



TOURISM AND ECONOMIC DEVELOPMENT IN MEDITERRANEAN SEA BASIN COUNTRIES: A PANEL DATA ANALYSIS

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Abstract

In this paper, the long run relationship between tourism receipts per capita and gross domestic products (GDP) per capita is examined for a sample of 18 Mediterranean basin countries for 1995-2009 period using recently developed panel unit root tests and error-correction based panel cointegration techniques. The results of the tests suggest that tourism receipts per capita and GDP per capita are cointegrated and tourism receipts is the source of GDP for those countries in long run term.

KEYWORDS: Mediterranean Sea basin countries, economic development, tourism receipts, panel cointegration, panel unit root tests

Introduction

Tourism has been one of the fastest growing sectors of the world economy (Tooman 1997) and it is world's largest service sector industry in terms of international trade (Lew 2011). International tourism has been growing steadily in the last two decades in the World (see Table 1 for details). International tourist arrivals increased from 435 million in 1990 to 940 million in 2010 and international tourism receipts reached 919 billion USD in 2010 while it was 262 billion USD in 1990 (UNWTO 2011).

Table 1: International tourist arrivals and tourism receipts

	Tourist arrivals (million)	Tourism Receipts (billion US\$)
1990	435	262
1995	528	403
2000	675	475
2005	798	679
2008	917	939
2009	882	851
2010	940	919

Source: World Tourism Organization (UNWTO) tourism highlights, 2011

Tourism is a leading industry in the service sector at the global level as well as a major provider of jobs and significant generator of foreign exchange at the national level. Therefore, in the length of time, the role of tourism in economic development would be important (He & Zheng 2011). Tourism-led growth hypothesis assumes that tourism is a major factor of overall long-run economic growth (Kim et al. 2006). However, the role of tourism development in economic growth is not obvious. Although the relationship between tourism development and economic growth has been widely examined in the

literature (e.g. Kreisha 2011; Jintranun et. al. 2011; Chaiboonsri et. al. 2010; Zortuk 2009; Malik, et. al. 2010; Eugenio-Martin, et. al. 2004; Dritsakis 2011; Lee & Chang 2008; Cortés-Jiménez & Pulina 2006; Durbarry 2002; Katircioğlu 2009) studies revealed different results for different countries, and different methodologies.

From this point, the purpose of this paper is to investigate the long-run relationship between tourism receipts per capita and GDP per capita as the indicator of economic development. The study is conducted on Mediterranean Sea basin countries since they bear great share of international tourist arrivals and receipts among the highest ranked 10 countries (see Table 2).

Table 2: International Tourist Arrivals and Tourism Receipts

Rank	Tourist Arrivals (Million)	
	2009	2010
France	76.8	76.8
United States	55.0	59.7
China	50.9	55.7
Spain	52.2	52.7
Italy	43.2	43.6
United Kingdom	28.2	28.1
Turkey	25.5	27.0
Germany	24.2	26.9
Malaysia	23.6	24.6
Mexico	21.5	22.4
Rank	Tourism Receipts (Billion USD)	
	2009	2010
United States	94.2	103.5
Spain	53.2	52.5
France	49.4	46.3
China	39.7	45.8
Italy	40.2	38.8
Germany	34.6	34.7

United Kingdom	30.1	30.4
Australia	25.4	30.1
Hong Kong	16.4	23.0
Turkey	21.3	20.8

Source: World Tourism Organization (UNWTO) tourism highlights, 2011.

The rest of the article is organized as follows. In the following section we examine the some part of the literature on the relationship between tourism receipts and economic development. Methodology of the study including the details of model, data and analysis are presented in the second section. The findings and discussions are presented in the last section.

Literature

Theoretically tourism may have both negative and positive effects on economic development. On one hand, tourism may increase expectation of inflation and may damage local companies since domestic hotels could not compete with the international hotel chains (Rösch, 1986). On the other hand, tourist expenditures on food and drink, entertainments and local transport can create positive effects on economy and also create much employment for the sector which are directly or indirectly related with the tourism sector and opportunities for economic development. Therefore, tourism revenues can diminish the balance of payments deficit, increase employment, enable economic growth to gather speed, increase production, and lead to growth in physical sources and infrastructure (Rösch, 1986).

There have been many empirical studies (e.g. Durbarry 2002; Eugenio-Martin, et. al. 2004; Cortés-Jiménez & Pulina 2006; Kim et al., 2006; Aslan, 2008, Lee & Chang 2008; Katircioğlu 2009; Zortuk 2009; Chaiboonsri et. al. 2010; Malik, et. al. 2010; Kreisha 2011; Jintranun et. al. 2011; Dritsakis 2011) indicated to examine the relationship between tourism development and economic growth for various countries and regions through using different methodologies.

For instance, Kim et al., (2006) examined the causal relationship between tourism expansion and economic development in Taiwan and showed that tourism and economic development reinforce each other.

According to Yavuz (2006), there is no relationship between tourism revenues and economic growth in Turkey. Bahar (2006) found positive effect of tourism on economic development and cointegration test showed there is also long-term mutual relationship between those variables.

A more comprehensive study (Lee & Chang 2008) found that in long run, there exists unidirectional causality relationships from tourism development to economic growth in OECD countries, bidirectional relationships in non-OECD countries, but only weak relationships in Asia.

Brida et.al. (2008) studied the possible causal relationships among tourism expenditure, real exchange and economic growth in Mexico and found that a shock in tourism expenditure produces a short fall and then a positive effect on growth.

Similarly, Aslan (2008) found that tourism would support Turkish economic development. Çetintaş & Bektaş (2008) studied the short and long time relationships and causality with the ARDL test between tourism and economic development in Turkey, and found that in short time there is no relationship but in long-term tourism is the significant factor for economic development.

Zaman et al. (2010) examined the relationship between tourism and economic development in Romania by using Input-Output (IO) analysis and revealed that tourism has great impact on the national economy by the vector of final demand.

Another study about China (He & Zheng 2011) showed that the development of tourism bases on economic growth, at the same time, economic growth is in need of tourism development.

With respect to globalization, it is preferable to compare the relations between tourism and economic development with groups of countries rather than in an individual country. There have been some studies focused on various countries in same regions, such as Spanish and Italian regions, Mediterranean, Latin American, East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, North America, South Asia, and Sub-Saharan Africa (Diritsakis 2011).

The study (Eugenio-Martín et al. 2004) about Latin American countries examined the long-run relationship between economic growth and tourism development for 1985-1998 periods through using Arellano-Bond dynamic panel data analysis. According to the results they suggested that the increase in the number of tourists' arrivals in a country offers an opportunity for economic growth while countries are developing, but not when countries are already developed.

A similar study on seven Mediterranean countries (Diritsakis 2011) analyzed the relationship for 1980-2007 period using heterogeneous panel cointegration technique and revealed that tourist receipts affects the GDP for each seven country.

The above mentioned findings may lead to the conclusion that the relationship between tourism development and economic growth is not obvious. Besides that there is a lack of research covering all Mediterranean Sea basin countries. Therefore, the purpose of this study is to examine the long-run relationship between tourism receipts and economic development for Mediterranean Sea basin countries.

Methodology

Model

In order to test the long-run relationship between tourism receipts and economic development the following model is generated.

$$\ln(GDP_{it}) = \mu_i + \beta_1 \ln(TR_{it}) + \varepsilon_{it} \quad (1)$$

Economic development is denoted as GDP per capita, tourism receipts per capita is abbreviated as TR. i ($= 1 \dots N$) denotes the cross-sectional units (countries) and t ($= 1 \dots T$) denotes the time period. μ_i is time invariant

individual nuisance parameter. ε_{it} is assumed to be independent and identically distributed over time periods and cross-sectional units. If the variables are integrated, equation (1) should be used to see the long run relationship parameters. Otherwise, a short run interpretation is appropriate (Dreger & Reimer 2005).

We used panel unit roots and cointegration tests since these techniques account for both time-series dimension and cross-sectional dimension. Unit root tests on panel data are stronger than tests on individual chronological series (Gbaguid 2008). Also, according to Hadri and Kurozumi (2009) the main motive for applying unit root and stationary tests to panel data is to improve the power of the tests relative to their univariate counterparts. One difficulty with the estimation of an equation in the time dimension is the well-known problem of spurious regressions: if the variables follow a non-stationary process, the regression results might be spurious (Laurin 2007). To eliminate this spurious, we must find the stationary level of variables, and we must use appropriate regression equation with the appropriate level variables.

At first, to test whether the variables are stationary or not, the following 6 panel unit root tests were conducted with stata; Levin-Lin-Chu (2002, LLC hereafter), Harris & Tzavalis (1999, HT hereafter), Breitung(2000), Im-Pesaran-Shin (2003, IPS hereafter), Hadri LM Stationary test (2000, LM hereafter), Fisher-type test (Choi 2001). Description of the model specifications and tests are provided in above referred studies. The most of the above tests assume a balanced panel dataset. Im–Pesaran–Shin (2003) and Choi (2001) Fisher-type tests allow for unbalanced panels analysis. The LLC test assumes a

$$\Delta \ln(GDP_{it}) = \alpha_{it} + \rho_1 \ln(GDP_{it-1}) - \beta_1 \ln(TR_{it}) + \sum_{s=1}^{p-1} \delta_{1s} \Delta \ln(GDP_{it-s}) + \sum_{s=0}^{p-1} \varphi_{1s} \Delta \ln(TR_{it-s}) + \varepsilon_{it} \quad (2)$$

Two test of Westerlund – called grouped-mean tests (shown as G_T and G_N) test the null hypothesis of no cointegration for all cross-sectional units against the alternative hypothesis that there is cointegration for at least one countries (null hypothesis $H_0: \rho_1 = 0$ for all i versus $H_1: \rho_1 < 0$ for at least one i). Other two tests which are called panel tests (shown as F_T and F_N) test the null hypothesis of no cointegration for all cross-sectional units against the alternative hypothesis of cointegration for all cross-sectional units (null hypothesis $H_0: \rho_1 = 0$ for all i versus $H_1: \rho_1 = \rho < 0$ for all i) (Demetriades and James 2011; Persyn and Westerlund 2008).

Data

The data consist of a panel of 18 Mediterranean Sea basin countries covering the period of 1995-2009 (see Map 1 for the list of countries). Montenegro and Bosna-Herzegovina were eliminated from the sample since data of these countries was missing for the covered period. We measured economic development by real GDP per capita and tourism revenue as tourist receipt per capita. Annual data for tourism receipts were obtained from World Bank Database. Annual data for GDP and population were obtained from Unites States Department of Agriculture (USDA) web page. Data for two variables were transformed in logarithms.

common autoregressive parameter for all panels so this test does not allow for the possibility that some countries’ GDP per capita and tourist receipts for capita contain unit roots while other countries’ GDP per capita and Tourist receipts for capita do not. IPS unit root test allow more flexibility according to LLC. All tests are normally distributed under the common null hypothesis of non-stationary (Demetriades & James 2011).

Once the order of stationary has been defined, next step is to apply panel cointegration methodology. We tested the tourism receipts and economic development by using four cointegration tests developed by Westerlund (2007). Cointegration indicates that the series share a common stochastic trend. In the absence of cointegration, the estimated relationship will have absolutely no economic meaning and cointegration is a stronger proposition than causality, because cointegration between two or more variables is sufficient for the presence of causality in at least one direction (Laurin 2007). According to Dritsakis (2011), panel cointegration tests are more powerful and allow an increase in the amount of information coming from the cross-sections. Westerlund’s tests are good for small sample and high power relative to residual-based panel cointegration test such as Pedroni test (Demetriades & James 2011). Weaterlund’s four panel cointegration tests were based on structural rather than residual dynamics (Persyn & Westerlund 2008). According to Westerlund, if the null hypothesis of “no error correction” is rejected, the null hypothesis of no cointegration is also rejected. The error correction model we consider is as follows:



Map 1: Mediterranean Sea basin countries (<http://www.worldatlas.com>)

Analysis and Findings

Results of panel unit root tests of GPD per capita and Tourist Receipts per capita are reported in Table 3. Results showed that the unit root null hypothesis can’t be rejected at the state level [I(0)] for both “constant” and “constant + trend” in the regression (except LLC and IPS). This indicated that variables are not stationary at I(0). Thus, we conducted same tests for the first difference [I(1)] of variables. As it can be seen from Table 3, for all tests null hypothesis can be rejected for

the first difference of variables. In other words, variables are stationary at I(1) indicating that we can proceed to

test for cointegration to see the long run relationship between tourism receipts per capita and GDP per capita.

Table 3: Unit Root test results

Tests	State Level Unit Root test results- I(0)				First Difference Level Unit Root test results – I(1)			
	Constant+ Trend		Constant		Constant+ Trend		Constant	
	GDP	TR	GDP	TR	GDP	TR	GDP	TR
Levin – Lin – Chu (t*)	-5.0073* (0.0000)	-4.3193* (0.0000)	-2.5286* (0.0057)	-2.2245* (0.0131)	-9.5296* (0.0000)	-10.696* (0.0000)	-8.6155* (0.0000)	-7.4673* (0.0000)
Harries – Tzavalis (ρ)	0.5273 (0.3073)	0.6382 (0.8977)	0.9569 (0.9993)	0.8720 (0.9051)	-8.5628* (0.0000)	-9.1854* (0.0000)	-16.139* (0.0000)	-16.467* (0.0000)
Breitung (λ)	4.8553 (1.0000)	0.7205 (0.7644)	7.0539 (1.000)	2.7029 (0.9960)	3.1816 (0.9933)	-0.0766 (0.4695)	-4.5964* (0.0000)	-7.1865* (0.0000)
Im-Pasaran-Shin (Z _{tbar})	0.8383 (0.7991)	-2.4271* (0.0076)	2.2649 (0.9882)	2.5353 (0.9947)	-2.0286 (0.0123)	-4.9063* (0.0000)	-1.2698 (0.1021)	-5.1674* (0.0000)
Fisher Type (P _m)	-1.9216 (0.9727)	1.2191 (0.1114)	-1.5110 (0.9346)	-2.7218 (0.9968)	9.4467* (0.0000)	7.63333* (0.0000)	10.510* (0.0000)	13.316* (0.0000)
Hadri LM (z)	8.3916** (0.0000)	10.1327** (0.0000)	31.7114** (0.0000)	26.9335** (0.0000)	2.8473 (0.0022)	0.5819*** (0.2803)	1.7280*** (0.0420)	-0.7424*** (0.7711)

All unit root tests are implemented with constant and trend in the test regression and take a unit root as different null hypothesis and alternative hypothesis. Null hypothesis of **LLC**, **HT**, **Breitung test** is (H₀) “panels contains unit root”, alternative hypothesis (H_a) is “panels are stationary”. (H₀) for **IPS test** is “all panels contain unit roots” and alternative (H_a) is “some panels are stationary”. (H₀) for **Fisher type test** is “all panels contain unit roots” and alternative (H_a) is “at least one panel is stationary”. (H₀) for **LM test** is “all panels stationary” and alternative (H_a) is “some panels contain unit roots”.

* indicates that null hypothesis rejected at the significance level of 1%. ** indicates that the null hypothesis rejected at the significance level of %1 (LM test) and *** indicates that null hypothesis for LM test is accepted at significance level of %1.

We conducted Westerlund’s (2007) cointegration tests as mentioned in previous section. The results of panel cointegration are presented in Table 4 with the asymptotic p-values. According to p-values, the no cointegration null hypothesis rejected at %1 level (except **F_z**). This shows that there is a strong evidence of cointegration between tourism receipts and economic development.

Table 4: Cointegration test results

Statistic	Value	Z-value	p-value
G_z	-19.794	-92.122	0.000
G_α	-16.281	-2.795	0.003
F_z	-6.468	2.907	0.998
F_α	-16.401	-5.290	0.000

Null hypothesis $H_0: \rho_i = 0$ for all i versus $H_1: \rho_i < 0$ for at least one i , and $H_0: \rho_i = 0$ for all i versus $H_1: \rho_i = \rho < 0$ for all i .

Discussion

In this study, the long run relationship between tourism receipts and economic development for Mediterranean Sea basin countries for 1995-2009 period was analyzed using recently developed panel unit root tests and error-correction based panel cointegration techniques.

According to the results, tourism receipts and economic development are cointegrated in the case of 18 Mediterranean Sea basin countries. This indicates that there is long run relationship between these variables. Thus, this study provides empirical support for the economic importance and potential of tourism as a strategic factor to economic growth.

Hence, it is important to evolve tourism industry in the region. However, while the share of the Mediterranean basin as the arrival destination of the international tourism movements has been declining, Asia and the Pacific have been growing, since increasing number of new destinations have opened over time (UNWTO, 2011). In order to maintain the region’s market position policies and strategies like prompting the tourism and travel industry, more publicity, diversification of products, offering higher quality and more value added products are required.

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Summary

Although tourism is a leading industry in the service sector at the global level and a major provider of jobs and generator of foreign exchange at the national level (He & Zheng 2011) the role of tourism development in economic growth is not empirically obvious. Since many studies that have been indicated to examine the relation between tourism development and economic growth (e.g. Kreisha 2011; Jintranun et al. 2011; Chaiboonsri et al. 2010; Zortuk 2009; Malik, et al. 2010; Eugenio-Martin, et al. 2004; Dritsakis 2011; Lee & Chang 2008; Cortés-Jiménez & Pulina 2006; Durbarray 2002; Katircioğlu 2009) revealed different results for different countries and regions through different methodologies. From this point, this paper investigates the long-run relationship between tourism receipts per capita and GDP per capita for Mediterranean Sea basin countries.

In order to test the long-run relationship between tourism receipts and economic development the following model is generated.

$$\ln(GDP_{it}) = \mu_i + \beta_1 \ln(TR_{it}) + \epsilon_{it} \quad (1)$$

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Results of panel unit root tests of GDP per capita and Tourist Receipts per capita showed that variables are stationary at I(1) indicating that we can proceed to test for cointegration to see

the long run relationship between tourism receipts per capita and GDP per capita. We conducted Westerlund's (2007) cointegration tests. According to the results of panel cointegration tests there is a strong evidence of cointegration between tourism receipts and economic development. In other words, that there is long run relationship between tourism receipts and economic development in the case of 18 Mediterranean Sea basin countries. Thus, this study provides empirical support for the economic importance and potential of tourism as a strategic factor to economic growth.

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