THE EFFECTS OF TOURISM REVENUES ON ECONOMIC GROWTH IN THE CONTEXT OF NEO-CLASSICAL GROWTH MODEL: IN THE CASE OF TURKEY

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Abstract
The aim of this study is to analyses the relationship between tourism and gross domestic product in the context of the Neo-classical growth model in the period after 1980 when Turkey adopted as an export-led growth model. İn this paper, gross domestic product, gross fixed capital formation and tourism revenues between the years 1980-2014 were used. Co-integration between series was tested using the Johansen co-integration technique. This test concluded that the series are co-integrated. Additionally the Granger causality test was used to investigate the causality between tourism and economic growth. As a result of this test, unidirectional causality running from tourism to economic growth was determined. As a developing country, this result shows that the tourism sector plays an important role on Turkey's attempts to close the gap with developed countries by financing gross fixed capital formation.

Key words: *Economic Growth; Neoclassical Model; Time Series Analysis; Tourism and Development; Tourism Revenue*

JEL Classification: *F1; L83; O47; Z32*

I. INTRODUCTION

In the last sixty years, the tourism industry worldwide has become one of and is in fact the consistently fastest growing sector. In 1950, the number of tourists worldwide was only 25 million; in 2000 this rose to 675 million and in 2014 peaked at 1.1 billion (UNWTO, 2015). On the other hand, export-led growth hypothesis (ELG) which puts forth the thesis that economic growth is not able to be encouraged solely through the increasing of labor and capital but rather in conjunction with the needed improvement in the amount of exports has been mentioned for recent centuries, tourism-led growth hypothesis (TLG) has been emphasized recent decades. However, although there are many studies relied on ELG hypothesis, the amount of studies on TLG hypothesis are limited (Kasman and Kasman, 2004, KIZILGÖL, 2006, Brida etc. , 2013). According to tourism-led growth hypothesis, international tourism has a strategic importance for economic growth. Tourism plays an important role of for development of the country by providing necessary foreign exchange to finance gross fixed capital formation, which is very important for increasing production capacity. In addition, it also encourages new infrastructure investments, competitiveness and contributes to the reduction of unemployment through increasing national income by stimulating other economic sectors with direct and indirect impact. Tourism is also an important factor for local companies to benefit from economies of scale, technology development, stimulation of AR-GE and human capital accumulation (Risso and Brida, 2009).

A number of tourism-based studies have approached this issue in the context of the neo-classical growth model. This model is posits that economic growth is affected by production factors such as labor and capital. On the other hand, it also assumes that technology affects this model through an exogenous effect. In these studies, the technology variable is presented by tourism revenue (Brida etc. , 2013).

In terms of developing countries, the tourism sector, which is seen as an important developmental means, has shown significant improvement in Turkey since 1980. As seen in graph 1, the number of tourists coming to Turkey rose from 2 million in 1984, to exceeded 36 million in 2014; that one could say is a significant increase. This increase has allowed Turkey to become the sixth country in the world (UNWTO, 2015). While the country obtained 2 billion dollars from tourism revenues in 1984, this revenue has increased 32 billion dollars in 2014.

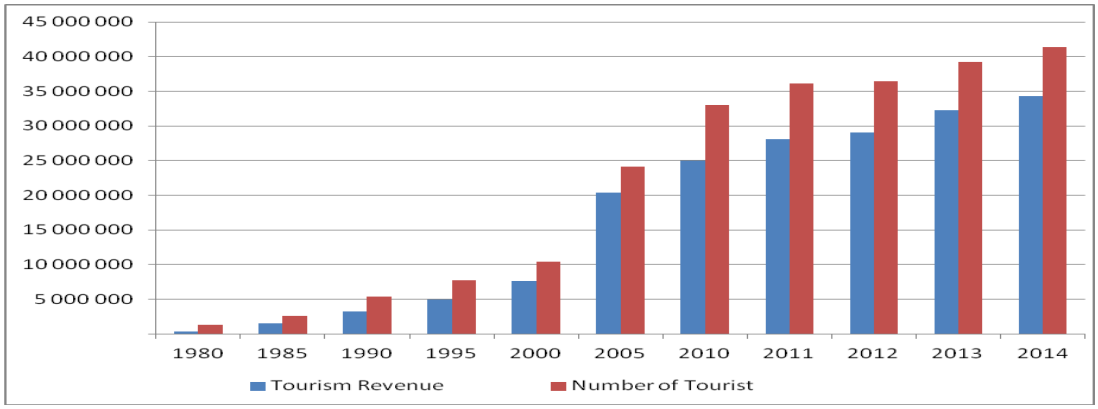

Figure 1 – Tourism Revenues (Dollar) and The Number of Tourist

While the share of tourism revenues in GDP was below 1% in 1980, it has been observed that this proportion has reached 4,3% in 2014. The share of tourism revenues in overall export revenues was 11% in 1980; comparatively they have reached 21% in 2014.

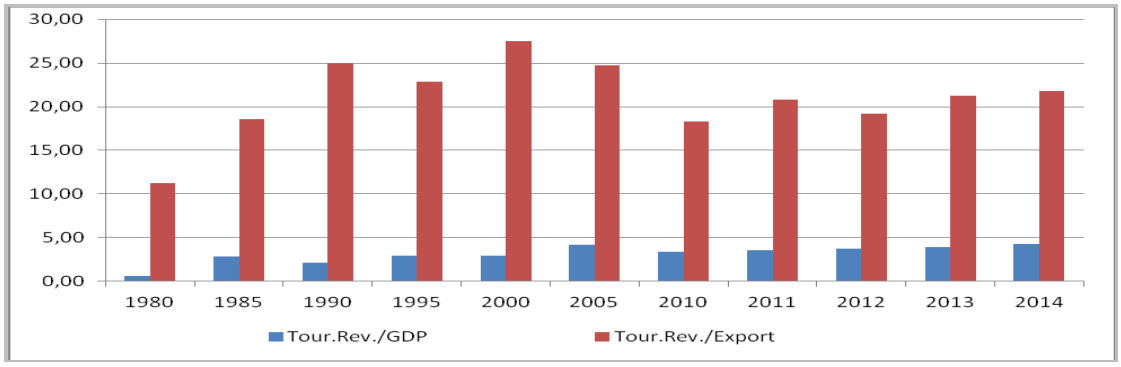

Figure 2 – The Share of Tourism Revenues in GDP and Total Export

In light of this information, it can be said that tourism is one of indispensable sectors for Turkey. As of 2014, tourism revenue had reached 32 billion dollars and played an important role in current deficit financing, which is very important for Turkey. In addition, the sector's ability to reduce unemployment has been indispensable in contributing to the lowering of the unemployment rate in Turkey.

In addition to these positive developments in tourism, it can be said that some points need to be developed. Turkey's tourism revenues are considered mainly based on sea-side tourism. When taking into account existing potential of its historical and geopolitical structure, it can be said that Turkey cannot fully utilize its potential. Moreover, in developed countries a tourist tends to spend an average of 2000 dollars; comparatively the spending level of tourists coming to Turkey falls to about 800 dollars.

When examining the empirical literature about the relationship between tourism and economic growth, there have not been extensive studies which have focused on export and economic growth. Some of studies in this area have tried to analyze only one country's data; others have tried to analyze the subject using more than one country.

In some studies carried out by a single country data, it has been determined that there is a causality running from tourism to economic growth (Balaguer and Cantavella-Jorda, 2002, Gunduz and Hatemi-J, 2005, Brida etc. , 2008, Belloumi, 2010, Katircioğlu, 2010, Kreishan, 2011). In some studies, it has been determined that there is a causality between tourism and economic growth and vise versa. So, these studies tend to point out that there is a two way relationship between tourism revenues and economic growth (Ongan and Demiröz, 2005, Khalil etc. , 2007, Massidda and Mattana, 2012, Wang etc. , 2012). In some other studies, a causality between tourism and economic growth could not be determined. On the contrary, these studies determined a causality running from economic growth to tourism (He Zheng, 2011; Oh, 2005; RidderstaatCroesNijkamp, 2014; Tang Jang, 2009).

There are some studies carried out panel data in economics literature. In some of these studies, it was determined that there is a causality running from tourism to economic growth (Lee and Chang, 2008, Çağlayan etc. , 2012, Dritsakis, 2012, Chou, 2013, Brida etc. , 2015). Besides this conclusion, there are studies that highlight a bidirectional causality between tourism revenues and economic growth (Lanza etc. , 2003, Lee and

Chang, 2008, Samimi etc. , 2011, Seetanah, 2011, Çağlayan etc. , 2012, Chou, 2013, Brida etc. , 2015). Some of the studies conducted with more than one country, have determined that there is a causality running from tourism to economic growth on the contrary to the causality running from economic growth to tourism (Çağlayan etc. , 2012, Chou, 2013). Apart from these conclusions, there are studies that there is no causality between these variables (Çağlayan etc. , 2012, Ekanayake and Long, 2012, Aslan, 2014).

Although there are some disputes in the literature against these findings, most studies support the tourism-led growth hypothesis. These results suggest that tourism is an important determinant of economic growth. In this study, relationships between Turkey's economic growth and tourism revenues in the period after 1980 was analyzed under the neo-classical growth model. As a consequence of the analysis conducted, gross fixed capital formations, gross domestic product and tourism revenues used in the model were determined to be co-integrated. As a result of the Granger causality test, it was determined that there is a one way causality from tourism revenues to gross domestic product. This result indicates that Turkey's tourism revenues have provided positive contribution to economic growth in the period under review.

II. METHODS AND RESULTS

It is accepted that labor, capital and technology affect income in neoclassical production function. In this function, fixed capital is indigenous, while technology is exogenous. When considering capital components and output per worker, ineffectiveness of the labor is emphasized. And then model is defined as below:

$$GDP_t = \beta_0 + \beta_1 TOU_t + \beta_2 GFCF_t + \varepsilon_t \qquad (1)$$

Turkey's Gross domestic product, gross fixed capital formation and tourism revenue data were used from 1980 to 2014 in this study. Here, "GDP" represents gross domestic product in dollar terms, "TR" total tourism revenue, "GFCF" gross fixed capital formation and "ε" error term, t=1,2,…, t represents time. The annual data used were drawn from the official website of the World Bank (DB 20136). Series used in time series models have to be stationary. During analysis if the series is not stationary and have up or down movement, the t statistic or R squared can take on a higher value. This trend may be due to this tendency instead of true relationships (Gujarati, 2010). To avoid this situation, ADF (Dickey Fuller, 1979, 1981) and PP (Phillips Perron, 1988) test were employed to test the stationary of the variables. These results are provided in Table 1.

Table 1. Unit root test results

	ADF			PP		
Level						
GDP	-1.66			-1.62		
TOU	-0.43			-0.55		
GFCF	-2.12			-2.12		
First Differences						
ΔGDP	-6.19*			-6.19*		
ΔTOU	-6.96*			-7.47*		
ΔGFCF	-6.00*			-6.30*		
Critical Values	**1%**	-4.29	**5%**	-3.56	**10%**	-3.21

* indicates rejection of the null hypothesis at 1% level of significance. Δ indicates the first differences of the series.

As seen in Table 1, all series were determined to be stationary at first level. While building a regression analysis with non-stationary series, they can be used by taking the first difference to avoid spurious regression. But this process destroys the effect of past temporary shocks the series exposed and can also eliminates real relationships between series. However, co-integrated series can be used without taking first difference even if the series are non-stationary. In this study, we examined the co-integration between series by Johansen co-integration technique and the results were given Table 2.

Table 2. Johansen co-integration test results

Trace				
Null Hypothesis	Eigenvalue	Trace Statistic	5% Critical Value	Prob.
None *	0,66	58,899	29,79	0,0000
At most one*	0,39	23,390	15,49	0,0026
At most two*	0,19	6,816	3,84	0,0090
Maximum Eigenvalue				
Null Hypothesis	Eigen-value	Maximum Eigen-value	5% Critical Value	Prob.
None *	0,66	35,508	21,13	0,0003

At most one*	0,39	16,573	14,26	0,0212
At most two*	0,19	6,816	3,84	0,0090

* indicates rejection of the null hypothesis.

The Johansen co-integration test estimated two statistics in the name of Eigen-value and trace. In this study, as a result of these calculated statistics, null hypothesis was rejected. Normalized unrestricted Co-integrated vector was given in table 3.

Table 3. Normalized unrestricted co-integration vector

GDP	GFCF	TR
1.000000	0.87	32.23
	(0.41)	(3.99)

() includes standard error estimated with quadratic trend.

Johansen co-integration test results are consistent with economics theory. Both the gross fixed capital formation and tourism revenues have positive and significant effect on economic growth. Effects of a shock which may occur in the short-term between co-integrated series is expected to disappear in the long term. As a result of VECM, the fact that the parameter of error correction term is negative and statistically significant, is interpreted as the effect of a shock to any series will be disappeared in the long term and series will move together. The result of the Wald test applied to independent variables and their lagged values show whether the independent variable has a significant effect on the dependent variable in the short term. This study examined the relationship between variables in short and long term and test results were given in table 4.

Table 4. VECM test results

Dependent Variable		Independent Variables	
GDP	ECM_{-1}	TR	GFCF
	-0.03 (0.011)	(0.0000)	(0.0095)

() indicates probability.

As a result of VECM test, the fact that parameter of ECM is negative and statistically significant show that independent variables have effect on dependent variable in the long-term. The fact that this value is negative means that a shock which occur in a series will be lost in the long term. So, in the long term, tourism revenue and capital have impact on gross domestic product. A parameter of 0,03 means that a shock occurring in the short term will lose its effect each period by 3%. As a result of Wald test, all variables probability values are significant. It means that all variables have effect on gross domestic product in short term.

Regression analysis indicates the dependency of relationships between series. However, this dependency between variables does not necessarily mean a causality relationship. In the regression analysis, dependent and independent variables must be determined at the beginning of the study. There is no necessity like this for the causality test. The causality estimation results should be based on economics theory. In this study, the Granger causality test was built to determine the direction of the relationship. However, it is first necessity to determine the appropriate lag selection for the VAR model. The result of this test are given in table 5.

Table 5. VAR lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2.313.865	NA	1.66e+61	1.494.752	1.496.140	1.495.204
1	-2.238.364	1.315.192	2.28e+59	1.451.848	45.7398*	1.453.657
2	-2.223.450	2.309.273	1.59e+59	1.448.032	1.457.746	1.451.199
3	-2.209.620	1.873.654	1.22e+59	1.444.916	1.458.794	1.449.440
4	-2.194.157	17.95721*	8.81e+58*	144.0746*	1.458.787	144.6627*

* indicates optimal lag. FPE: Final Prediction Error AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

As a result of tests applied to determine appropriate lag selection, LR, FPE, AIC and HQ tests indicate that the optimal lag order is 4. The Granger causality test results based on the VAR model are given in table 6.

Table 6. Granger causality test results

Dependent Variable: GDP			
Excluded variable	**Chi-square statistic**	**Lag**	**Probability**
TR	72.46936	4	0.0045
GFCF	15.07920	4	0.0000
All	92.97421	8	0.0000
Dependent Variable: GFCF			
Excluded variable	**Chi-square statistic**	**Lag**	**Probability**
GDP	16.29160	4	0.0027
TR	66.03628	4	0.0000
All	102.0391	8	0.0000
Dependent Variable: TR			
Excluded variable	**Chi-square statistic**	**Lag**	**Probability**
GDP	5.198551	4	0.2675
SER	3.241847	4	0.5182
All	12.33297	8	0.1370

The following results were obtained from the Granger causality test.

- There is a causality running from tourism revenues and capital to GDP.
- There is a causality running from tourism revenues and GDP to capital.
- There is not a causality running from capital and GDP to tourism.

In the period after 1980 when Turkey adopted the export-led growth model, the relationship between tourism and GDP was examined in the context of neo-classical growth model in this study. GDP, tourism revenue and gross fixed capital formation were used. The fact that all data are stationary at a first difference was identified with the help of ADF and PP unit root tests. With the Johansen co-integration test, series were determined to be co-integrated. Short and long term relationships between the series was examined by using VECM test and it was determined that effect of a shock occurring in series will be eliminated. Finally, in order to determine direction of causality, the Granger causality test was conducted and determined that there is a one-way causality from tourism to GDP.

III. CONCLUSION

A country needs to boost the amount of production factor to develop. The biggest obstacle for import of fixed capital formation is the limited amount of foreign currency in the developing countries. The most effective way of overcoming this obstacle is to improve export. However, with the tourism beginning to improve since second half of the 20th century, it has been shown that there is an alternative way to encourage investment. Tourism which is accepted as a standard type of export has become an important factor in reducing unemployment by creating employment opportunities. It also finances a significant portion of the fixed capital investment need.

When the economics literature is examined, quite a number of studies focusing on the relationship between economic growth and export can be seen. However, studies that focus on the relationship between tourism and economic growth are limited in number. In this study, co-integration and causality between tourism revenue and economic growth was examined for the period surveyed. Test results indicate that variables are co-integrated. This result is consistent with and As a result of the causality test, a causality from tourism to economic growth was determined. This result is consistent with and .

In this study like other study surveyed before, it is determined that tourism has effect on economic growth. These results show that governments worldwide should focus on tourism sector. Turkey's tourism revenues are heavily based on sea-side tourism. It can be said that Turkey cannot benefit from its tourism potential when considered its geopolitical and historical potential of country. Moreover, in developed countries while a tourist spends an average of 2000 dollars, the spending level of tourists coming to Turkey is about 800 dollars. This situation shows that tourism policy needs to be improved.

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