The Effect of Tourism Sector on Economic Growth: An Empirical Study on Turkey

Turizm Sektörünün Ekonomik Büyümeye Etkisi: Türkiye Üzerine Ampirik Bir Çalışma

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Abstract: In this study, it was aimed to reveal the effect of tourism sector in Turkey on the economy between the years of 1980-2016. Within this context, the effect of tourism incomes on the growth rate of GDP per capita in the ARDL model established. According to error correction factor found as a result of the analysis, the effect of shock that is possible to occur in the short term within the model without constant term can be eliminated in 1/1.10 term whereas the effect of shock in the model with constant term can be eliminated in 1/1.95 term. Moreover, a significant and positive relation between the factors was identified in the short and long term. It is believed that the sector should be featured more in order to increase these positive effects of Turkish tourism on economy.

Keywords: Tourism Economics, Economic Growth, ARDL Model, Turkey

Öz: Bu çalışmada, 1980-2016 yılları arasında Türkiye'de turizm sektörünün ekonomiye olan etkisinin ortaya konması amaçlanmıştır. Bu bağlamda, ARDL modeli ile turizm gelirlerinin kişi başına GSYİH büyüme oranına etkisi ölçülmüştür. Analiz sonucunda bulunan hata düzeltme faktörüne göre, sabit terim olmadan kısa vadede meydana gelebilecek şok etkisi 1 / 1.10 döneminde elimine edilebilirken; modeldeki şokun sabit terim etkisi ise 1 / 1,95 döneminde elimine edilebilir. Ayrıca kısa ve uzun vadede faktörler arasında anlamlı ve pozitif bir ilişki tespit edilmiştir. Türk turizminin ekonomi üzerindeki bu olumlu etkilerini arttırmak için sektörün daha fazla desteklenmesi gerektiği ifade edilebilir.

Anahtar Sözcükler: Turizm Ekonomisi, Ekonomik Büyüme, ARDL Modeli, Türkiye

1. Introduction

Tourism sector, which has progressed rapidly, is one of the leading sectors of national economies in terms of their contribution to both employment and capital investment. Rapid growth tendency monitored in tourism sector around the world has manifested itself in Turkey especially since 1980s. Turkey has accepted tourism as a driving power for economic development after 1980 and it has allocated a substantial part of its economic resources to the development of this sector. Tourism sector, which has made a significant progress as a result of these efforts, being one of the most dynamic sectors in Turkey, has become one of the leading sectors of Turkish economy. Today tourism incomes have become second foreign currency resource after exportation in the balance of payments (Unur, 2000:11).

Turkey was at the sixth in the ranking of the most visited countries by tourists in 2013 while it regressed to forty-fourth in 2016. According to the figures in a report compiled by a website named as Movehub from World-Statistics.org in 2014, Turkey was ranked as the sixth within the countries attracting the highest number of tourists with the number of 34 million. The top country in the list was France with a number of 81 million 400 tourists. According to this ranking, Turkey has attracted attention as a tourism destination leaving the countries such as the United Kingdom, Germany and Russia behind (Tourism Report, 2017).

According to data of World Tourism Organization, in 2015 number of international visitors increased in the ratio of 4,6% when compared to the previous year and it reached to 1 billion 186 million people. Number of visitors to France, the most visited country in the world, was 84,5 million people. The USA with 77,5 million people and Spain with 68,2 million people came after France. Turkey was the sixth most visited country with 41,6 million tourists in the world in 2015. International tourism incomes went down to 260 billion dollars decreasing 3,9% in dollar basis. The USA, getting the first place in tourism income in the world, had 204,5 billion dollars as tourism income. China with 114,1 billion dollars and Spain with 56,5 billion dollars follow the USA. Turkey was at the tenth place with 31,5 billion dollars among the countries getting the highest tourism income (Tourism Report, 2015:4-6).

According to the data of United Nations World Tourism Organization (UNWTO), in 2017 Turkey was the sixth most visited country around the world with 1 billion 322 million people. It is known that the number of incoming tourists to Turkey increased 27,8% and reached to 32 million 410 thousand tourists. In accordance with Turkey Tourism Policy 2023 objectives, it is aimed to reach 63 million tourists, 86 billion dollars foreign tourism income and 1350 dollars expenditure per tourist in 2023

Tourism sector is one of the rapidest developing sectors in the world. Tourism sector used as a common tool in the development process of countries also creates significant effects on macro-variables of national economies. When tourism mobility of both developed and developing countries are examined, developments on the sector are seen to increase the

national employment, income and tax incomes in addition to the fact that it plays a fundamental role to reduce the problems related to balance of payments (Lee & Chang, 2008:180-181; Balaguer & Jorda, 2002: 877; Romero & Molina, 2013:29). Tourism sector, forming a significant element of development especially in developing countries by its contribution to national income as well as foreign currency income it provides, also has an importance in connection with alleviating the unemployment through employment opportunities it creates. Today, rapid development experienced especially in information and transportation technologies is making development of tourism more important by both economic and social dimension of its.

Rapid growth tendency seen in world tourism has shown its reflections in Turkey since 1980s. As tourism was viewed as a leading power for Turkish economy in post-1980s, a significant fund transfer to tourism was started (Kızılgöl & Erbaykal, 2008:352). One of the most important developments behind this process was 'the resolutions of 24th January 1980'. In aforementioned period, Turkey determined its direction as industrialization directed to exportation by leaving import-substitution policy. Tourism sector was adopted as a productive and effective tool to achieve this strategy (Tosun, 2001). Another development supporting the rise of the sector was 'Law for the Encouragement of Tourism' effectuated in 1982. Tourism investments in Turkey gained momentum through financial supports provided for the enterpriser by this law (Toker, 2007:83).

Table 1. Tourism Indicators in Turkey between 2000 and 2016

Years	Trade Balance Deficit (DTA) $	The share of tourism income finances the DTA (%)	Tourist Arrivals (thousand)	Tourism Income (Million Dollar)	Share of Tourism income in GDP
2000	26.727.914	37,38	10428	7636	2,9
2001	10.064.867	133,63	11619	10451	5,3
2002	15.494.708	98,19	13256	12421	5,4
2003	22.086.856	73,81	14030	13855	4,5
2004	34.372.613	58,95	17517	17077	4,4
2005	43.297.743	55,72	21125	20322	4,2
2006	54.041.498	42,83	19820	18594	3,5
2007	62.790.965	43,34	23341	20943	3,2
2008	69.936.378	44,3	26337	25415	3,4
2009	38.785.809	82,52	27077	25064	4,1
2010	71.661.113	46,09	28632	24931	3,4
2011	105.934.807	34,13	31456	28116	3,6
2012	84.066.659	43,75	31782	29007	3,7
2013	99.858.613	32,35	34911	32309	3,9
2014	84.508.918	40,59	36837	34306	4,3
2015	63.268.398	49.73	36244	31465	6,2
2016	55.995.686	39.48	25352	22107	2,6

Source: Compiled from TURSAB, 2018 data by the researcher

When Table 1 is examined, it is seen that the number of tourists visiting Turkey was increasing regularly within the time period from 2000 to 2005: however, number of tourists was decreasing in 2006. Main reasons of this case are viewed as avian influenza, priest murder in Trabzon and World Cup played in Germany. It is understood that an increase in the number of tourists coming to Turkey was observed once again in 2007 and this increase went into a decline in 2016 due to Turkey-Russia Jet Crisis and Coup Attempt.

Tourism incomes in Turkey are known to have a significant position within Gross National product (GDP). It is seen that Turkey's tourism incomes and the ratio of these incomes in GDP are directly proportionated to number of visiting tourists. While tourism income of Turkey was seen to be 20332 million dollars and the ratio of this income in GDP was seen to be 4.2 % in 2005; it was identified that decrease experienced in tourism income in parallel to decreasing number of tourists in 2006 reverberated similarly on GDP as 3.5 %. Tourism income reducing from 2005 to 2007 started to rise again through plans carried into practice by the Ministry of Culture and Tourism in 2007. Nevertheless, tourism income is known to have reached the highest level with 31465 million dollars and 6.2 % ratio within GDP in 2015. 2016 was a difficult year in terms of Turkish tourism and negations experienced caused tourism incomes to regress to 22107 million dollars. This case caused the ratio of tourism incomes in GDP to reduce to a much lower rate (2.6%) compared to the one in 2000. The effect of tourism incomes' ratio within GDP is seen to increase depending upon economic shrinkage and recession after crisis periods.

The ratio of tourism to meet foreign trade deficit is calculated by dividing figure of tourism income after tourism expenditures are subtracted from tourism incomes into figure of foreign trade balance after import expenditures are subtracted from exportation incomes. As seen in Table 1, tourism incomes in Turkey are constantly increasing. When Turkish economy is considered to experience a constant foreign trade deficit, tourism sector attracts a great notice as a significant sector to meet this deficit. Tourism sector is understood to be an effective one, especially, to counteract the drawbacks of crisis periods.

2. Literature Review

Many studies done in the fields of tourism and economy examining the relationship between tourism incomes and economic growth are found in the literature. When literature is reviewed, the effect of tourism on economic growth in different countries in different time periods was generally examined by using VAR analysis, Granger Causality Test and Co-integration Test and tourism was mostly revealed to have a positive effect on economic growth. However, contrary results were obtained in some studies and no correlation between tourism and economic growth was found out.

Balaguer and Jorda (2002) detected a mutual relationship of foreign exchange rate and tourism incomes with economic growth in a study they carried out on Spain. Similarly Dritsakis, (2004) found out a strong casualty between tourism incomes and economic growth in his research he did in Greece between 1960-2000. Durbarry, (2004) reached similar results with Dristakis in his study he did on Maritus. Uysal, et. al., (2004) found out a significant relationship between tourism incomes and economic growth in their casualty analysis they did for Turkey. In their study for Turkey Yıldırım and Öcal (2004) could not identify a relationship between tourism incomes and economic growth in the short term but they found out a relationship between two variables in the long term. Kırbaş-Kasman and Kasman, (2004), in their study for Turkey, found out a unilateral casualty from tourism to economic growth according to Granger Casualty Test results. Gündüz and Hatemi, (2005) identified that tourist number and foreign exchange rate was effective on economic growth in their research in which they considered number of tourists and foreign exchange variables. Ongan and Demiröz similarly (2005) found out a bilateral casualty between economic growth and tourism incomes in both short and long term in their study they did for Turkey. Bahar (2006) ascertained a unilateral casualty from tourism incomes towards economic growth in the study done for Turkey. Kim et. Al (2006) found out a significant relationship between number of tourists and Gross Domestic Product (GDP) in a study they carried out for Taiwan. Özdemir and Öksüzler, (2006) identified a unilateral relationship from tourism to economic growth in both short and long term as a result of casualty test they applied in a research for Turkey. Brida et.al., (2008) found out that there was a relationship of tourism expenses and real exchange rates with GDP in their analysis they did for Mexico. Kizilgöl and Erbaykal (2008) identified a unilateral casualty from economic growth to tourism incomes in Turkey. Proenca and Souzkia (2008) found out in the panel data analysis containing four European countries that 1% increase in tourism incomes increased the GDP in these four countries with a rate of 0.026 %. Chen and Chiou-Wei (2009) argued tourism led to economic growth in their study in which they examined Taiwan and South Korea. Fayissa vd., (2009) found out in their large-scale analysis done in 17 Latin American countries that 10 % increase in international tourist expenses caused to a 0,4 % increase in GDP. Katırcıoğlu, (2009) revealed in his ARDL model he established for Cyprus that number of tourists and foreign exchange rate were effective on economic growth. Bahar and Bozkurt, (2010) identified in an analysis they did on twenty-one developing countries that 1% increase in tourism incomes led to 2,825 % increase in growth in the long term. Isik (2010) found out in his study for Turkey that foreign tourist expenses had an effect on tourism incomes in the short term; nevertheless, the effect was bilateral in the long term. Samimi et.al., (2011) identified a bilateral casualty between economic growth and tourism incomes in VAR model they established on developing countries. Kara et.al.,(2012) detected a unilateral casualty from growth to tourism incomes in their study for Turkey in which they used some variables such as tourism incomes, economic growth, current account balance and foreign exchange rate. Kutlar and Sarıkaya, (2012) found out a relationship in Turkey between tourism incomes and GDP as well as incoming tourist number and outgoing Turkish citizen tourist number in the long term as a result of ARIMA, VAR and co-integration analyses. Mello-Sampayo and Sousa-Vale, (2012) identified, in their study done on European countries, that development in tourism has a more significant effect on GDP in North European countries rather than South European countries. Srinivasan et. al.,(2012) found out in their study they did for Sri Lanka that tourism incomes have a positive effect on economic growth in both the short and the long term. Arslantürk and Atan, (2012) detected a casualty between tourism incomes and economic growth in addition to the fact that tourism incomes are effective on economic growth in their study about the relationship between tourism incomes and economic growth. Lashkarizadeh, et.al., (2012) suggested a bilateral relationship between tourism incomes and growth in the long term and both variables affect each other in their study for Iran. Aktaş et.al., (2013) found out in their study containing five European countries, which was done by applying co-integration test, that the increase in tourism incomes had a positive effect on GDP in the long term. Bozkurt and Topçuoğlu, (2013) and Çoban and Özcan, (2013) found out a bilateral casualty between tourism incomes and economic growth in their study done for different periods for Turkey. Çağlayan et. al., (2013) identified a bilateral relationship between tourism incomes and GDP in Europe in their study they did on 135 countries. Tuğcu, (2014) asserted each region contributed to its economic growth via tourism in the study containing Europe, Asia and Africa.

Despite the large literature suggesting a positive relationship between tourism and economic growth, there are studies asserting a negative relationship between these two variables. Oh, (2005) identified that the hypothesis in which tourism was believed to cause economic growth was denied as a result of VAR and Granger casualty analyses done with the data between periods of 1975-2001 in Korea. Similarly, Yavuz (2006) could not find out a casualty between tourism incomes

and economic growth in the casualty test he did by using the data of the periods between the first quarter of 1992 and the last quarter of 2004. Figini and Vici, (2007) examined the periods of 1980-2005 in the regression analysis they applied to 150 countries and they could not find out a relationship between tourism incomes and economic growth. Çetintaş and Bektaş (2008) could not find out a relationship between tourism incomes and GDP in the short term in Turkey in the casualty test and ARDL method applied by using the data of 1964-2006. However, they detected a unilateral casualty from tourism incomes to economic growth in the long term. Yamak, et. al., (2012) applied co-integration and casualty tests to the data of the periods between 1986 and 2006 in their study and found out that no relationship existed between real tourism incomes per tourist and real GDP and agriculture, industry and service sectors in Turkey. Hepaktan and Çınar (2013) identified tourism sector in Turkey had an effect on foreign trade balance but it did not have an effect on growth as a result of casualty analysis they did with the data of periods between 1980 and 2008. Aslan (2008) found out indirect relationships between tourism incomes and economic growth in the long term as result of co-integration and casualty test they did by using the data between the first quarter of 1992 and second quarter of 2007 in Turkey. Hepaktan and Çınar (2010) identified, as a result of casualty analysis they applied to the data related to periods between 1980 and 2008, that tourism sector affected balance of payments and employment positively; nevertheless, it did not have a direct effect on Turkey's growth but it affected growth indirectly.

3. Method

Time series generally act according to a trend. Variance changes in time series or average changes arising from the tendency will invalidate the parameter estimations of the models to be established with the related series and will cause to the problem of spurious regression. That is why; it is necessary to clear general tendencies of the series and to analyze their effects on each other in this way. Series, the average and variance of which, change in time include unit root and they are non-stationary. It can be examined whether the series are stationary or not via unit root tests. In this study ADF (Augmented Dickey Fuller) and PP (Phillips Perron) tests will be examined.

ADF (Augmented DF) test is a model in which lag of dependent variable incorporates into the model as explanatory variable to overcome the problem of autocorrelation in Dickey-Fuller test (Dickey & Fuller, 1981). ADF equation with constant term and without trend, equation with constant term and with trend, equation without constant term and without trend are as following respectively:

$$\Delta Y_t = \beta Y_{t-1} + \sum_{i=1}^{p} \delta \Delta Y_{t-i} + u_t \tag{1}$$

$$\Delta Y_t = \alpha + \beta Y_{t-1} + \sum_{i=1}^{p} \delta \Delta Y_{t-i} + u_t \tag{2}$$

$$\Delta Y_t = \alpha + \gamma t + \beta Y_{t-1} + \sum_{i=1}^{p} \delta \Delta Y_{t-i} + u_t \tag{3}$$

Δ : Difference operator, α: constant term, t: trend variable, u_t : residual terms. Stationary of Y series in concern is determined by examining the statistical significance of β coefficient. Lag length related to the equations can be identified according to the criteria such as Schwarz Information Criterion and Akaike Information Criteria (AIC) (Nieh & Yau, 2004).

Test equation of PP unit root test is below (Phillips & Perron, 1988):

$$Y_t = \alpha + \rho Y_{t-1} + u_t \tag{4}$$

If $\rho =1$, unit root exists, Y series is not stationary. While DF and ADF unit root tests assume variance of residual (error) terms are stationary, PP test acknowledges variance of error terms as heterogeneous. Thus, not the t-test but the non-parametric tests are valid while testing the stationary. Lag length of PP test equation is determined according to Newey-West-Bandwitdh, not according to AIC and SCI.

In an equation, variables can liaise in the long term even if variables established in the model are not stationary. These series are called co-integrated series. If the series are co-integrated, they can be run to the same model without taking stationary action. Common tests related to co-integration include Johansen-Juselin ve ARDL bound tests. Johansen-Juselin test operates only if each of the variables is stationary in the first difference. When each of the series is stationary in its own level, the test can not operate if the other one is stationary in its first difference. ARDL test does not have such a restriction. ARDL bound test examines co-integration relationship whether the series are stationary in their own level or they are stationary in the first difference. If calculated test statistics are higher than low and high critical values, it is concluded that there is a co-integration among the series or vice versa. Depending on this, short and long term coefficients are estimated by error correction model established.

ARDL error correction model is as below (Peseran , Shin , & Smith, Testing for the Existence of a Long-run Relationship, 1996) :

$$\Delta X_t = \alpha + \sum_{i=1}^{k} \varsigma_i \, \Delta X_{t-i} + \sum_{j=1}^{l} \varphi_i \, \Delta Y_{t-j} + \beta \, Y_{t-1} + \eta \, X_{t-1} + \varepsilon_t \tag{5}$$

If β and η coefficients are both found to be insignificant, there is no co-integration between series. There are several ARDL models according to the existence of trend variables and constant terms in the equation (Peseran, Shin, & Smith, Bounds Testing Approaches to the Analysis of Level Relationships, 2001). Models that do not include trends will be embraced in this study:

The model without trend and constant term: c_0 and $c_1 = 0$

$$\Delta y_t = \pi_{yy} y_{t-1} + \pi_{yx.x} x_{t-1} + \sum_{i=1}^{p-1} \psi_i' \Delta z_{t-i} + w_i' \Delta x_t + u_t \qquad (6)$$

Equation with restricted constant term: $c_0 = -(\pi_{yy} . \pi_{yx.x})\mu$

$$y_t = \pi_{yy}(y_{t-1} - \mu_y) + \pi_{yx.x}(x_{t-1} - \mu_y) + \sum_{i=1}^{p-1} \psi_i' \Delta z_{t-i} + w_i' \Delta x_t + u_t \qquad (7)$$

Equation with unrestricted constant term: $c_0 \neq 0$

$$\Delta y_t = c_0 + \pi_{yy} y_{t-1} + \pi_{yx.x} x_{t-1} + \sum_{i=1}^{p-1} \psi_i' \Delta z_{t-i} + w_i' \Delta x_t + u_t \qquad (8)$$

Hypotheses determining the co-integration relationship are as below:

$H_0^{\pi_{yy}} : \pi_{yy} = 0, \qquad H_0^{\pi_{yx.x}} : \pi_{yx.x} = 0,$

$H_1^{\pi_{yy}} : \pi_{yy} \neq 0, \qquad H_1^{\pi_{yx.x}} : \pi_{yx.x} \neq 0,$

$\qquad H_0 = H_0^{\pi_{yy}} \cap H_0^{\pi_{yx.x}}$

This hypothesis states both null hypotheses are to be ensured at the same time. Alternative hypothesis is as below:

$H_1 = H_1^{\pi_{yy}} \cup H_1^{\pi_{yx.x}}$

That is, at least one of the two alternative hypotheses is correct. Both of the coefficients are not equal to zero at the same time.

4. Implementation and Findings

In the study, yearly data related to periods between 1980 and 2016 was used. Tourism income (TG-million dollar) series logarithm was included into the model -as it is easy to interpret- to overcome a possible heteroscedasticity problem.

GDP growth was used instead of GDP as an indicator of economic growth because GDP cannot indicate increased welfare by itself. As long as the population goes up, it is quite normal for total GDP to increase due to increasing trade relations. In this study, the part of GDP that is derived from population rise will not be considered. That is why, GDP growth per capita was examined. Examining GDP growth rather than GDP will enable convenience of interpretation to determine the effect of tourism incomes on increased welfare while it helps the stationary of series as a matter of course. GDP growth per capita series was indicated by GDP. GDP was calculated in real terms. That is, GDP was not affected by price-rises as it was calculated by fixed consumer prices. GDP per capita was calculated by dividing total annual GDP into mid-year population. Amortization and depreciation were not included into calculation. Some descriptive statistics of the data is as below:

Table 2. Descriptive Statistics of Series

	GDP	lnTG
Mean	2.811495	3.743778
Median	3.772041	3.845222
Maximum	9.474948	4.535370
Minimum	-7.356001	2.513218
Std. Dev.	4.320648	0.628878
Skewness	-0.848261	-0.540585
Kurtosis	2.907863	2.188801
Jarque-Bera	4.450293	2.816582
Probability	0.108052	0.244561
Sum	104.0253	138.5198
Observations	37	37

ADF and PP unit root tests applied to series are indicated in Table 3.

Table 3. Results of Unit Root Tests

	ADF			PP		
	Intercept	Intercept and Trend	None	Intercept	Intercept and Trend	None
GDP	-6.522847*	-6.481919*	-4.516831*	-6.584260*	-6.747150*	-4.719471*
ln(TG)	-2.278334	-0.881249	2.798325	-2.437237	-0.881249	2.621535
ΔlnTG	-5.973669*	-6.797377*	-4.691223*	-6.006997*	-6.865936*	-4.990190*
H_0: Series has a unit root. *, **, *** indicates that null hypothesis can be rejected in %1, %5, %10 level consequently.						

All three equations - ones with constant term, ones with constant term and with trend, ones without constant term and without trend- should ensure the stationary so that stationary can be determined in both of ADF and PP tests. As GDP

series indicated a growth series, it was expected to come out to be stationary. Tourism income series (logarithmic) came out to be stationary in the first difference. As one of the series in concern came out stationary in its own level and as the other one came out to be stationary in the first difference, co-integration test could be done by ARDL. Results of co-integration test done by ARDL bound test are as below:

Table 4. Results of Bound Test

	None	Restricted Constant	Unrestricted Constant
k	1	1	1
F statistic	23.90886	8.954704	13.07869
I(0) bound (%1)	4.81	4.94	6.84
I(1) bound (%1)	6.02	5.58	7.84

According to the results included in Table 4, GDP and LOGTG series are co-integrated in terms of three ARDL models. They liaise in the long term. Error correction model should be applied for long-term information lost in short term equations. Estimation results of ARDL model is shown in Table 5.

Table 5. Estimation Results of ARDL Model (GDP dependent variable)

	None	Constant
GDP_{t-1}	-0.102031	-0.195127
GDP_{t-2}		-0.115344
GDP_{t-3}		-0.275389
GDP_{t-4}		-0.370135**
$lnTG$	13.86052	11.83363
$lnTG_{t-1}$	-13.14363	-8.309733
$lnTG_{t-2}$		17.61956
$lnTG_{t-3}$		4.880471
$lnTG_{t-4}$		-22.36831**
c_0		-11.13897
R^2	0.042534	0.436662
$\bar{R}^2$	-0.047228	0.216226
Akaike	5.723941	5.789248
Schwarz	5.855901	6.242735
D-W	2.125681	2.026554
Breusch-Pagan-Godfrey	1.531233	16.14056***
*, **, *** indicates that null hypothesis can be rejected in %1, %5, %10 level consequently.		

According to Table 5, Durbin-Watson statistics was found close to 2 in ARDL model with constant term and trend and ARDL model without constant term and trend. It can be stated that no autocorrelation problem existed in both models. Moreover, no heteroscedasticity problem was seen in significance level of 1% and 5 % when Breusch-Pagan-Godfrey statistics was checked in both equations. According to Akaike and Schwarz information criteria values, the model not including constant term can be preferred because it has lower AIC and SCI values.

To determine whether there is a structural breakpoint or not in the estimated coefficients in time dimension, Cusum and Cusum of Square tests can be implemented. Cusum test is based on the cumulative sum of recursive residuals while Cusum of Square test is based on the cumulative sum of recursive residual squares. Figure 1 and Figure 2 indicate the Cusum and Cusum of Square test respectively for model with no constant while Figure 3 and Figure 4 display them for model with constant term.
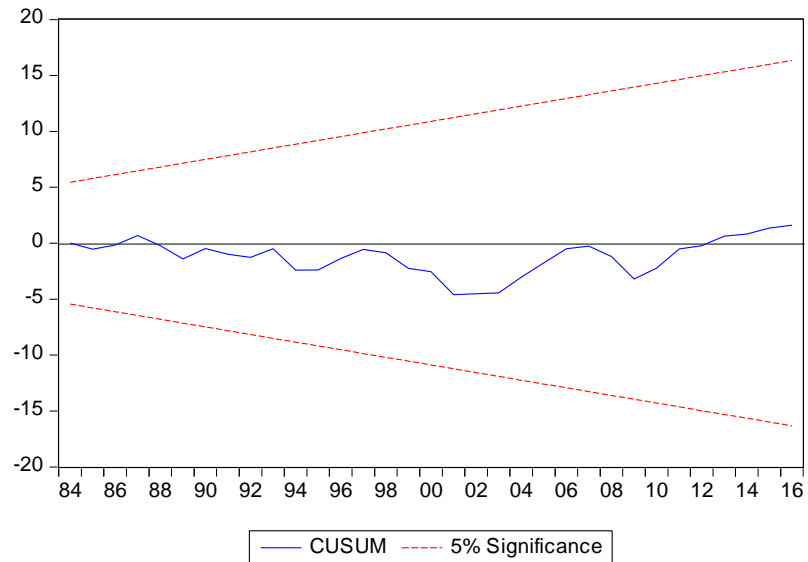
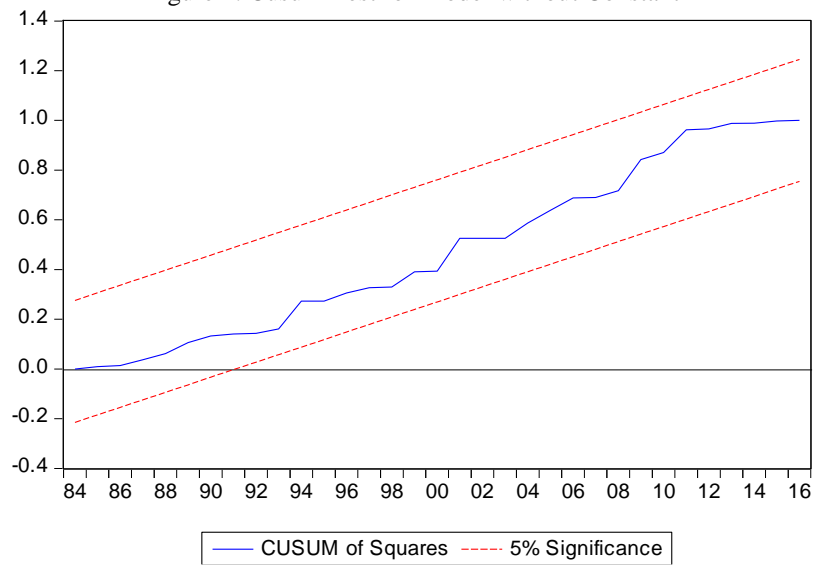Figure 1. Cusum Test for Model without Constant

Figure 2. Cusum of Square Test for Model without Constant

According to Figure 1 and figure 2, at 5% significance, there is no structural breakpoint in ARDL model with no constant.
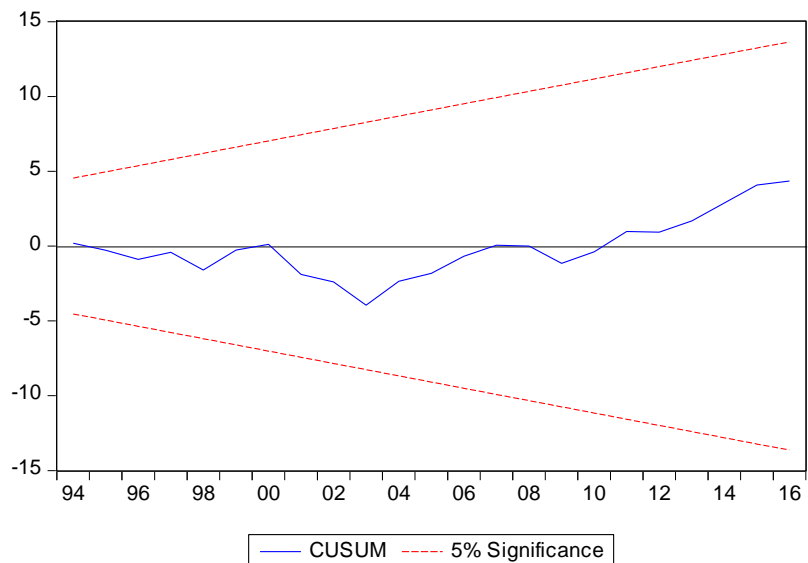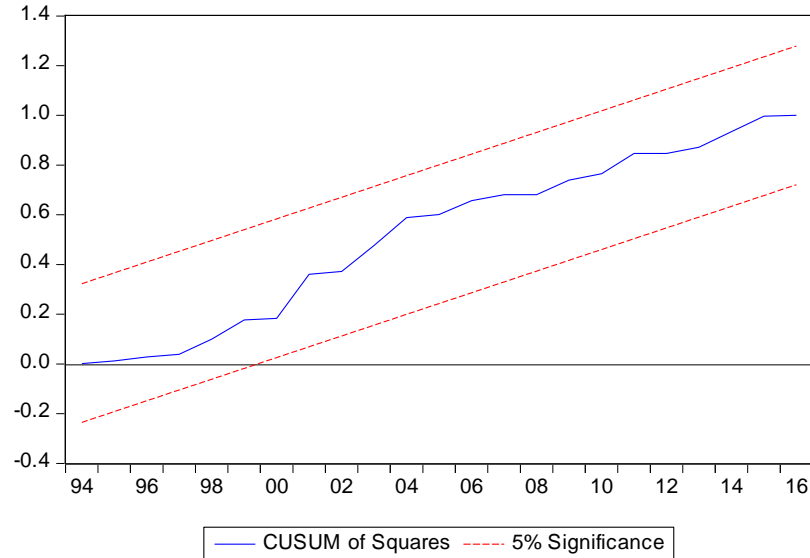
Figure 3. Cusum Test for Model with Constant Term

Figure 4. Cusum of Square Test for Model with Constant Term

According to Figure 3 and Figure 4, at 5% significance, there is no structural breakpoint in ARDL model with constant term. In the circumstances, there is no need to add any dummies to ARDL models. Thus, the long term and short term coefficients can be examined.

Long term coefficients of ARDL model is shown in Table 6

Table 6. Long-term coefficients of ARDL model (GDP dependent variable)

	None	Constant
$lnTG$	0.650522*	1.868931**
c_0		-5.694783
*, **, *** indicates that null hypothesis can be rejected in %1, %5, %10 level consequently.		

The relationship between tourism incomes and GDP growth per capita is positive-oriented in ARDL model both with constant term and without constant term in the long term. When tourism incomes increase/ decrease 1%, GDP growth per capita increase/ decrease 0,65 unit in ARDL model with constant term. In the model without constant term, when tourism incomes increase/ decrease 1 %, GDP growth per capita increase / decrease 1,87 unit. Short-term coefficients of ARDL model are as below.

Table 7. Short-term coefficients of ARDL model (GDP dependent variable)

	None	Constant
ΔGDP_{t-1}		0.760868**
ΔGDP_{t-2}		0.645524**
ΔGDP_{t-3}		0.370135**
$\Delta lnTG$	13.860525**	11.833629***
$\Delta lnTG_{t-1}$		-0.131724
$\Delta lnTG_{t-2}$		17.487839**
$\Delta lnTG_{t-3}$		22.368310**
$Co-integration_{t-1}$	-1.102031*	-1.955995*
	$\begin{aligned}Co-integration_{t-1}\\=GDP-0.650522\\*lnTG\end{aligned}$	$\begin{aligned}Co-integration_{t-1}\\=GDP\\-(-5.694783\\+1.868931\\*lnTG)\end{aligned}$
*, **, *** indicates that null hypothesis can be rejected in %1, %5, %10 level consequently.		

Error correction coefficient (Co-integration $_{t-1}$) is to have a negative-mark and is to be found statistically significant in ARDL short term results. In both of the ARDL equations with and without constant term, error correction coefficient is statistically significant and negative marked in 1% significance level, which indicates instability/ shock occurring in

the short term will be eliminated in the long term. According to the model without constant term, the shock is eliminated in 1/1.102031 period whereas it is eliminated in 1/1.955995 period according to the equation with constant term. In terms of ARDL models, increase of tourism incomes boosts GDP growth per capita. According to the equation without constant term, when $\Delta lnTG$ has an increase/ a decrease of 1% GDP growth per capita increases/ decreases 13,86 unit. (Because dependent variable is linear and independent variable is logarithmic). According to the coefficients found significant at 5% significance level in the equation with constant term, when $\Delta lnTG$ that comes two terms earlier increases/ decreases1 %, GDP growth per capita increases/ decreases 17.48 unit. 22,36 unit. In case of $\Delta lnTG$ that comes three terms earlier, increases/ decreases 1 %, GDP growth per capita increases/ decreases 22.36 unit. The model not including constant term can be preferred because initially it had lower AIC and SCI values.

5. Discussion

In this study that aims to reveal the relationship between tourism and economic growth, short and long term relationships of variables are examined by using ARDL model. Variables used to find out this relationship in the study shows similarity with the variables used in the literature prevalently. Dependent variable of this study is annual GDP growth, which is one of the indicators of economic growth; independent variable is determined as tourism incomes (million dollar). Although real GDP was used as an indicator of economic growth in most studies in the literature (Dritsakis, 2004; Ongan and Demiröz, 2005; Oh, 2005; Bahar, 2006;Çetintaş and Bektaş, 2008; Aktaş et. al, 2013), GDP growth per capita, which is a more explicit indicator of social welfare, was used in this study.

As it was mentioned before, the literature searching the effects of tourism sector on economic growth is extremely rich. A large number of studies examining the relationship between these two variables have been done not only in Turkey but also in the world as from different periods. This study contains the periods between 1980 and 2016. The main reason of embracing the data of the study since 1980 is that tourism sector in Turkey has had a greater share from increasing investments by laws legislated and incentives given since this year and it has been accepted as one of the leading sectors that has been determined in national growth.

When the results of the analysis were examined, a positive-oriented and statistically significant relationship was found between tourism and economic growth. Error correction coefficient was negative-marked and significant in error correction model established for the short term. Therefore, instability occurring in the short term can be overcome in the long term. Results found out in this study and other studies using similar variables and method (Srinivasan et.al., 2012; Katırcıoğlu, 2009; Aktaş et.al, 2013; Bozkurt and Topçuoğlu, 2013; Çoban and Özcan, 2013) show congruity with the literature.

6. Conclusion

In this study the effects of tourism incomes on national economy was examined and a statistically significant and positive relationship between these two variables was identified in both short and long term as of reference period. Increase in tourism incomes boosts the growth in income per capita, which indicates tourism sector has a profoundly significant effect on Turkish economy as well in line with the trend all over the world. It is of great importance in terms of economic development to support this sector that has positive effects on macro variables.

It is believed that tourism sector should be attached more importance so that these positive effects of tourism on economy can be boosted. When other sectors that tourism sector is correlated with are examined, developments in tourism will also enable many sectors with forward and backward linkage to tourism to develop as well.

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