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The Relationship between Tourism and Economic Growth: OECD Countries

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ABSTRACT

In the present study, the long-term relationship between tourism revenues and economic growth between the years 1997 and 2012 was analyzed for 34 OECD countries using panel cointegration tests. Pedroni and Kao cointegration tests were used for this purpose. Based on the results of the panel cointegration analyses, it was found that the increase of tourism revenues had a positive effect on economic growth in the long term.

Key Words: Tourism, Economic Growth, Panel Data Analysis, Cointegration, FMOLS, OECD

INTRODUCTION

The relationship between the development of the tourism sector and economic growth has been examined in various empirical studies. The results obtained in these studies vary across different countries. The importance countries attach to tourism depends on factors such as their geopolitical positions, climates, historical structures, tourism policies and economic structures. The investments made into tourism cause an increase in the number of incoming tourists, and thus the foreign currency left by the tourists provide a positive contribution to the economic growth of the country. The effect of tourism on economic growth has been examined in various studies.

For many countries, tourism is one of the most important items in meeting the current deficit. Tourism not only provides a foreign currency inflow, but also plays a role in regulating the macroeconomic equilibriums through creating employment opportunities.

The number of international tourists exceeded 1 billion in 2012 and it is estimated that this number will go beyond 1.8 billion in 2030. OECD countries play a pioneering role in the world's tourism sector and had a share of 57% in the number of international tourists in 2012. The growth rate of the tourism sector in OECD countries was 3.6% in 2012. However, there has been a slowdown in growth rate in recent years (OECD, 2014).

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LITERATURE REVIEW

Tourism is an important export item for many countries. The foreign currency left by tourists contributes to the balance of payments. In recent years, various empirical studies have been conducted on the relationship between tourism revenuesand economic growth.

Can Tansel Tugcu (2014) examined the relationship between tourism and economic growth between the years of 1998 and 2011 for the European, African and Asian countries that have a coast on the Mediterranean. In the study, first generation unit root tests were used for unit root estimations, Mohammad Hashem Pesaran (2004) CD test statistics and Elena Ivona Dumitrescu, and Christophe Hurlin, (2012) panel causality test were used for determining cross section dependence. The findings obtained in the study showed that tourism had a positive effect on economic growth.

The effect of tourism on economic growth in Italy was tested between the years of 1987 and 2009. The results obtained in the study showed that the tourism-led growth hypothesis was confirmed through cointegration and SVECM (Johansen) Granger causality tests Carla Massidda and Paolo Mattana (2013, pp. 93-105).

In a study conducted to investigate the effect of real exchange rate and tourism receipts on GDP in Malaysia for the period between 1974 and 2009. The results reveal that a long-run relationship exists between the variables Chor Foon Tang (2013, pp. 272-284).

Nikolaos Dritsakis, (2012), investigated the effect of tourist arrivals per capita, real effective exchange rate and real GDP per capita on GDP for 7 Mediterranean countries (Spain, France, Italy, Greece, Turkey, Cyprus and Tunisia) between the years of 1998 and 2011 using Panel cointegration and fully modified ordinary least squares (FMOLS). According to his findings, there was relationship between tourism and economic growth in 7 Mediterranean countries.

Cem Isik (2012), analyzed the short and long term relationships between economic growth and tourist arrivals from USA for the period between 1990 and 2008 using VECM (Johansen) Granger causality. According to his findings indicate a long-run equilibrium relationship and a further uni-directional causality between the two variables.

Narayan et al. (2010) tested the relationship between the real GDP and real tourism revenues of four Pacific islands (Fiji, Tonga, Solomon, Papua New Guinea-SAMOA) between the years 1988 and 2004 using panel data. The results they obtained showed that a 1% increase in tourism revenuesincreased the GDP at a rate of 0.72% in the long term and 0.25% in the short term.

In a study conducted by Ozan Bahar and Kurtuluş Bozkurt (2010) on 21 developing countries for the period between 1998 and 2005 using two-stage GMM-system analysis, it was found that a 1% increase in tourism revenueshad a 2.8% effect on economic growth.

The effect of tourism revenuesand exchange rate on GDP was tested in a study on South Africa for the period between 1980 and 2005. The results of the study showed that there was a unidirectional relationship between tourism revenuesand economic growth in the short term and the long term Oludele A. Akinboade and Lyda A. Braimoh, (2010, pp. 149-163).

The study conducted by Ching-Fu Chen and Chiou-Wei (2009) on South Korea and Taiwan comprises the years between 1975 and 2007. The relationship between real GDP per

capita and real currency rate and tourism revenueswas examined in the study. It was found that there was a causality relationship between tourism and economic growth in South Korea and economic growth in Taiwan was dependent on tourism.

Chien-Chiang Lee, and Chun-Ping Chang, (2008) investigated the effect of tourism expenditures per capita, number of tourists and real exchange rate on GDP for 23 OECD and 32 nonOECD countries (Asia, Latin America and Sub-Sahara Africa countries) for the 1990–2002 period using panel unit root and cointegration analysis. The results of the study showed that there was a positive relationship between tourism development and economic growth in 55 countries. It was found that this relationship was stronger in nonOECD countries.

Mahmut Zortuk (2009) investigated the effect of tourism revenueson GDP using the data for the period between 1990 and 2008 and found out that tourism positively contributed to economic growth.

The relationship between both domestic and international tourism and economic growth was investigated in Spain and Italy for the period between 1990 and 2004. The dependent variable was real GDP per capita and independent variables were investment rate, human capital, population growth rate and government expenditures. The findings obtained through panel data analysis showed that tourism had a positive effect on economic growthin both countries Isabel Cortés-Jiménez, (2008, pp. 127-139).

DATA SET AND METHOD

In the present study, the relationship between tourism revenuesand economic growth was investigated for 34 OECD countries using the data for the period between 1997 and 2012. The data used in the study was obtained from the World Development Indicators database published by the World Bank. In Equation 1, lnGDP represents GDP at current prices and lntg represents tourism revenuesat current prices.

$$lngdp_{it}=\alpha_{it} + \beta lntg_{it}+ u_{it} \quad (1)$$

i: 1…..34 ve t: 1997…..2012

Time series is the method of measuring an event in multiple periods. The method that measures multiple events in a single time period is called cross-section analysis. Panel data analysis is the method that measures time series together with cross-section analysis and multiple events are examined in multiple periods of time Ferda Yeldelen Tatoğlu, (2013).

In economic analyses, the advantages of panel data compared to other data can be listed as follows Badi Baltagi, (2008, pp. 6-8):

- Panel data shows the heterogeneity of individuals, companies, cities or countries. Time series and cross section analysis cannot check the risk of heterogeneity and the obtained results are not found to be healthy. Through panel data, series are checked against heterogeneity.
- Since panel data analysis includes both time series data and cross section data, the number of observations is high. Panel data comprises more information compared to time series and cross section analysis; therefore, there are less

multicollinearity problems among variables and the degree of freedom is higher in the estimated models.

- Panel data yields more reliable results in dynamic studies. While cross section analysis can test different variables by dealing with a single period, panel data provides a dynamic system by integrating the time dimension. Thus, it becomes possible to carry out comparisons among periods.
- Panel data can test the model in case of short time series and cross section analysis with inadequate data.

EMPIRICAL FINDINGS

It is necessary to examine the long term relationship between economic growth and tourism revenues using panel cointegration tests. In order to test panel cointegration, it is needed to examine the panel unit root properties of the series. Unit root tests are used to determine the stationarity of the series. Non-stationary series include a unit root. Series that include a unit root need to be transformed into stationary series. Methods such as Augmented Dickey-Fuller (ADF) are used in time series David A. Dickey and Wayne A. Fuller (ADF) (1979, 1981). Modern tests such as Breitung Jörg Breitung (2000), Andrew Levin, Chien-Fu Lin, and Chia-Shang James Chu (LLC) (2002), Kyung So Im, Mohammad Hashem Pesaran, and Yongcheol Shin (IPS) (2003), ADF-Fisher Chi-square Test (ADF-Fisher), PP Fisher Chi-square Test (PP-Fisher) and Hadri Test Kaddour Hadri (2000) are used in cross-section and panel data analyses. First generation panel unit root test was implemented in this study. First generation panel unit root tests are based on that there is no correlation. LLC, Breitung, IPS, Fisher ADF, Fisher PP and Hadri tests are commonly used first generation panel unit root tests Kosta Josifidis, Radmila Dragutinović Mitrović, and Olgica Ivančev, (2012).

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Table 1: Unit root test results

		lngdp		lntg	
		WITH CONSTANT	**WITH CONSTANT – WITH TREND**	**WITH CONSTANT**	**WITH CONSTANT – WITH TRENDED**
LLC	t- statistics	-1.3399	-1.8274	-0.7172	-2.2685
	p-value	(0.0901)	(0.0338)	(0.2366)	(0.0117)
BREITUNG	t- statistics		1.5806		-1.0998
	p- value		(0.9430)		(0.1357)
IPS	t- statistics	4.4039	-0.1055	4.4758	0.1293
	p- value	(1.0000)	(0.4580)	(1.0000)	(0.5514)
ADF	t- statistics	20.8057	58.4858	20.8351	57.4563
	p- value	(1.0000)	(0.7880)	(1.0000)	(0.8153)
PP	t- statistics	22.5384	58.4198	32.9568	54.3097
	p- value	(1.0000)	(0.7898)	(0.9999)	(0.8860)
		1ST DIFFERENCES			
LLC	t- statistics	-9.8581***	-8.4684***	-11.4457***	-11.3929***
	p- value	(0.0000)	(0.0000)	(0.0000)	(0.0000)
BREITUNG	t- statistics		-6.5439***		-8.7251***
	p- value		(0.0000)		(0.0000)
IPS	t- statistics	-6.9414***	-3.0695***	-8.7032***	-5.8628***
	p- value	(0.0000)	(0.0011)	(0.0000)	(0.0000)
ADF	t- statistics	161.4740***	98.3899***	198.1760***	148.5910***
	p- value	(0.0000)	(0.0094)	(0.0000)	(0.0000)
PP	t- statistics	170.4060***	113.9990***	265.4790***	206.1350***
	p- value	(0.0000)	(0.0004)	(0.0000)	(0.0000)

*Note: *, ** and *** refer to stationarity at significance levels of 10%, 5% and 1% respectively.*

The results of the unit root tests conducted to check the stationarity of the series are given in Table 1. In the unit root tests conducted for GDP, the results of the LLC test were found to be stationary at the level with trend and with constant-with trend, whereas Breitung, IPS, ADF and PP tests revealed the presence of a unit root. Thus, the series had a unit root at the level. The first difference of the GDP series was found to be stationary in LLC, Breitung, IPS, ADF and PP tests. So, it was seen that the series was stationary at its first difference. In the unit root tests conducted for tourism revenues, the results of the LLC, Breitung, IPS, ADF and PP tests showed that the series had a unit root at the level. The results of the LLC, Breitung, IPS, ADF and PP tests conducted on the first difference of tourism revenues showed that the series was stationary.

H_0 hypothesis assumes that the series have a unit root, that is, they are non-stationary. H_1 hypothesis assumes that the series are stationary. The results obtained in the tests revealed

the existence of unit root at the level of tourism revenues and economic growth data, therefore, first differences of the series were taken and the results showed that the series did not have a unit root. H_0 hypothesis was rejected at the first difference level of the series.

RESULTS AND EVALUATION OF PANEL COINTEGRATION TESTS

After examining the unit roots of the series, the existence of long term relationships between the series was analyzed by using cointegration tests. The long term relationship between economic growth and tourism revenues was analyzed through two different tests as Pedroni Cointegration Test, Peter Pedroni (1999) and Kao Cointegration Test Chihwa Kao (1999).

Pedroni Cointegration Test can check the cointegration of the data through 7 different tests with the hypothesis that there is no cross-sectional dependence and these 7 tests are divided into two groups. There are 4 different tests in the first group and these 4 tests are used for estimation via the within-group estimator. There are 3 tests in the second group and these tests are used for estimation via the between-group estimator.

Table 2: Pedroni Cointegration Test Results

Within-group statistics	**t- statistics**
Panel v-statistics	0.1743
Panel rho- statistics	-0.7420
Panel PP- statistics	-2.6115***
Panel ADF- statistics	-5.0138***
Between-groups statistics	**t- statistics**
Group rho- statistics	1.5537
Group PP- statistics	-2.1054**
Group ADF- statistics	-5.9279***

***Note:** *, ** and *** refer to the existence of a cointegration relationship at significance levels of 10%, 5%and 1%, respectively.*

H_0 hypothesis (There is no cointegration between the series) was rejected in all statistics except for Panel v, Panel rho and Group rho statistics. The results of the Panel pp, ADF and Group ADF statistics were found to be significant at a level of 1% and the results of the Group pp statistics was found to be significant at a level of 5%. Since the time series for the countries in the data set comprise 16 periods, Group t-statistics (parametric) yields a more accurate result compared to other tests. Pedroni (1999) showed that panel ADF and group ADF would give more favorable results for small estimators. Therefore, the results in Table 2 show the existence of cointegration in panel data.

Table 3: Kao Cointegration Test Results

	t-statistics
ADF	-6.8275***

Note: **, ** and *** refer to the existence of a cointegration relationship at significance levels of 10%, 5% and 1%, respectively.*

The results of the Kao panel cointegration test are given in Table 3. According to the results obtained in the test, H_0 hypothesis was rejected and a cointegration relationship was found between the variables. Since the result of the t-statistics was found to be significant, the null hypothesis that there is no cointegration was rejected and the alternative hypothesis that there is cointegration was accepted.

RESULTS AND EVALUATION OF PANEL FMOLS AND COINTEGRATION COEFFICIENTS

After determining the long term relationship between the variables by using cointegration tests, Fully Modified Ordinary Least Squares method (FMOLS) developed by Pedroni (2001) was used to test the consistency of the estimators within our expectationsin order to estimate the unbiased coefficients of this relationship. In this method by Pedroni, an important level of heterogeneity is allowed between individual cross sections and the existence of a possible correlation among the constant term, independent variables and error term differences is taken into consideration. In a study on the power of FMOLS in small samples, Pedroni (2001) showed that based on Monte Carlo simulations the performance of the t-statisticswas very well in small samples Recep Kök and Nevzat Şimsek (2006, pp. 7-8).

Table 4: Panel FMOLS Test Results

					$lngdp_{it}=\alpha_{it} + \beta lntg_{it}+ u_{it}$
Countries	FMOLS	t-test	**Countries**	FMOLS	t-test
Australia	1.27	22.66***	Japan	0.21	2.50***
Austria	1.12	42.59***	Luxemburg	0.98	10.52***
Belgium	0.79	5.52***	Mexico	1.30	7.10***
Canada	1.81	15.01***	Netherlands	1.33	18.19***
Chile	1.44	21.46***	New Zealand	1.02	9.26***
Czech Republic	1.25	15.50***	Norway	1.27	16.42***
Denmark	1.12	6.86***	Poland	1.10	3.56***
Estonia	1.57	31.86***	Portugal	0.81	12.05***
Finland	0.82	10.82***	Slovakia	0.72	18.99***
France	1.00	7.55***	Slovenia	0.87	25.60***
Germany	0.73	17.68***	South Korea	0.85	2.95***
Greece	0.76	3.88***	Spain	1.26	26.59**
Hungary	1.71	5.45***	Sweden	0.74	14.72***
Iceland	0.90	8.31***	Switzerland	1.08	19.32***
Ireland	0.97	17.46***	Turkey	0.84	8.19***
Israel	0.87	3.65**	United Kingdom	1.22	7.83***
Italy	1.40	13.70***	United States	0.83	4.81***
			PANEL	1.06	5.76***

Results of the panel FMOLS test analysis are given in Table 4. According to the results of the panel FMOLS test analysis conducted for 34 OECD countries, a 1% increase in tourism revenues causes a 1.06% increase in economic growth. On country basis, the results for Israel and Spain were found to be statistically significant at 5% level of significance and the results for the other countries were found to be statistically significant at 1%level of significance. Long term cointegration coefficients were positive for all the countries. According to the results, the country where tourism revenues had the biggest effect on economic growth was Canada with a rate of 1.81%. In Japan, a 1% increase in tourism revenues caused a 0.21% increase in economic growth and this rate was found to be the lowest among OECD countries. The US is the country with the largest economy in the world. In the US, a 1% increase in tourism revenues results in a 0.83% increase in economic growth. However, in Turkey, a 1% increase in tourism revenues increases economic growth at a rate of 0.84%.

CONCLUSION

Tourism is one of the largest industries in the World. The tourism sector, which has shown significant growth in recent years, not only maintains the economic growth of countries, but also revives the economy, increases employment and increases the value of the local currency by increasing the inflow of foreign currency. Tourism has an important share in meeting the current deficit since it is listed in the services account of the current account within the items of balance of payments. Labor-intensive nature of the sector provides it to play a more active role in growth for underdeveloped and developing countries with inadequate capital.

In the present study, the relationship between economic growth and tourism was examined for 34 OECD countries using the data for the period between 1997 and 2012. FMOLS estimation, which is a parametric approach, was used for estimating the model. According to the results of the study, a 1% increase in tourism revenues increased the economic growth of 34 OECD countries on averageat a rate of 1.06%. The positive relationship observed between economic growth and tourism revenues which was found to be significant for all 34 OECD countries has increased the significance of the study. The findings obtained in the present study are also consistent with the results of the previous studies.

REFERENCES

Akinboade, O. A., & Braimoh, L. A. (2010). International tourism and economic development in South Africa: A Granger causality test. International Journal of Tourism Research, 12(2), 149-163.

Bahar, O., & Bozkurt, K. (2010). Tourism and Economic Growth Relationship in Developing Countries: Dynamic Panel Data Analysis: Turizm Araştırmaları Dergisi, 21(2), 255-265.

Baltagi, Badi H. (1995): Econometric Analysis of Panel Data. Chichester: John Wiley and Sons.

Breitung, J. (2000). The local power or some unit root tests tor panel data. B. Baltagi (bd.), Nonstationary panels, panel cointegration, and dynamic panels.(Advances in econometrics 15). Amsterdam: JAI.

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

Cortés-Jiménez, I. (2008). Which type of tourism matters to the regional economic growth? The cases of Spain and Italy. International journal of tourism research, 10(2), 127-139.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American statistical association, 74(366a), 427-431.

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

Dritsakis, N. (2012). Tourism development and economic growth in seven Mediterranean countries: A panel data approach. Tourism Economics, 18(4), 801-816.

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

Hadri, K. (2000). Testing for stationarity in heterogeneous panel data. The Econometrics Journal, 3(2), 148-161.

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

Isik, C. (2012). The USA's international travel demand and economic growth in Turkey: A causality analysis:(1990–2008). Tourismos: An International Multidisciplinary Journal of Tourism, 7(1), 235-252.

Josifidis, K., Dragutinović-Mitrović, R., & Ivančev, O. (2012). Heterogeneity of growth in the west Balkans and emerging Europe: A dynamic panel data model approach. Panoeconomicus, 59(2), 157-183.

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

Kök, R., & Şimşek, N. (2006). Endüstri-içi dış ticaret, patentler ve uluslararası teknolojik yayılma. Türkiye Ekonomi Kurumu Uluslararası Ekonomi Konferansı, 11-13.

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

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

Massidda, C., & Mattana, P. (2013). A SVECM analysis of the relationship between international tourism arrivals, GDP and trade in Italy. Journal of Travel Research, 52(1), 93-105.

Narayan, P. K., Narayan, S., Prasad, A., & Prasad, B. C. (2010). Tourism and economic growth: a panel data analysis for Pacific Island countries. Tourism economics, 16(1), 169-183.

OCDE, O. (2014). OECD Tourism trends and policies 2014. OECD Publishing.

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. (2001). Fully modified OLS for heterogeneous cointegrated panels. In Nonstationary panels, panel cointegration, and dynamic panels (pp. 93-130). Emerald Group Publishing Limited.

Pesaran M.H. (2004), General Diagnostic Tests for Cross Section Dependence in Panels, Cambridge Working Papers in Economics, No. 435, University of Cambridge, and CESifo Working Paper Series No. 1229.

Tang, C. F. (2013). Temporal Granger causality and the dynamics relationship between real tourism receipts, real income and real exchange rates in Malaysia. International Journal of Tourism Research, 15(3), 272-284.

Tatoğlu, F.Y. (2012), Panel Veri Ekonometrisi, İstanbul: Beta Yayıncılık

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.

Zortuk, M. (2009). Economic impact of tourism on Turkey's economy: evidence from cointegration tests. International Research Journal of Finance and Economics, 25(3), 231-239.