is weak when the trend parameter is heterogeneous in the cros-sectional units (Phillips and Sul, 2003). The test differs in two points from the Levin Lin and Chu (2002) test:

- The autoregressive process is eliminated when the standardized parameters are created:
-

$$\widetilde{\Delta Y_{i,t}} = \left(\Delta Y_{i,t} - \sum_{j=1}^{p_i} \widehat{\beta_{ij}}\, \Delta Y_{i,t-j}\right) \Big/ S_i \tag{16}$$

$$\widetilde{Y_{i,t-1}} = \left(Y_{i,t} - \sum_{j=1}^{p_i} \beta_{ij}\, \Delta Y_{i,t-j}\right) \Big/ S_i \tag{9}$$

These parameters are modified, and trend is eliminated:

$$\Delta Y_{i,t}^{*} = \sqrt{\frac{T-t}{T-t+1}}\left(\Delta \widetilde{Y_{i,t}} - \frac{\Delta \widetilde{Y_{i,t+1}} + \cdots + \Delta \widetilde{Y_{i,T}}}{T-t}\right) \tag{10}$$

$$Y_{i,t}^{*} = \widetilde{Y_{i,t}} - \widetilde{Y_{i,1}}\,\frac{t-1}{T-1}\left(\widetilde{Y}_{i,t} - \widetilde{Y}_{i,1}\right) \tag{11}$$

Parameter β is estimated from:

$$\Delta {Y_{i,t}}^{*} = \beta {Y_{i,t-1}}^{*} + \nu_{i,t} \tag{12}$$

As presented in the work of Hadri (2000) the test uses the Lagrange multiplier and is the only one called stationarity tets instead of unit root test. It differs from the other tests in its null hypothesis, which states that all panel series are stationary. This test generalizes in panels the Kwiatkowski, et al. (1992) test. It is based on the residuals and in particular on the partial sum of the residual squares. The test statistics is:

$$LM = \frac{1}{N}\left(\sum_{t=1}^{N}\left(\sum_{t} S_i(t^2) \Big/ T^2 \Big/ f_0\right)\right) \tag{13}$$

where $S_i(t) = \sum_{s=1}^{t} \widehat{e_{it}}$ and $f_0 = \sum_{i=1}^{N} f_{i0} / N$.

As presented in the work of Im, Pesaran and Shin (1997 the test is based on the specification of individual ADF regressions for each cross-sectional unit of the following form:

$$\Delta Y_{it} = \beta Y_{i,t-1} + \sum_{j=1}^{p_i} \gamma_{ij}\, \Delta Y_{i,t-j} + X'_{it}\delta + \omega_{it} \tag{14}$$

with p_i lags which may differ among cross-sections.

The relevant test hypotheses are:

H_0: $\beta_i=0$ – unit root for all i

H_1: $\begin{cases} \beta_i = 0 \text{ for } i = 1,2 \dots N_1 \\ \beta_i < 0 \text{ for } i = N+1, N+2 \dots N \end{cases}$ - stationarity

Suppose t tests for each cross-sectional unit based on T observations, with $t_{i,T}$ (i=1, 2, …, N) be t-statistics and $E(t_{i,T}) = \mu$ and $Var(t_{i,T}) = \sigma^2$. Hence, $\sqrt{N}\frac{(\bar{t}_{N,T}-\mu)}{\sigma} \Rightarrow N(0, 1)$, where $\bar{t}_{N,T} = \frac{1}{N}\sum_{i=1}^{N} t_{i,T}$. The statistic $\bar{t}_{N,T}$, follow the standard normal distribution. It is worth noting that T is the same for all units and therefore, $E(t_{i,T})$ and $Var(t_{i,T})$ hold also for each cross-sectional unit i, and as a consequence the test gives reliable results in balanced panels. The test performs better for small N and T.

The ADF & PP-Fischer Chi-squared proposed by Maddala and Wu (1999) and Choi (2001), are an alternative approach to the Fisher (1932) test, that combines probability values with unit root unit tests. If p_i is the probability value of each individual test for each cross-sectional unit, then:

$$-2\sum_{i=1}^{N}\log(p_i) \rightarrow x_{2N}^2 \quad (15)$$

The ADF (1984) test starts with the autoregressive procedure of order ρ, that is AR(p):

$$\Delta X_{ijt} = a_{ij} + \beta_{ij}t + \delta_{ij}X_{ij,t-1} + \sum_{k=1}^{p_{ij}}\gamma_{ijk}\Delta X_{ij,t-p} + e_t \quad (16)$$

For the country i and country j as the benchmark country, a_{ij} = constant term, t = time trend, $\Delta X_{ijt} = X_{it} - X_{jt}$, $-1 < \delta_{ij} < 0$, p_{ij} = the order of the autoregressive scheme, e_t =residual term.

The relevant hypotheses are:

$H_o : \delta_{ij} = 0 \rightarrow$ unit root

$H_1 : \delta_{ij} < 0 \rightarrow \eta\, \Upsilon_t$ stationarity

For a given critical value α, if the p-value < α we reject the null hypothesis, which verifies the existence of stochastic convergence.

The Phillips - Perron (1988) test, is based on the regression:

$$\Delta X_t = \beta' D_t + \pi X_{t-1} + \mu_t \quad (17)$$

An advantage of the PP test against the ADF is that the first is resistant to general forms of heteroscedasticity in the error term μ_t. Another advantage is that it is not necessary to determine the time lags to carry out the test. The assumptions of these tests are the same as those of Im, Pesaran & Shin (1997).

In the works of Lee and Strazisich (2003; 2004) this test is based on the Lagrange multiplier and is carried out by endogenously identifying structural change. The test is using auxiliary regressions that allow a change in the constant term of the model as well as a simultaneous change of the constant term and the time trend. Its general form is:

$$\Delta y_t = \delta' Z_t + X_t \quad (18)$$

where Δ is the difference operator, Z_t is a vector of exogenous variables and $X_t = \beta X_{t-1} + u_t$. In the case of a structural change in the constant term in period T_{B_1} we have $Z_t = [1, t, D_{1t}]'$. In the case of a structural change in both the constant term and time trend in period T_{B_1}, then $Z_t = [1, t, D_{1t}, DT_{1t}]'$. The relevant LM statistic is calculated using the model:

$$\Delta y_t = \delta' \Delta Z_t + \varphi \tilde{S}_{t-1} + \sum \gamma_i \Delta \tilde{S}_{t-i} + \varepsilon_t \quad (19)$$

The relevant hypotheses are:

$$H_0 : \varphi = 0, \text{unit root}$$
$$H_1 : \varphi < 0, \text{stationarity}$$

If the p-value is less than a given critical value α, the null hypothesis of a unit root is rejected.

4. Data and Empirical Analysis

4.1 Data

The sample of this study consists of countries that choose Greece as a tourist destination. Specifically, the sample includes 18 countries, namely Albania, Australia, Austria, Belgium, France, Germany, Denmark, Switzerland, United Kingdom, USA, Spain, Italy, Canada, Cyprus, the Netherlands, Romania, Russia, the Czech Republic. The time of the analysis is 1995-2015.

The databases used are the World Bank and the Association of Greek Tourist Enterprises. The variables selected are the total international tourist arrivals and arrivals in Greece from a specific country. Total international arrivals is the number of tourists traveling to a country other than their usual residence for a period not exceeding twelve months. When there is no data on the number of tourists, the number of visitors, including tourists, daily visitors, cruise passengers and crew members, is displayed.
Sources and collection methods for number of arrivals vary from country to country. In some cases, the data comes from statistical data at the border and is complemented by surveys. In other cases, the data comes from tourist accommodation. For some

countries the number of arrivals is limited to arrivals by air and for others arriving in hotels. Data for incoming tourists refer to the number of arrivals, not to the number of people traveling. Arrivals from a specific country do not include economic migrants. Finally, data also come from the Bank of Greece Border Survey, which was prepared by the Association of Greek Tourist Enterprises.

4.2 Results of unit root tests without structural changes

At the first level, unit root tests were applied without any structural changes to determine whether the divergences in the tourist arrivals of one of the 18 sample countries from the total arrivals in Greece are stationary. In case the stagnation is confirmed, it is concluded that the markets of these countries converge. By extension, this is an indication that the tourism policies of Greece seem to be effective as they promote tourism. Specifically, they are presented the panel unit root tests for all the countries of the sample, with or without any individual effects and with or without any isolated linear trends. The results appear in the Table below:

Table 1: *Classical unit root tests with no structural change.*

Sample period: 1996 2015						
Automatically selected maximum number of time lags - SIC						
Automatically selected bandwidth: Newey-West and Bartlett kernel						
	Exogenous variables					
Test	**Individual effects, individual linear trends**		**Individual effects**		**No individual effects, individual linear trends**	
	Test statistic	**p-value****	**Test statistic**	**p-value****	**Test statistic**	**p-value****
Null hypothesis: unit root (assumes a common unit root procedure)						
Levin, Lin & Chu t*	-0.84247	0.1998	1.90329	0.9715	3.50597	0.9998
Breitung t-stat	0.64355	0.7401	-	-		
Null hypothesis: unit root (assumes an individual unit root procedure)						
Im, Pesaran and Shin W-stat	0.40905	0.6587	2.46422	0.9931	-	-
ADF - Fisher Chi-square	34.4060	0.5445	28.9388	0.7921	15.9660	0.9984
PP - Fisher Chi-square	30.6498	0.7208	30.0694	0.7459	16.0599	0.9983
*** Probabilities for the Fisher test have been computed using the asymptotic X^2. All other tests assume asymptotic normality.*						

From the above tests, the p-value is greater than the significance level, per 5%, which confirms that there is a unit root and consequently there is no stagnation for the panel.

Thus, the classical tests do not confirm the existence of convergence for all the countries. These unit root tests assume that the series under examination is developing relatively smoothly over time, in the sense that there are no significant changes that affect the evolution of the chronological order. Of course, if there are significant changes that occur after a structural change in an economy, such as the economic crisis or a terrorist attack.

However, there are tests that take into consideration structural changes that may have a permanent effect in the chronological order. Therefore, and given the issue under study, it was considered necessary to investigate the existence of a unit root with structural changes, as the ADF control is tendentious if the existence of a structural change is confirmed (Nelson & Plosser, 1982).

4.3. Results of unit root tests with structural changes

Then, the LM test of Lee and Strazisich (2004) was carried out with a structural change. This test is carried out in panels and arrives at conclusions for each country separately in the analysis panel. Therefore, it is considered more reliable, as it does not have a problem with degrees of freedom. The results are listed below:

Table 2: *Unit root control LM with structural change.*

	Time trend		**Without Time trend**	
Country	**Test statistic**	**Structural change**	**Test statistic**	**Structural change**
Albania	-7,835 (2)***	2013	-7,835 (2)	2013
Australia	-8,271 (2)***	2005	-8,271 (2)	2005
Austria	-14,211 (2)***	2009	-14,211 (2)	2009
Belgium	-5,389 (1)***	2003	-5,389 (1)	2003
France	-8,383 (2)***	2012	-8,383 (2)	2012
Germany	-8,234 (2)***	2007	-8,234 (2)	2007
Denmark	-5,557 (1)***	2007	-5,557 (1)	2007
Switzerland	-6,022 (1)***	2003	-6,022 (1)	2003
United Kingdom	-4,898 (1)***	2013	-4,898 (1)	2013
USA	-4,895 (1)***	2013	-4,895 (1)	2013
Spain	-4,009 (0)**	2007	-4,009 (0)	2007
Italy	-7,415 (1)***	2012	-7,415 (1)	2012
Canada	-10,292 (1)***	2001	-10,292 (1)	2001
Cyprus	-11,038 (1)***	2003	-11,038 (1)	2003
Netherlands	-4,648 (1)***	2013	-4,648 (1)	2013
Romania	-9,362 (2)***	2003	-9,362 (2)	2003
Russia	-1,072 (2)	2003	-1,072 (2)	2003
Czech Republic	-7,007 (1)***	2005	-7,007 (1)	2005
Statistical panel	-31,823***		-31,823***	

Critical values for structural change for the 1%,5% and 10% are respectively -4,239, -3,566 and -3,211. The corresponding critical values for the panel LM test for 1%, 5% and 10%are respectively -2,326, -1,645 and -1,282. ***, **, * represent statistical

significance at the 1%, 5% and 10% level. The number of lags has been chosen using the SBC criterion and is noted in parenthesis next to the test statistic. This test also shows each country separately to see if all or most countries are converging towards the tourism market of Greece. Based on the above results, it is ascertained from the panel control statistics that the zero point of a unit root is rejected, and the alternative hypothesis of stagnation becomes acceptable. Stagnation implies an indication for the whole group of countries being under analysis. Panel control statistics are lower than the critical value per 1% in the significance level, which means that the tourist markets converge stochastically towards Greece. This is an indication that the tourism policy is in the right direction, with the ulterior goal of increasing the arrivals.

As shown in the above Table, 2 out of 17 countries, namely Albania, Australia, Austria, Belgium, France, Germany, Denmark, Switzerland, United Kingdom, USA, Italy, Canada, Cyprus, the Netherlands, Romania and the Czech Republic, reject per 1% at the significance level the zero point of the unit root. Thus, these tourist markets, based on their arrivals, converge with the total number of tourist arrivals, a fact which is in favor of the proper orientation of the tourism policy of Greece towards these countries. In addition, Spain is another country for which the zero point of the unit root is rejected per 5% at the significance level, which leads to a similar conclusion to the above. The only country that does not converge is Russia, as the zero point of the unit root is not rejected in the case of that country.

The structural changes resulting from the above test are placed in 2003 and 2005. The period 2001-2003 was a period of lower tourist mobility, not only to Greece but to most destinations compared to the previous flourishing decade of 1990s due to the international security crisis since 11th September 2001. Since 2004, there has been a relative recovery, which particularly in Greece, was combined with the Olympic Games, a fact that helped to increase the tourist movement towards Greece and to redefine the tourist product. This situation has begun again to change since 2007 and onwards, and especially after 2009, due to the global financial crisis.

5. Conclusions

This study attempted to investigate the existence or not of convergence in the tourism sector, focusing on the tourist market of Greece. The analysis was based on the tourist arrivals from different countries having destination to Greece and the total arrivals of Greece for the period 1995-2015. It was attempted to determine which are the converging countries, if any, to see if Greece follows an effective tourism policy for the countries that choose Greece as their destination. For this purpose, different unit root tests with or without structural change were used to ascertain the existence of convergence in a stochastic context.

The first objective of the research was to analyze the relevant academic empirical bibliography on the issue of convergence and to identify relevant surveys conducted for Greece. Particularly for Greece, which is the point of reference for the analysis, a

small number of rather recent studies have been found, without any of them addressing the issue of convergence. For example, Dritsakis and Gialetaki (2004) studied tourism in Greece based on the most important tourist markets for Greece. The results showed that the real EU income and the exchange rate have a positive impact on the tourism revenue in Greece, while the variable that was set for the political crisis seems to have a negative impact on the tourism revenue. More recently, Papatheodorou and Arvanitis (2014) studied the impact of the crisis on the inflows and outflows of tourists (based on tourists' overnight stays) in the Greek tourism at a regional level. From the graphical analysis they have conducted, they concluded that a new tourism map is being created in Greece.

The second goal of the research relates to the empirical investigation of the subject under study. Initially, from the tests without structural change in a framework of analysis panel no stochastic convergence was established. Then, from the unit root tests per country and again without structural change it was found out that convergence exists only in two countries: France and the Czech Republic. Because these tests assume that the series under examination is developing relatively smoothly over time, in the sense that there are no significant structural changes that may affect the evolution of the time order, the analysis in the second level proceeded to unit root checks with a structural change in each country and in a panel context.

The control of Zivot and Andrews (1992) showed that 17 of the 18 countries in the sample show signs of stochastic convergence with significant structural changes, which are mainly found in the period of 2005 for most of the countries, which is the year following the Olympic Games which took place in Greece in 2004 and contributed positively to the improvement of tourism policies, due to the promotion of the country abroad. In addition, the period of the crisis in Greece is another point of time highlighted by this specific test. The non-converging country found is Russia, where it is indicative that, although tourist demand from this market has increased, the country's policy towards this market does not appear to be that effective to yield long-term results. Moreover, the Lee and Strazisich (2004) test with one structural change came up with the same results as those of Zivot-Andrew's test with corresponding structural changes.

References:

Athanasenas, A., Chapsa, X. and Michailidis, A. 2015. Investigating Social Protection Convergence in the EU-15: A Panel Data Analysis. European Research Studies Journal, 18(2), 79-96.

A.F.R. 1932. Statistical Methods for Research Workers. 4th ed., Edinburgh, Oliver & Boyd.

Abbott, A., De Vita, G. and Altinay, L. 2012. Revisiting the convergence hypothesis for tourism markets: Evidence from Turkey using the pairwise approach. Tourism Management, 33(3), 537-544.

Barro, R. 1991. Convergence across states and regions. Brookings papers on economic activity, 107-182.

Barro, R. and Sala-i-Martin, X. 1992. Convergence. Journal of political Economy, 100(2),

223-251.
Beaulieu, J.J. and Miron, J.A. 1993. Seasonal unit roots in aggregate U.S. data. Journal of Econometrics, 55, 305-328.
Becker, R., Enders, W. and Lee, J. 2006. A stationarity test in the presence of an unknown number of smooth breaks. Journal of Time Series Analysis, 27(3), 381-409.
Bernard, A. and Durlauf, S., 1995. Convergence in international output. Journal of applied econometrics, 10(2), 97-108.
Briassoulis, H. and van der Straaten, J. 2000. Tourism and the environment: An overview. Tourism and the Environment, 1-19.
Bryden, J. 1973. Tourism and development. CUP Archive.
Carlino, G. and Mills, L. 1993. Are US regional incomes converging? A time series analysis. Journal of monetary economics, 32(2), 335-346.
Choi, I. 2001. Unit root tests for panel data. Journal of international money and Finance, 20(2), 249-272.
Dickey, DA., Hasza, D. P. and Fuller, W.A. 1984. Testing for unit roots in seasonal time
Dritsakis, N. 2004. Tourism as a long-run economic growth factor: an empirical investigation for Greece using causality analysis. Tourism Economics, 10(3), 305-316.
Dritsakis, N. and Gialetaki, K 2004. Cointegration analysis of tourism revenues by the member countries of European Union to Greece. Tourism Analysis, 9(3), 179-186.
Durbarry, R. 2004. Tourism and economic growth: the case of Mauritius. Tourism Economics, 10(4), 389-401.
Fleissig, A. and Strauss, J. 2001. Panel unit-root tests of OECD stochastic convergence. Review of International Economics, 9(1), 153-162.
Hadri, K. 2000. Testing for stationarity in heterogeneous panel data. The Econometrics Journal, 3(2), 148-161.
Hanly, P. and Wade, G. 2007. Modelling tourism demand–an econometric analysis of North American tourist expenditure in Ireland, 1985–2004. Tourism economics, 13(2), 319-327.
Hepsag, A. 2016. Testing convergence of tourism markets: evidence from seasonal unit roots test. Anatolia, 27(2), 177-188.
Hunziker, W. and Krapf, K. 1941. Tourism as the sum of the phenomena and relationships arising from the travel and stay of non-residents. Publications AIEST Association International expert scientific tourism.
Ivanov, S. and Webster, C. 2010. Decomposition of economic growth in Bulgaria by industry. Journal of Economic Studies, 37(2), 219-227.
Kapetanios, G. 2005. Unit-root testing against the alternative hypothesis of up to m structural breaks. Journal of Time Series Analysis, 26(1), 123-133.
Katircioglu, S. 2009. Revisiting the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration. Tourism Management, 30(1), 17-20.
Katircioglu, S. 2010. 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.
Kim, H.J. and Chen, M.H. 2006. Tourism expansion and economic development: The case of Taiwan. Tourism Management, 27(5), 925-933.
Kousounis, S. and Rousanoglou, N. 2017. Two-speed tourism in Greece in 2017.
Kwiatkowski, D., Phillips, P., Schmidt, P. and Shin, Y. 1992. Testing the Null Hypothesis of Stationary 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.

Lean, H.H. and Smyth, R. 2006. Marketing "Malaysia welcomes the world": Are Malaysia's tourism markets converging. Monash University Business and Economics.

Lean, H.H. and Smyth, R. 2008. Are Malaysia's tourism markets converging? Evidence from univariate and panel unit root tests with structural breaks. Tourism economics, 14(1), 97-112.

Lean, H.H. and Smyth, R. 2009. Asian financial crisis, avian flu and terrorist threats: are shocks to Malaysian tourist arrivals permanent or transitory? Asia Pacific Journal of Tourism Research, 14(3), 301-321.

Lee, C.G. 2009. The convergence hypothesis for tourism markets: evidence from Singapore. Tourism Economics, 15(4), 875-881.

Lee, C.G. 2012. Tourism, trade, and income: Evidence from Singapore. Anatolia, 23(3), 348-358.

Levin, A., Lin, C.F. and Chu, C.S.J. 2002. Unit root tests in panel data: Asymptotic and finite-sample properties. Journal of econometrics, 108(1), 1-24.

Lorde, T. and Moore, W. 2008. Co-movement in Tourist Arrivals in the Caribbean. Tourism Economics, 14(3), 631-643.

Luzzi, F.G. and Flückiger, Y. 2003. An econometric estimation of the demand for tourism: The case of Switzerland. Pacific Economic Review, 8(3), 289-303.

Maddala, G. and 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(1), 631-652.

Mankiw, G., Romer, D. and Weil, D. 1992. A contribution to the empirics of economic growth. The quarterly journal of economics, 107(2), 407-437.

McKinnon, R. 1964. Foreign exchange constraints in economic development and efficient aid allocation. The Economic Journal, 74(294), 388-409.

Mervar, A. and Payne, J. 2007. An analysis of foreign tourism demand for Croatian destinations: Long-run elasticity estimates. Radni materijali Ekonomskog instituta, 1, 5-21.

Narayan, P. 2007. Testing Convergence of Fijis Tourism Markets. Pacific Economic Review, 12(5), 651-663.

Narayan, P.K. 2003. Tourism demand modelling: Some issues regarding unit roots, co-integration and diagnostic tests. International Journal of Tourism Research, 5(5), 369-380.

Narayan, P.K. 2004. Fiji's tourism demand: The ARDL approach to cointegration. Tourism Economics, 10(2), 193-206.

Narayan, P.K. 2005a. The structure of tourist expenditure in Fiji: Evidence from unit root structural break tests. Applied Economics, 37(10), 1157-1161.

Narayan, P.K. 2005b. Testing the unit root hypothesis when the alternative is a trend break stationary process: an application to tourist arrivals in Fij. Tourism Economics, 11, 351-364.

Narayan, P.K. 2006. Are Australia's tourism markets converging? Applied Economics, 38(10), 1153-1162.

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

Papatheodorou, A. and Arvanitis, P. 2014. Tourism and the economic crisis in Greece: Regional perspectives. Region et Développement, 39, 183-203.

Pesaran, M.H., 2007. A pair-wise approach to testing for output and growth convergence. Journal of Econometrics, 138(1), 312-355.

Pesaran, M. H., Smith, R., Yamagata, T. and Hvozdyk, L. 2009. Pairwise tests of purchasing power parity. Econometric Reviews, 28, 495-521.

Phillips, P. 1987. Time series regression with a unit root. Econometrica: Journal of the Econometric Society, 277-301.

Phillips, P. and Perron, P. 1988. Testing for a unit root in time series regression. Biometrika, 335-346.

Phillips, P. and Sul, D. 2003. Dynamic panel estimation and homogeneity testing under cross section dependence. The Econometrics Journal, 6(1), 217-259.

Quah, D. 1993. Galton's fallacy and tests of the convergence hypothesis. The Scandinavian Journal of Economics, 427-443.

Robinson, M. and Boniface, P. 1999. Tourism and cultural conflicts. London, CAB International.

Saayman, A. and Saayman, M. 2008. Determinants of inbound tourism to South Africa. Tourism Economics, 14(1), 81-96.

Savas, B., Beskaya, A. and Samiloglu, F. 2012. Analyzing the impact of international tourism on economic growth in Turkey. Uluslararası Yönetim İktisat ve İşletme Dergisi, 6(12), 121-136.

Shan, J. and Wilson, K. 2001. Causality between trade and tourism: Empirical evidence from China. Applied Economics Letters, 8(4), 279-283.

Shaw, G. and Williams, A.M. 1998. Entrepreneurship, small business culture and tourism development. The economic geography of the tourist industry: A supply-side analysis. Routledge.

Smyth, R., Nielsen, I. and Mishra, V. 2009. I've been to Bali too'(and I will be going back): are terrorist shocks to Bali's tourist arrivals permanent or transitory? Applied Economics, 41(11), 1367-1378.

Song, H., Romilly, P. and Liu, X. 2000. An empirical study of outbound tourism demand in the UK. Applied Economics, 32(5), 611-624.

Swarbrooke, J. 2000. Tourism, economic development and urban regeneration: A critical evaluation. In Developments in Urban and Rural Tourism, Centre for Travel and Tourism. Sunderland: Sheffield Hallam University and University of Northumbria, 269-285.

Tang, C.F. 2011. Old wine in new bottles: Are Malaysia's tourism markets converging? Asia Pacific Journal of Tourism Research, 16(3), 263-272.

Tan, S. and Tan, S. 2013. Are Singapore's tourism markets converging with structural breaks? Tourism Economics, 19(1), 209–216.

Vogt, M. and Wittayakorn, C. 1998. Determinants of the demand for Thailand's exports of tourism. Applied Economics, 30(6), 711-715.

Williams, A. and Shaw, G. 1988. Introduction: Tourism and Uneven Economic Development. In Tourism and economic development: Western European experiences. London, Belhaven Press.

Williams, A. and Shaw, G. 1991. Tourism and Economic Development: Western European Experiences. 2nd Edition, London, Belhaven Press.

Yilanci, V. and Eris, Z.A. 2012. Are tourism markets of Turkey converging or not? A Fourier stationary analysis. Anatolia, 23(2), 207-216.

Zaman, C., Meunier, B. 2017. A Decade of EU Membership: Evolution of Competitiveness in Romania. European Research Studies Journal, 20(2A), 224-236.