DETERMINATION OF NUMBER OF ARRIVING TOURISTS AND NIGHT SPENT IN ACCOMMODATION RELATIONS WITH ECONOMIC GROWTH: THE CASE OF TURKEY

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ABSTRACT

The tourism-based growth hypothesis (TLGH), which indicates that tourism is the determinant of economic growth and provides economic growth, suggests a positive relationship between tourism expenditures and economic growth. Within the context of the tourism-based growth hypothesis, it is known that several of the factors affecting tourism expenditures are the number of tourists coming to the country and the length of their stay. This study is aimed at determining the relationship with this context in 2000-2015 years with 81 provinces of data from arrivals tourist numbers and night spent in accommodation in Turkey with variables gross domestic product per capita Depending on this purpose, the horizontal and cross-sectional dependencies of the variables are first analyzed with the CD proposed by Pesaran (2004) and the BA-LM tests proposed by Pesaran, Ullah and Yamagata (2008). According to the test results, the null hypothesis, which suggests that there are no horizontal-section dependencies, has been rejected. Then, the CIPS Panel Unit Root test, which is sensitive to horizontal-section dependency, was performed and the stationarity of the variabilities was determined. In addition, the cointegration test, which is sensitive to horizontal-section dependency, was applied and a cointegration relationship was found between the number of arriving tourists and the length of stay and economic growth. The slope heterogeneity test results, which are sensitive to horizontal-slice dependence applied to variables, show that slope heterogeneity is present in the variables. Dynamic CCEMGE (Dynamic Common Correlated Effects Mean Group Estimator) model was used to test the TLGH hypothesis because our variables have horizontal-section dependencies on one side and slope heterogeneity on the other. Dynamic CCEMG model results indicate that the results of TLGH hypothesis applies to the provinces of Turkey. Moreover, the relationship between the number of tourists and the length of stay and economic growth varies according to the results of the study.

Key Words: Number of Incoming Tourists, Accommodation Time, Economic Growth, Tourism-Led Growth Hypothesis, Dynamic CCEMGE Model

1. **INTRODUCTION**

The advanced hypothesis that international tourism constitutes the main source of economic growth is the tourism-based growth hypothesis (Brida, Sanchez Carrera, & Risso, 2008: 1). This economic link is in the ratio of Tourism Capital Import to Growth (TKIG) (Cortes-Jimenez, Pulina, Prunera, & Artis , 2009:4). The growth of imports of investment goods by increasing tourism revenues. The economic growth of countries is possible by developing international tourism as non-traditional exports (Chang, Khamkaew, & McAleer, 09.08.2018). Tourism is an invisible export pen (Bahar , 2006: 140). In the tourism-based growth hypothesis, tourism is considered to provide economic growth in the long run (Balaguer & Cantavella-Jorda, 2002: 878). In other words, tourism expenditures made by foreign tourists in another country are an export effect as they are in exports of goods, in terms of foreign exchange income provided to that country (Çağlayan, Güriş, & Öskönbayev, 2012: 107).

Tourism is the whole of the events that occur as a result of the accommodation and the accommodation of the goods and services produced by the tourism enterprises, so that the individuals are permanently residing and traveling outside the places where they work and not aiming to settle in the area and gain profit (Barutçugil, 1998). According to the data of 2015, foreign tourist traffic increased by 4.4% to 1 billion 184 million. In 2016, the tourism sector is expected to grow by 4% (UNWTO (World Tourism Organization), 09.08.2018). In this context, the figures show that the tourism sector has become a constantly developing and growing sector in the world economy.

In this study, tourism-led growth hypothesis, 2000-2015 year the number of tourists coming to Turkey and their stay provinces with data, economic growth has been tested using variables. Panel data studies performed in the tourism sector in Turkey is to test the existence of co-integration between provinces generally related variables. Aslan (2008) study made by the Turkey's long-term economic development in the tourism role of the 1992-2007 period of growth hypothesis based on tourism by examination to examined Johansen be confirmed by co-integration and Granger causality tests. According to the study variables of tourism in Turkey has determined that the impact on economic growth (Arslan, 2008: 1). Kaya and Canlı (2013) is the work they have done investigated the determinants of international tourism demand for Turkey. 1990-2018 / 2010 for the period of 24 selected OECD countries towards Turkey have made an analysis of international tourism demand. Within findings they obtained that determine the demand for international tourism to Turkey from OECD countries have determined that the

variable income. In this context, the increase in the income levels of OECD countries leads to an increase in the demand for tourism to Turkey (Kaya & Canlı, 2013: 43).

2. DATA AND METHOD

The number of tourists and accommodation for the duration provinces of Turkey between the years 2000-2015 in the study was attempted to test whether there is a relationship on economic growth. Working tourism enterprises located in 81 provinces in the number of tourists coming to the certificate of accommodation facilities with municipal certificate accommodations for their stay and Turkey were examined with per capita GDP falling in each province separately. Tourism data and falling GDP per capita in the provinces Turkey Statistical Institute (TÜİK- http://www.tuik.gov.tr) was obtained from the database. Descriptive statistics of the data used in Table 1 are presented below.

Table 1. Descriptive Statistics

Variables	Observation	Mean	Standard Deviation	Min.	Max.
Lg (GSYH Per Capita)	1296	10.039,25	7.493,607	455	43.645
Ttg (Number of Tourists Coming to Accommodation Facilities with Tourism Operation Certificate)	1296	336.052,51	1.216.467,581	148	14.657.471
Btg (Number of Tourists Coming to Municipal Licensed	1296	206.679,52	435.180,035	658	3.642.438

Accommodation Facilities)					
Tg (Number of nights spent in Accommodation Facilities with Tourism Operation Certificate)	1296	1.060.511,29	5.508.824,294	366	70.527.186
Bg (Number of nights spent in Municipal Certified Accommodation Facilities)	1296	445.042,98	1.294.190,872	697	11.920.172

Source: TÜİK, https://biruni.tuik.gov.tr/, 01.06.2018.

In order to determine the relationship between the number of arriving tourists and the length of stay and economic growth, the model presented in equation (1) is used:

$$Lg_{it} = \lambda_i d_t + \alpha_{1i} Ttg_{it} + \alpha_{2i} Btg_{it} + \alpha_{3i} Tg_{it} + \alpha_{4i} Bg_{it} + u_{it} \qquad (1)$$

$$u_{it} = \theta_i f_t + \varepsilon_{it}, \quad i=1,2,\ldots,N \text{ and } t=1,2,\ldots,T$$

In the equation, Lg-per capita GDP, Ttg-Number of Tourists Coming to Accommodation Facilities with Tourism Operation Certificate, Btg-Number of Tourists Coming to Municipal Licensed Accommodation Facilities, Tg-Number of nights spent in Accommodation Facilities with Tourism Operation Certificate, Bg-Number of nights spent in Municipal Certified Accommodation Facilities, d_t and f_t are observed and unobserved joint effects, and ε_{it} is the error term.

In the applied analysis, it was investigated whether or not there is horizontal section dependency among variables. Whether horizontal section dependency is an important problem in panel data analysis. In traditional first-generation panel data models, it is assumed that there are no horizontal section dependencies between the error terms and the slopes are homogeneous. Not investigating the horizontal section dependency can lead to many problems. One of these problems is that in the case of horizontal section dependency between error terms,

it is shown that reaching many dimensions in the results of traditional first generation unit root tests and using fixed and changing effect models to reach inconsistent and misleading results (Atılgan, Ertuğrul, & Basar, 2017: 425). The CD test proposed by Pesaran (2004) and the LM (Bias adjusted LM test) proposed by Pesaran, Ullah and Yamagata (2008) were used to analyze whether there is horizontal section dependency. Because of the horizontal section dependency between the variables, the CIPS unit rootstocks recommended by Pesaran (2007) were used. Once the series were found to be stationary in the first order, the cointegration relation was examined using the Gauss 10 program. After determining the existence of cointegration between the variables, the slope heterogeneity test proposed by Pesaran and Yamagata (2008) was applied. The slope is the assumption of slope homogeneity in traditional first generation panel data models that are due to the application of the heterogeneity test. If there is no slope homogeneity, the estimation results in the constructed model can be misleading. The Dynamic Common Correlation Effects Mean Group Estimator-Dinamic CCEGM model developed by Chudik and Pesaran (2015), which takes into account both horizontal and vertical gradient heterogeneity, is used.

The dynamic CCEGM model is set up as shown in Equation (2) below.

$$y_{it} = \alpha_{0i}y_{it} - 1 + \alpha_{1i} + \beta_i x_{it} + \sum_{j=1}^{n} \theta_i \bar{y}_{it-j} + \sum_{j=1}^{n} \theta_i \bar{x}_{it-j} + \varphi_i f_t + \epsilon_{it} \qquad (2)$$

In the equation, the y_{it} dependent variable is the fixed effects of the time-invariant heterogeneity among the α_{1i} groups, the x_{it} descriptive variables vector, $\bar{x}_{it-j}$ and $\bar{y}_{it-j}$ delayed horizontal section averages, β_i the specific slopes of the observed variables, f_t common factors that can not be observed with the heterogeneous factorφ_i, and the ϵ_{it} error term.

In the applied analysis, CCEGM and AMG (Augmented Mean Group) models were predicted in addition to the dynamic CCEGM model.

3. ESTIMATION RESULTS

In the study, firstly, it is examined whether there is horizontal section dependency between variables. For this purpose, the CD test proposed by Pesaran (2004) and the Bias adjusted LM test proposed by Pesaran, Ullah and Yamagata (2008) were used. The horizontal section dependency test results are presented in Table 2 and Table 3.

Table 2. Horizontal Cross Section Dependency Test Results- CD Test

	p Value	CD Test
Lg	0.000	226.71
Ttg	0.000	143.88
Btg	0.000	64.96
Tg	0.000	144.29
Bg	0.000	77.06

The values show a level of significance of 5 percent. The null hypothesis is that there is no horizontal section dependency.

Table 3. Horizontal Cross Section Dependency Test Results- LM / Bias Adjusted LM Test

	Statistic	p Value
LM	5318	0.000
LM adj.	32.75	0.000

The values show a level of significance of 5 percent. The null hypothesis is that there is no horizontal section dependency.

When Table 2 and Table 3 were examined, the null hypothesis that there was no horizontal section dependency in the CD and LM tests was rejected. Horizontal section dependency exists between variables.

The results of the CIPS tests proposed by Peseran (2007) are shown in Table 4 for the unit root examination after the horizontal cross section dependence.

Table 4. CIPS Unit Root Test Results

	Level		First Difference	
	Fixed	**Fixed + Trend**	**Fixed**	**Fixed + Trend**
Lg	-2.005	-2.022	-3.402	-3.502
Ttg	-2.343	-2.685	-3.735	-3.795
Btg	-2.517	-2.616	-3.864	-3.819
Tg	-2.317	-2.779	-3.702	-3.739
Bg	-2.647	-2.657	-3.799	-3.931

The values show a level of significance of 5 percent. The basic hypothesis for the CIPS test is that the unit is root-containing.

When Table 4 is examined, the variables become stable after the first difference is taken. Analysis of the cointegration relation between the variables after the series were determined to be stationary was carried out by Westerlund Durbin-Hausman test in the Gauss 10 program and the critical value at the 5% significance level was found to be 1.645> 0.05. The results of the cointegration analysis showed that the number of arriving tourists and the duration of accommodation were cointegration with GDP. Following this analysis, the slope heterogeneity test proposed by Pesaran and Yamagata (2008) was applied. Slope heterogeneity test results are shown in Table 5.

Table 5. Slope Heterogeneity Test Results

	Value
Swamy $\hat{S}$	911.083
$\tilde{\Delta}$	25.323
$\tilde{\Delta}_{adj}$	31.481
$\tilde{\Delta}$	23.063
$\tilde{\Delta}_{adj}$	1.736

The values show a level of significance of 5 percent. The basic hypothesis is slope homogeneity.

The results of the slope hetoregion tests show that the slope, which is the main hypothesis, is rejected as being homogeneous. In other words, it is revealed that the slope in the model is heterogeneous and the estimators considering the heterogeneity of slope should be used. For

the coefficient estimates, Dynamic CCEGME estimator which considers these problems have been used since both the horizontal section dependency and the slope heterogeneity exist in the model. The dynamic CCEGME estimator results are presented in Table 6, Table 7, Table 8 and Table 9.

Table 6. Dynamic CCEMG Estimator Results- Lg dependent variable Ttg independent variable

Dependent Variable (Lg)	Coefficients
Lg (-1)	0.397
Ttg	0.003
Lg- Horizontal section mean (-1)	-0.042
Ttg- Horizontal section mean (-1)	0.000
C	-124.624

The values show a level of significance of 5 percent.

Table 7. Dynamic CCEMG Estimator Results- Lg dependent variable Btg independent variable

Dependent Variable (Lg)	Coefficients
Lg (-1)	0.355
Btg	0.001
Lg- Horizontal section mean (-1)	-0.388
Btg- Horizontal section mean (-1)	0.002
C	-29.217

The values show a level of significance of 5 percent.

Table 8. Dynamic CCEMG Estimator Results- Lg dependent variable Tg independent variable

Dependent Variable (Lg)	Coefficients

Lg (-1)	0.385
Tg	0.002
Lg- Horizontal section mean (-1)	-0.420
Tg- Horizontal section mean (-1)	0.000
C	-96.392

The values show a level of significance of 5 percent.

Table 9. Dynamic CCEMG Estimator Results- Lg dependent variable Bg independent variable

Dependent Variable (Lg)	Coefficients
Lg (-1)	0.326
Bg	0.002
Lg- Horizontal section mean (-1)	-0.369
Bg- Horizontal section mean (-1)	0.000
C	-52.297

The values show a level of significance of 5 percent.

The coefficients of the independent variables Ttg, Btg, Tg and Bg were found to be positive and statistically significant in the expectation direction. The fact that this coefficient is positive and meaningful indicates that there is a relationship between the number of tourists and the length of stay and GDP. The dynamic CCEGM Model gives the coefficients for each province. The coefficients obtained for the 81 provinces examined are presented in Table 10.

Table 10. Provincial Coefficients Obtained from the Dynamic CCEGM Model

Province	Coefficients			
	Ttg	Btg	Tg	Bg
Erzurum	0.017	-0.002	-0.003	-0.001
Erzincan	-0.015	-0.017	0.018	0.018
Bayburt	0.320	0.006	-0.270	0.008
Agri	-0.004	0.010	0.032	-0.009
Kars	0.011	0.011	-0.011	-0.004

Igdir	-0.007	0.008	0.019	-0.001
Ardahan	0.073	0.117	-0.042	-0.007
Malatya	0.011	0.000	-0.004	-0.002
Elazığ	0.001	0.011	0.014	-0.006
Bingöl	0.108	0.005	-0.038	-0.016
Tunceli	0.044	0.014	-0.016	-0.017
Van	-0.023	-0.003	0.001	0.001
Muş	-0.002	0.123	-0.010	-0.047
Bitlis	-0.086	-0.002	0.078	-0.018
Hakkari	0.001	0.014	-0.004	0.006
Gaziantep	0.035	-0.008	0.002	0.926
Adıyaman	0.002	-0.022	-0.021	0.664
Kilis	0.228	-0.025	-0.135	0.042
Şanlıurfa	0.008	-0.006	-0.007	0.004
Diyarbakir	-0.016	-0.001	0.009	0.001
Mardin	-0.023	0.031	0.021	-0.022
Batman	0.001	0.113	-0.008	-0.094
Şırnak	0.021	0.018	-0.007	-0.013
Siirt	-0.971	-0.112	1.267	0.086
İstanbul	0.003	-0.001	-0.002	0.001
Tekirdag	-0.058	-0.007	0.022	-0.001
Edirne	-0.019	0.008	0.016	-0.001
Kirklareli	-0.034	0.011	0.012	-0.002
Balıkesir	-0.005	0.001	0.003	-0.001
Çanakkale	-0.005	-0.002	0.001	0.002
İzmir	0.001	0.001	-0.001	-0.001
Aydin	0.000	-0.001	0.000	0.000
Denizli	0.004	-0.002	-0.005	0.000
Mugla	0.001	-0.001	0.000	0.000
Manisa	-0.049	-0.005	0.009	0.002
Afyonkarahisar	0.002	0.003	-0.002	-0.001
Kütahya	0.000	-0.001	0.004	0.000
Usak	-0.023	0.029	0.008	-0.061

Bursa	-0.006	-0.002	0.003	-0.003
Eskisehir	-0.041	0.011	0.035	-0.021
Bilecik	-0.152	0.298	0.123	-0.103
Kocaeli	0.052	0.064	-0.023	-0.038
Sakarya	0.018	-0.003	-0.008	-0.061
Düzce	-0.119	-0.009	0.067	0.007
Bolu	0.020	0.004	-0.011	0.003
Yalova	0.005	-0.042	0.011	0.038
Ankara	0.033	0.004	-0.017	-0.005
Konya	-0.003	-0.009	-0.006	0.007
Karaman	-0.001	0.207	0.032	-0.204
Antalya	0.000	0.000	0.000	0.001
Isparta	0.514	-0.028	-0.048	0.009
Burdur	0.075	0.016	-0.097	-0.017
Adana	0.001	0.000	0.002	0.001
Mersin	0.000	0.000	0.000	0.000
Hatay	0.003	-0.005	-0.001	0.005
Kahramanmaras	0.003	0.001	0.000	0.000
Osmaniye	-0.063	0.081	0.072	-0.067
Kirikkale	0.111	0.023	-0.151	0.028
Aksaray	0.014	-0.018	-0.004	0.016
Nigde	0.020	-0.047	-0.008	0.048
Nevşehir	-0.004	-0.001	0.002	0.002
Kirsehir	-0.019	0.026	0.002	-0.026
Kayseri	-0.019	-0.015	0.018	0.001
Sivas	0.009	0.001	0.000	0.001
Yozgat	0.016	0.012	-0.009	-0.013
Zonguldak	0.082	0.052	-0.034	-0.028
Karabük	0.027	-0.024	-0.018	0.024
Bartin	-0.031	0.003	0.013	-0.004
Kastamonu	-0.020	0.007	-0.005	-0.007
Çankırı	0.049	0.013	-0.039	-0.014
Sinop	-0.079	0.011	0.054	-0.007

Samsun	0.007	0.001	-0.004	-0.001
Tokat	0.029	-0.011	-0.021	0.016
Çorum	0.021	0.019	-0.014	-0.003
Amasya	0.165	-0.015	-0.098	0.012
Trabzon	0.002	0.002	-0.001	-0.002
Ordu	0.001	0.001	0.002	-0.005
Giresun	-0.030	0.009	0.016	0.007
Rize	0.016	0.013	-0.014	-0.012
Artvin	0.008	0.000	-0.008	0.004
Gümüshane	-0.133	0.031	0.077	-0.034

RESULT

In this study, there is a positive relationship between the number of arriving tourists and the length of stay and economic growth. Number of tourists and duration of stay were examined separately for tourism certified enterprises and municipal certified enterprises. Also applied to the variables under study CCEGM Dynamic modeling results in terms of the number of incoming tourists and their stay in Turkey's 81 provinces have been shown to have different effects on economic growth.

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