CAUSALITY BETWEEN TOURISM AND ECONOMIC GROWTH: A CASE STUDY OF SERBIA

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ABSTRACT

In this Paper, the causal relationship between Foreign Tourist Arrivals and Real Gross Domestic Product (as indicators of tourism development and economic growth, respectively) in Serbia is empirically investigated, using developed statistical-econometric techniques for time series analysis, namely Augmented Dickey-Fuller unit root test, Johansen test for cointegration, and Granger Causality test. The results of conducted empirical study reveal that there is a long-run equilibrium relationship between these two variables, as well as positive unidirectional causality from economic growth to tourism development, indicating that economic growth stimulates (causes) the expansion of tourism in Serbia.

Key words: tourism development, economic growth, time series analysis, causality, Serbia

1. INTRODUCTION

It is well known that tourism in modern business environment plays an increasingly important role in terms of positive impacts on achievement of economic goals such as: reduction of unemployment, improvement of situation in balance of payments, development of less developed regions, increase of foreign exchange incomes and government revenues, development of infrastructure, development of entrepreneurial abilities and skills, etc. Consequently, in most countries in the world, development of tourism business has become a subject of interest for state policy makers, and an integral part of national economic development strategies. On other hand, processes of globalization and networking at all levels have strong implications on affirmation of tourism industry and development of tourism without borders.

According to estimates of experts involved in forecasting global economic trends, the economic future will be characterized by continued development of tourism industry, as one of the key pillars of economic growth (especially in the case of developing countries). The above stated fact is supported by following *UNWTO* estimations, [*www.unwto.org*]: ▸ between 2011 and 2021 the average annual growth rate of tourism's direct contribution to global *GDP* is expected to be around 4%; ▸ during the same period, tourism will generate an extra 69 million jobs (through its direct or indirect impacts on other sectors)[1]; and ▸ by the year 2020, international tourism demand will increase to an astronomical 1.6 billion visitors[2].

Generally, the positive impact of tourism on economic growth is documented by numerous indicators in both global and national levels. However, the question remains whether tourism development promotes economic growth, or *vice versa*. In an attempt to provide an answer, it is possible to test the validity of one of three relevant hypotheses concerning the type of relationship between tourism sector development and economic growth: *the Tourism-Led Economic Growth hypothesis*, *the Economic-Driven Tourism Development hypothesis*, and *reciprocal causality hypothesis*, [Oh, 2005]. The increasing interest of scientific community in verification of these hypotheses in particular countries, as well as different tourism regions, is driven by intensive development and application of regression models in time series analysis, including the appropriate cointegration and causality tests. The results of these studies provide information to the government policy-makers, useful from the point of optimal (re)allocation of economic resources and determination of priority areas for investment.

Starting from the previously mentioned facts, the main objective of this Paper is to investigate the nature of causal relationship between tourism development and economic growth in case of Serbia, as a country with traditionally high tourism potential. Consequently, with the Introduction as *Section 1*, the rest of the Paper is organized as follows. In *Section 2*, a detailed overview of the results of selected empirical studies, in which these (causal) relationships have been examined, is presented. *Section 3* contains a description of

[1] Currently, almost 1 in 12 of all jobs on the planet is directly or indirectly related to some kind of tourism activity and its performing.

[2] International tourist arrivals grew by 4.4% in 2011 to a total 980 million, up from 939 million in 2010.

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methodological framework that is applied to the variables that are used as indicators of economic growth and volume of tourism activity in Serbia. *Section 4* is divided into two parts, focused on the presentation of statistical properties of data, (*4.1*), and results of conducted empirical analysis, (*4.2*). Finally, the conclusions of this Paper are presented in *Section 5*.

2. A REVIEW OF SELECTED EMPIRICAL LITERATURE

In recent years, the development of tourism business and its causal relationship with economic growth have become the focus of numerous research studies and scientific papers. In this context, various empirical analyses were conducted for different country / countries, covering different research periods and types of data (monthly, quarterly, and annual), using different scientific-research methods and techniques. In addition, different variables have been employed as indicators of economic growth and volume of tourism activity. As a consequence of the obvious, pronounced variability, on different basis, various results (often contradictory) were obtained and recorded from the conducted studies on causality (even in the case when several analyses were performed within the same country). A comparison of the obtained empirical results on causality presented in *Table 1*, based on the insight of 30 selected research papers, clearly illustrates these statements.

Table 1.
Comparison of the empirical results on causality between tourism development & economic growth

Author/s (year of publication)	**Observed Country / Countries**	**Research period**	**Variable** as a proxy of **Economic Growth**	**Variable/s** as a proxy of **Tourism Activity**	**Causal Relationship**
Kasimati, E. (2011)	Greece	1960-2010 Y	GDP	ITA	No causal relationships
Mishra, P. K. (2011)	India	1978-2009 Y	GDP	ITA & ITEr	No causal relationships
He, L. & Zheng, X. (2011)	Sichuan (PRC)	1990-2009 Y	GDP	TIT	Tourism ← Growth
Savas & Samiloglu (2011)	Turkey	1969-2007 Y	GDP	ITA	Tourism → Growth
Tang, C. F. (2011)	Malaysia	1989-2010 M	IPIndex	ITA	Tourism ↔ Growth
Brida, J. G. et al. (2010)	Trentino–A.A.	1980-2006 Y	GDP per capita	ITEx	Tourism → Growth
Payne, J. & Mervar (2010)	Croatia	2000-2008 Q	GDP	ITRev	Tourism ← Growth
Ghartey, E. E. (2010)	Jamaica	1963-2008 Y	GDP	ITA & ITEx	Tourism → Growth
Katircioglu S. et al. (2010)	NorthernCyprus	1979-2007 Y	GDP	ITA	Tourism → Growth
Kadir, N. & Jusoff (2010)	Malaysia	1995-2006 Q	TT / Im / Ex	ITRc	Tourism ← TT/Im/Ex
Kreishan, F. M. (2010)	Jordan	1970-2009 Y	GDP	ITRev	Tourism → Growth
Zortuk, M. (2009)	Turkey	1990-2008 Q	GDP	ITA	Tourism → Growth
Ozturk & Acaravci (2009)	Turkey	1987-2007 Q	GDP	ITA & ITRc	No causal relationships
Brida, J. G., et al. (2009)	Colombia	1987-2007 Q	GDP per capita	ITEx	Tourism → Growth
Brida, J. G., et al. (2008)	Mexico	1980-2007 Q	GDP	ITEx	Tourism → Growth
Lee, C. & Chien, M.(2008)	Taiwan	1959-2003 Y	GDP	ITA & ITRc	Tourism ↔ Growth
Kaplan, M. & Celik (2008)	Turkey	1963-2006 Y	GDP	ITRc	Tourism → Growth
Onder,K. & Durgun (2008)	Turkey	1980-2006 Y	Employment	ITRev	Tourism → Employment
Vanegas & Croes (2007)	Nicaragua	1980-2005 Y	GDP	ITRc	Tourism → Growth
Khalil, S. et al. (2007)	Pakistan	1960-2005 Y	GDP	ITRc	Tourism ↔ Growth
Oh, C.O. (2005)	South Korea	1975-2001 Q	GDP	ITRc	Tourism ← Growth
Dritsakis, N. (2004)	Greece	1960-2000 Q	GDP	ITEr	Tourism ↔ Growth
Balaguer, J. & Cantavella-Jordá, M. (2002)	Spain	1975-1997 Q	GDP	ITEr	Tourism → Growth
Samimi, A.J. et al. (2011)	20 developing countries	1995-2009	GDP	ITA	Tourism ↔ Growth
Chen, C.F. & Chiou-Wei, S.Z. (2009)	Taiwan & South Korea	1975-2007 Q	GDP	ITRc	Tourism → Growth (Taiwan) Tourism ↔ Growth (S.Korea)
Lee, C.-C. & Chang, C.-P. (2008)	23 OECD & 32 non-OECD countries	1990-2002 (annual averages)	GDP per capita	ITRc per capita & ITA per capita	Tourism → Growth (OECD) Tourism↔Growth (non-OECD)
Kareem, O. Idowu (2008)	36 African countries	1995-2004	GDP	ITEx & ITRc	ITEx ↔ Growth ITRc ← Growth
Fayissa, B. et al. (2007)	42 African countries	1995–2004 two-year averages	GDP per capita	ITRc per capita	Tourism → Growth
Cortés-Jiménez, I. & Pulina, M. (2006)	Spain & Italy	1964-2000 Y 1954-2000 Y	GDP per capita	ITRc	Tourism ↔ Growth (Spain) Tourism ← Growth (Italy)
Eugenio-Martin, J. L. et al. (2004)	21 Latin American countries	1985-1998 Y	GDP per capita growth rate	ITA per capita growth rate	Tourism → Growth (in low- and medium-, but not in high-income countries)

Notes: **IPIndex**–Industrial Production Index; **TT/Im/Ex**–Total Trade, Imports & Exports; **ITA**–International Tourist Arrivals; **ITRc**–International Tourism Receipts; **ITEx**–International Tourism Expenditure; **ITEr**–International Tourism Earnings; **ITRev**–International Tourism Revenues; **TIT**–Total Income of Tourism; (annual data) – **Y**; (quarterly data) – **Q**; (monthly data) – **M**. ***Tourism → Growth*** denotes causality running from tourism development to economic growth; ***Tourism ← Growth*** denotes causality running from economic growth to tourism development; ***Tourism ↔ Growth*** denotes bi-directional causality between tourism development and economic growth.

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3. METHODOLOGY

Classical econometric analysis of time series is based on the assumption that the observed time series data have the property of stationarity. However, most economic time series, due to numerous changes in the modern business environment, do not satisfy the stationarity conditions. Therefore, issues related to the purpose, importance, consequences, and ways of testing and achieving stationarity assumptions are becoming the subject of debate in the analysis of time series. Property of non-stationarity, as a property immanent to economic reality, raises the question not only of the validity of modeling and statistical inference based on the application of classical linear regression model in the analysis of time series, but also raises a problem known as spurious correlation and regression. This problem is manifested through high value of coefficient of determination and statistical significance of regression model, resulting from a similar and aligned movement of time series that are actually unrelated and have no mutual influence.

In order to avoid all the above mentioned problems, economic analysis and description of long-run equilibrium relationships between (non-stationary) economic phenomena are based solely on the concept of cointegration[3] and application of various cointegration techniques. And, while the cointegration analysis is applied in order to determine whether the long-run equilibrium relationship between observed variables exists or not, determination of type and direction of relationship is based on causality analysis and application of the Granger causality test. A prerequisite for obtaining valid results and conclusions from the Granger causality test is a valid analysis of stationarity and cointegration analysis. Hence, in investigating the existence of a significant long-run equilibrium relationship and causality between *GDP* and *FTA* (*foreign tourist arrivals*), in case of Serbia, the authors will apply the above mentioned sequential procedure, which should answer the following two questions: *(1)* Are *GDP* and *FTA* co-integrated time series?, and *(2)* Does the causality between *GDP* and *FTA* exist or not, and if it does, is it a unidirectional or bidirectional causality?

In order to determine whether there is a cointegration relationship between time series, the analysis must begin by examining the nature of time series in terms of their (non-) stationarity. Investigation of (non-) stationarity is based on the application of unit root test where the existence of unit roots in a series is an indicator of non-stationarity. For testing the presence of unit roots in the data several tests can be used[4]. The most commonly used unit root tests are Augmented Dickey-Fuller test and Phillips-Perron test, [Enders, 2004], which are, as the most popular tests, integrated within the most econometric software packages. In addition, stationary representation of non-stationary time series is achieved by differencing, and testing procedure ends with a phase in which the assumption of stationarity is accepted. Generally, if non-stationary time series Y_t must be differentiated d times before it becomes stationary, then for that series is said to be integrated of order $I(d)$, [Enders, 2004]. Besides of determining the order of integration, a key practical issue in the specification of the autoregressive model refers to the determination of the number of explanatory variables, in form ΔX_{t-i}, where $i=1,2,\dots,k$. There are different ways to select the optimal number of parameters in time series models, and one of them is based on the use of information criteria[5].

After the examination and determination of order of integration (d_{max}), and optimal number of lags for the dependent variable (k), the application of cointegration test follows. If it is revealed that the observed time series data contain unit roots (i.e. that they are non-stationary at levels), it can be assumed that between them exists mutual relationship in the long run. Cointegration is a powerful concept which makes it possible to explain the existence of a long-run equilibrium, or stationary, relationship among two or more time series (variables), where each of them is individually non-stationary, [Enders, 2004]. According to the theory of cointegration, the notion of cointegration implies stationarity of the linear combination of non-stationary time series.

In fact, non-stationary time series are co-integrated if their linear combination is stationary, where the linear combination is of a lower order of integration than the order of integration determined for individual series. Essentially, the movement of a particular non-stationary time series can be explained by the movement of

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[3] The concept of cointegration is formally defined by Engle and Granger in their scientific paper "*Cointegration and Error-Correction: Representation, Estimation and Testing*", published in *Econometrica*, 1987.

[4] The first, pioneer test of this type is defined by Dickey and Fuller (*DF test*). Within this test, the null and alternative hypotheses are defined as follows: *Ho: Series contains a unit root* versus H_1: Series is stationary.

[5] Usually, to parameter k, a priori, for quarterly time series, is assigned the value 4, and for monthly time series, the value of 12 lags. However, in determining the value of the parameter k, it is necessary to include the sample size (T) as follows: $k=[4(T/100)^{1/4}]$, or, $k=[12(T/100)^{1/12}]$, [Mladenović, 2011]. In addition, in case of daily data, for example, the application of this technique, based on the frequency of data, will not provide a simple and easy choice, and therefore it is recommended to use techniques based on information criteria. Three most popular information criteria are: Akaike Information Criterion (*AIC*), Schwarz Information Criterion (*SIC*), and Hannah-Quinn Information Criterion (*HQIC*).

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other non-stationary time series, so that the unexplained part can be considered as a stationary process, [Mladenović, 2011]. Stationary linear combinations are called cointegration equations and they are treated as evidence of the existence of a long-run equilibrium relationship between the observed variables. Therefore, the main purpose of cointegration analysis is to examine whether the group of non-stationary time series is co-integrated, and if so, to evaluate and present the equilibrium relationship in the form of the model[6].

Unlike the cointegration analysis which is applied in order to investigate whether a long-run equilibrium relationship exists between (two) variables, the Granger causality analysis enables determination of causality direction. In addition, Granger causality exists between variables X_t and Y_t, if by using the past values of variable X_t, the variable Y_t can be predicted and explained with a better accuracy in comparison with the case when past values of variable X_t are not being used, assuming that the other variables stay unchanged. Possible outcomes of the Granger causality test are: ▸ *Unidirectional causality from variable* Y_t *to variable* X_t; ▸ *Unidirectional causality from variable* X_t *to variable* Y_t; ▸ *Bidirectional causality between variables* Y_t *and* X_t, and, ▸ *No causality between variables* Y_t *and* X_t.

In accordance with the presented methodological framework and theoretical postulates that support it, in the following Section, the results of conducted empirical investigation are presented.

4. DATA STATISTICAL PROPERTIES AND EMPIRICAL RESULTS

In accordance with the defined objective, regarding the investigation of the causal relationship between tourism sector development and economic growth in Serbia, for the purpose of this Paper the following variables are selected: ▸ real gross domestic product (*GDP*) in millions of RSD, based on 2005 prices, as an indicator which measures the total economic growth, and, ▸ foreign tourist arrivals (*FTA*), as an indicator which measures the level of tourism development[7]. Given the limitations in terms of availability and accessibility of data for the selected variables, this study covers the sample research period from 2002:Q_1 to 2011:Q_3, so that each time series has 39 observations. *Table 2* presents statistical properties of these data series. Data series of the observed variables are obtained from various sources. The *GDP* series and *FTA* series are collected from the *National Bank of Serbia* [available at *http://www.nbs.rs*], and *Statistical Office of the Republic of Serbia* [available at *http://www.stat.gov.rs*], respectively. Both of the variables, given the great seasonality that characterizes them, have been seasonally adjusted by using moving average method. On the other hand, their transformation into natural logarithm form (*LogGDP* and *LogFTA*) has been performed in order to avoid any possible problems of heteroscedasticity. All calculations were conducted by using the following statistical-econometric and simulation software packages: *EViews 6*, *SPSS*, and, *EduStat*.

Table 2. Statistical properties of the analyzed data series

Variables	Minimum	Maximum	Mean	Median	St. deviation	Skewness	Kurtosis
GDP	303.216,4	504.432,9	429.239,2	439.133	54.099,7	-0,524	-0,597
FTA	57.000	252.334	133.962,8	119.818	51.909,5	0,639	-0,443

According to the methodological framework described in Section 2, in the first stage of the empirical analysis, stationarity of the variables has been investigated, and accordingly, the order of integration has been determined for each of the observed variables, individually. For this purpose, *the Augmented Dickey-Fuller unit root test* (*ADF* test), [Dickey and Fuller, (1979); (1981)], has been used, and results are reported in *Table 3.* The optimal lag length is determined based on the Schwarz Information Criterion (*SIC*). The results indicate that both series, *Log_GDP* and *Log_FTA*, contain unit roots in their level form, but that they are stationary at their first differences. In other words, the null hypothesis of no unit roots, for both time series, is rejected at their first differences, since the *ADF* test statistics values are less than the critical values at 5% significance level. Therefore, it can be concluded that both variables are integrated of order one, i.e. *I(1)*.

Given that both of the variables are integrated of the same order, in the next, second, stage cointegration test is performed to identify the existence of a long-run equilibrium relationship between observed

[6] For cointegration testing and evaluation of the identified equilibrium relationship (model) several procedures have been developed. The initial, two-step cointegration procedure has been developed by Engle and Granger. Another, often used procedure is Johansen procedure, which is based on the maximum likelihood estimation in a VAR (Vector Autoregressive) model. In the process of selection of the optimal number of parameters of a VAR models, already mentioned information criteria are used. The two statistical tests proposed by Johansen for testing the number of cointegrating relations: the Trace statistics and the maximal Eigenvalue statistics.

[7] Variable - *foreign tourist arrivals* is one of the several alternatives that can be used for measuring the volume of tourism expansion. It is an indicator commonly used by the World Travel & Tourism Council (*WTTC*). For example, in case of Serbia, this organization estimates the increase of foreign tourist arrivals with the average annual growth rate of 4.9%, by the year of 2021, [*www.wttc.org*].

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variables. In order to investigate the existence of a cointegration relationship between *Log_GDP* and *Log_FTA*, in this study, the procedure developed by Johansen (1988), and Johansen and Juselius (1990) for conducting the *VAR* (Vector Autoregression)-based cointegration test, has been applied. *Table 4* shows the results of *Johansen cointegration test*, based on the Max-Eigenvalue and Trace test statistics, where *r* represents the number of cointegrating equations (vectors). It can be noticed that the null hypothesis of no cointegration relationship (*Ho: r=0*) is rejected against the alternative of at least one cointegrating equation, at 5% significance level. Therefore, Johansen cointegration test results suggest that *Log_GDP* and *Log_FTA*, series are cointegrated, i.e. that there is a long-run equilibrium relationship between them.

Table 3. The Augmented Dickey-Fuller Unit Root test results

Ho: Series contains a unit root; versus H_1: Series is (trend) stationary;										
Variables	Levels			1st Differences						Order of Integration I(d)
	None	Intercept	Trend & intercept	None	Lag	Intercept	Lag	Trend & intercept	Lag	
Log_GDP	2,388 (-1,950) [0,995]	-2,241 (-2,943) [0,196]	-2,066 (-3,533) [0,548]	-7,289 (-1,950) [0,000]*	0	-8,121 (-2,943) [0,000]*	0	-8,575 (-3,533) [0,000]*	0	I(1)
Log_FTA	1,482 (-1,950) [0,963]	-0,9697 (-2,943) [0,754]	-2,858 (-3,533) [0,187]	-6,633 (-1,950) [0,000]*	0	-7,101 (-2,943) [0,000]*	0	-6,999 (-3,533) [0,000]*	0	I(1)

Note: Test critical values for 5% significance level are given in ( ) below the Augmented Dickey-Fuller test statistics and p-values are in [ ].

Table 4. Johansen Cointegration test results

Hypothesized No. of CE(s)		Eigenvalue	Trace Statistic	0,05 Critical Value	p-value	Max-Eigenvalue Statistic	0,05 Critical Value	p-value
None*	Ho: r = 0	0,364697	20,48163	15,49471	0,0081*	16,78517	14,2646	0,0196*
At most 1	Ho: r ≤ 1	0,095076	3,696466	3,841466	0,0545	3,696466	3,841466	0,0545

Notes: Trace Test as well as Max-Eigenvalue Test indicates existance of at least 1 cointegrating eqn(s) at the 0,05 significance level; (*) denotes rejection of the Null hipothesis at the 0,05 significance level; The optimal lag length in the VAR model is selected to be 1, based on the LR (Sequential Modified LR Test Statistic), FPE (Final Prediction Error), AIC, SIC, and HQIC information criteria test results.

Table 5. Granger Causality test results

Null Hypothesis	Optimal Lag Length (1)		Lag Length (2)		Lag Length (3)	
	F-Statistic	p-value	F-Statistic	p-value	F-Statistic	p-value
Log_FTA does not Granger Cause Log_GDP	14,2646	0,1400	2,53509	0,0951	1,03895	0,3900
Log_GDP does not Granger Cause Log_FTA	3,841466	0,0013**	4,92374	0,0137*	1,70204	0,1885

Notes: (**) and (*) denote rejection of the Null hipothesis at the 1% and 5% significance level, respectively.

Although detected cointegration implies the existence of Granger causality between economic growth and tourism expansion at least in one direction, cointegration in itself does not indicate the direction of the causal relationship between the observed series. Therefore, another important issue to be addressed is to determine how the long-run relationship between these two variables is causally oriented. In other words, is tourism development causing economic growth (i.e. *the Economic-Driven Tourism Development hypothesis*), or *vice versa*, (i.e. *the Tourism-Led Economic Growth hypothesis*)? To answer the above stated question (regarding the direction of causality), the Granger causality test has been applied. As is evident from *Table 5*, the null hypothesis *Log_GDP does not Granger Cause Log_FTA*, is rejected, for the optimal lag length (1), at 1% significance level, indicating the existence of uni-directional causality running from *GDP* (as an indicator of economic growth) to foreign tourist arrivals (as an indicator of the volume of tourism activity). In other words, Granger causality test results confirm the validity and sustainability of *the Economic-Driven Tourism Development hypothesis* in case of Serbia.

5. CONCLUSION

In this Paper, the causal relationship between *FTA* (as a proxy of tourism development) and economic growth (measured with real *GDP*) in Serbia, is investigated, using modern statistical-econometric time series analysis techniques. The empirical results show that there is a long-run relationship between these two variables over the sample research period. However, since the existence of the cointegration between *FTA* and *GDP* does not give much information on the causality relationship between them, especially its direction, the Granger causality test was then used to resolve the addressed dilemma. Based on the empirical results, the presence of a positive unidirectional causality from *GDP* to *FTA* was identified (i.e. confirmation of the growth-led tourism development hypothesis), indicating that the number of foreign tourist arrivals, in the case of Serbia, heavily depends on the country’s economic growth. In general, presented findings imply that government policies

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should focus on stability of its political and market institutions, promotion of leading industries (i.e. main driving forces of economy), and well planned investment activities and resource allocation, in order to stimulate the overall economic growth, which will in turn provide not only the resources necessary for additional development of tourism sector, but also send positive signals about attractiveness of Serbia as a tourism destination to the international tourists.

REFERENCES

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

Brida, J.G., Barquet, A. & Risso, W.A. (2010). "Causality between economic growth and tourism expansion: Empirical evidence from Trentino–Alto Adige", *Tourismos: An International Multidisciplinary Journal of Tourism,* 5(2): 87–98.

Brida, J.G., Pereyra, S.J., Risso, W.A., Devesa M.J.S., & Aguirrre S.Z. (2009). "The tourism-led growth hypothesis: Empirical evidence from Colombia", *Tourismos: An International Multidisciplinary Journal of Tourism,* 4(2): 13-27.

Brida, J.G., Carrrera, E.J.S., & Risso, W.A. (2008). "Tourism's impact on long-run Mexican economic growth", *Economics Bulletin,* 3(21): 1-8.

Chen, C.-F. & Chiu-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. & Pulina, M. (2006). "Tourism and Growth: Evidence from Spain and Italy". [http://www-sre.wu-wien.ac.at/ersa/ersaconfs/ersa06/papers/128.pdf]. [Accessed the 3rd of July 2011]

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: 427-431.

Dickey, D.A. & Fuller, W.A. (1981). "Likelihood ratio statistics for autoregressive time series with a unit root, *Econometrica,* 49: 1057-1072.

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.

Enders, W. (2004). *Applied Econometric Time Series*, 2nd edition, New York: John Wiley and Sons.

Eugenio-Martin, J. L., Morales, N. M. & Scarpa, R. (2004). "Tourism and economic growth in Latin American countries: A panel data approach". [Accessed the 16th of August 2011, 21:15] [http://www.feem.it/userfiles/attach/Publication/NDL2004/NDL2004-026.pdf].

Fayissa, B., Nsiah, C. & Tadasse, B. (2007). "The impact of tourism on economic growth and development in Africa". [http://frank.mtsu.edu/~berc/working/]. [Accessed the 6th of August 2011, 22:35]

Ghartey, E. E. (2010). "Tourism, Economic Growth and Monetary Policy in Jamaica". [http://sta.uwi.edu/conferences/09/salises/papers.asp]. [Accessed the 12th of November 2010, 08:35]

He, Li-hua & Zheng, Xun-gang (2011). "Empirical analysis on the relationship between tourism development and economic growth in Sichuan", *Journal of Agricultural Science*, 3(1): 212–217.

Johansen, S. (1988). "Statistical analysis of cointegrating vectors", *Journal of Economic Dynamics and Control*, 12: 231-254.

Johansen, S. & Juselius, K. (1990). "Maximum likelihood estimation and inference on cointegration-with applications to the demand for money", *Oxford Bulletin of Economics and Statistics*, 52: 169-210.

Kadir, N. & Jusoff, K. (2010). "The cointegration and causality tests for tourism and trade in Malaysia", *International Journal of Economics and Finance*, 2(1): 138–143.

2nd Advances in Hospitality and Tourism Marketing & Management Conference
ISBN: 978-960-287-139-3

Kaplan, M. & Celik, T. (2008). "The impact of tourism on economic performance: the case of Turkey", *The International Journal of Applied Economics and Finance,* 2: 13-18.

Kareem, Olayinka Idowu (2008). "Tourism - Exports and Economic Growth in Africa". [http://www.africametrics.org/documents/conference08/day1/session2/]. [Accessed 7th of August 2011]

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

Katircioglu, S., Fethi, S., & Kilinc, C. (2010). "A long run equilibrium relationship between international tourism, higher education and economic growth in northern Cyprus", *Economic Research*, 23(1):86–96

Khalil S., Kakar, M. K. & Waliullah, (2007). "Role of tourism in economic growth: Empirical evidence from Pakistan economy", *The Pakistan Development Review,* 46(4): 985–995.

Kreishan, F. M. M. (2010). "Tourism and economic growth: the case of Jordan", *European Journal of Social Sciences*, 15(2): 63–68.

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

Lee, C.-C. & Chien, M.-S. (2008). "Structural breaks, tourism development, and growth: Evidence from Taiwan", *Mathematics and Computers in Simulation,* 77: 358–368.

Mishra, P. K., Rout, H. B. & Mohapatra, S. S. (2011). "Causality between tourism and economic growth: Empirical evidence from India", *European Journal of Social Sciences*, 18(4): 518–527.

Mladenović, Z. and Nojković, A. (2011). *Time Series Analysis: Examples from Serbian economy*, 2nd edition (in Serbian), Belgrade: Faculty of Economics University of Belgrade.

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

Onder, K. & Durgun, A. (2008). "Effects of tourism sector on the employment in Turkey: An econometric application". [http://ces.epoka.edu.al/icme/26.pdf]. [Accessed the 12th of September 2011, 14:20]

Ozturk, I. & Acaravci, A. (2009). "On the causality between tourism growth and economic growth: Empirical evidence from Turkey", *Transylvanian Review of Administrative Sciences*, 25E/2009: 73–81.

Payne, J.E. & Mervar, A. (2010). "Research note: The tourism-growth nexus in Croatia", *Tourism Economics*, 16(4): 1089–1094.

Samimi, A. J., Sadeghi Somaye, & Sadeghi, Soraya, (2011). "Tourism and economic growth in developing countries: P-VAR approach", *Middle-East Journal of Scientific Research*, 10(1): 28–32.

Savas, B. & Samiloglu, F. (2011). "Tourism - Growth nexus: An ARDL Causality Analysis for Turkey. [http://www.esef.gazi.edu.tr/html/yayinlar/27_pdf/27_5.pdf] [Accessed the 2nd of October 2011, 10:20]

Tang, C. F. (2011). "Tourism, real output and real effective exchange rate in Malaysia: A view from rolling sub-samples". [http://mpra.ub.uni-muenchen.de/29379/]. [Accessed the 10th of November 2010, 09:55]

Vanegas, Sr M. & Croes, R. (2007). "Tourism, economic expansion and poverty in Nicaragua: Investigating cointegration and causal relations". [http://econpapers.repec.org/paper/agsumaesp/7306.htm]. [Accessed the 5th of September 2010, 13:45]

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

www.unwto.org [*World Tourism Organization UNWTO*]
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