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TURİZM-GÜDÜMLÜ İKTİSADİ BÜYÜME HİPOTEZİ: TÜRKİYE ÜZERİNE BİR UYGULAMA

TOURISM-LED ECONOMIC GROWTH HYPOTHESIS: AN APPLICATION ON TURKEY

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Öz

Turizm en önemli ihracat sektörlerinden biri olarak görülmektedir. Döviz getirisi sağlaması, işsizliği azaltmasına yardımcı olması ve milli gelire olan katkısı başlıca olumlu ekonomik etkileri arasında yer alır. Şüphesiz turizm geliri aynı zamanda ticaret açığının sürdürülebilirliğinin sağlanmasında ana kaynak olarak değerlendirilmektedir. Bununla birlikte, uzun dönemde ekonomik büyüme aracı olarak turizmin rolü tartışmalı bir konudur. Bu çalışmada turizm gelirleri ile ekonomik büyüme arasında nedensellik ilişkisini tespit etmek amacıyla 1980-2014 yılları arasını kapsayan dönem için zaman serisi analizi (birim kök, VAR, VEC) kullanılarak Türkiye'de turizm temelli büyüme hipotezi ele alınmıştır.

Anahtar Kelimeler: Turizm, Ekonomik Büyüme, Turizm Geliri, Zaman Serisi Analizi.

Abstract

Tourism is seen as one of the most significant export sectors. Its major positive economic impacts are the generation of foreign exchange, helping reduce unemployment and contribution to government revenues. There is no doubt that the tourism income has been considered as the main source of finance to sustain the trade deficit in many developing countries as well. However, when a long-run perspective is considered, the role of tourism as a tool for economic development is a questionable issue. This study examines the tourism-led growth hypothesis (TLGH) in Turkey to find out the causality relationships between tourism earnings and economic growth (GDP), using time series analysis (unit root, VAR, VEC) for the period covering 1980-2014.

Keywords: Tourism, Economic Growth, Tourism Income, Time Series Analysis.

1. Introduction

It is widely accepted that tourism plays an essential role for developing countries to achieve economic development by both monetary supplying foreign currency which helps to alleviate deficits in the balance of payments and real economic impacts such as creation of new jobs, reducing unemployment and stimulating the growth of other economic sectors via multiplier effect (Dwyer and Forsyth 2010: 217-218). While some countries having a deficit balance of payments find it to their advantage to receive foreign tourists to compensate for negative trade balance, the others add further to a surplus (Raina 2005: 88-89). Tourism stimulates other economic industries by direct, indirect and induced effects. An increase in tourism expenditure will lead to additional activity in related industries (Brida and Pulina, 2010: 5).

Tourism expansion also involves considerable costs, including expenditure on the infrastructure in the form of additional roads, airports, water, sanitation and energy, much of which is specific to tourism rather than of more general use. In addition to being intensive in physical capital, the tourism sector requires various types of skilled labour and, hence, investment in human capital. Expenditure by foreign tourists may alter domestic consumption patterns via the demonstration effect and can be inflationary (Sinclair, 1998: 2). The physical capital leads to tourism receipts and tourism receipts in turn lead to the overall economic growth (Li et al. 2013: 601). Therefore, the success of the tourism performance is related to economic well-being of the country in providing the infrastructure, touristic administrative and commercial establishments as well.

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Since international tourism is essentially a source of export earning, it is believed that the tourism-led growth hypothesis is derived from the export-led growth hypothesis which claims that growth can be increased by expanding the level of exports of an economy (Tang and Abosedra, 2014: 235). The question of whether tourism growth causes the economic increase or vice versa has been investigated so far by many studies using different tests. Using the method of Johansen cointegration on quarterly data from Spain between 1975 and 1997, Balaguer and Cantavella (2002) found a stable relationship between long-term tourism revenues and economic growth. Their results suggest that tourism is indeed a relevant growth factor for Spain by noting that tourists provide a remarkable part of the necessary financing for the country to import more than to export. If those imports are capital goods or basic inputs for producing goods in any area of the economy, then, one can say that earnings from tourism are playing a fundamental role in economic development. Obviously, non-tourist regions will also benefit from it as a result of the distribution of a country's wealth (Balaguer and Cantavella, 2002: 878).

Since then, several other researchers have sought to explore the causal relationship between tourism and economic growth. In fact, a recent strand of the literature suggests that there may reverse causality–running from growth to tourism. This is known as the growth-led or supply side tourism (Mahalia, 2012: 15). While some studies carried out for different regions suggest a bilateral causality and positive long-run relationship between tourism and economic growth (Dritsakis 2004, Demiröz and Ongan 2005, Savaş et al. 2010, Samimi 2011, Nowjee et al. 2012, Kareem 2013) some of them do not find any evidence in support of notion that tourism promotes growth. (Katırcıoğlu 2009, Du and Ng 2011). The general conclusion is that, with few exceptions, tourism-led growth hypothesis is confirmed for the studied countries (Brida et al. 2014: 30).Adamou and Clerides (2010: 299) suggest that specialization in tourism adds to a country's rate of economic growth but at high levels of it, the independent contribution of tourism to economic growth becomes minimal. The turning point is estimated to be at 20,8% level of specialization measured as tourism receipts at a percentage of GDP. After this point tourism can still contribute to economic growth but at a smaller rate and countries may be better off if they divert their resources to other areas of economic activity.

Although the relationship between tourism development and economic growth has been extensively researched in the literature, the results remain conflicting, probably because of differences in the weight of tourism in the overall economy, size and openness of economies, production capacity constraints and the different variables and methods applied in these studies (Ridderstaat et al. 2013: 2).

The main empirical findings of the literature on the TLGH are concluded in four main categories: (i) causality running from tourism development to economic growth (the tourism-led growth hypotheses-TLGH); (ii); causality running from economic growth to tourism development (economic-driven tourism growth hypotheses); (iii) bi-directional causality between tourism and economic growth; (iv) no causal relationship between tourism development and economic growth (Panagiotidis et al. 2012: 6)

Table 1: Tourism Development and Economic Growth in the Literature

Authors	Empirical Method	Period /Frequency	Country	Casual Relation
Balaguer&Cantavella (2002)	Unit root (ADF, PP), cointegration (Johansen &Juselius), Granger causality testing	1975-1997 Quarterly	Spain	TD → EG
Dritsakis (2004)	Unit root (ADF, KPSS), cointegration (Johansen &Juselius), vector error correction modeling, Granger causality testing	1960-2000 Quarterly	Greece	TD ↔ EG
Gündüz&Hatemi (2005)	Unit root (KPSS), causality testing based on leveraged bootstrap simulation techniques	1963-2002 Annual	Turkey	TD → EG
Oh (2005)	Unit root (DF, ADF, PP),cointegration (Engle and Granger), vector Autoregressionmodeling, Granger causality testing	1975-2001 Quarterly	South Korea	EG → TD
Khalil et al. (2007)	Unit root test, cointegration (Engle & Granger), Granger causality test	1960-2005 Annual	Pakistan	TD ↔ EG
Lee & Chang (2008)	Panel unit root testing, panel cointegration testing, panel based vector error correction modeling, panel Granger causality testing	1990-2002 Annual	OECD and non-OECD countries	TD → EG (OECD countries) TD ↔ EG (non-OECD countries)
Lee &Chien (2008)	Unit root testing, cointegration (Johansen &Juselius procedure), weak exogeneity testing, structural breaks testing	1959-2003 Annual	Taiwan	TD ↔ EG
Brida et al. (2008)	Unit root test (ADF & KPSS), Cointegration (Johansen &Juselius), weak exogeneity test, Granger causality test	1980-2007 Quarterly	Mexico	TD → EG

Kaplan &Çelik (2008)	VECM (Johansen)-Granger causality	1963-2006 Annual	Turkey	TD⟶EG
Katırcıoğlu (2009)	Unit root testing (ADF & PP), cointegration (bounds test with an autoregressive distributed lag approach, and Johansen &Juselius)	1960-2006 Annual	Turkey	No relation
Belloumi (2010)	Unit root testing (ADF & PP), cointegration testing (Johansen &Juselius), vector error correction modeling, Granger causality testing	1970-2007 Annual	Tunisia	TD ⟶ EG
Kasimati (2011)	Unit root testing (ADF & PP), cointegration (Johansen & Juselius procedure), Wald Coefficient test, vector error correction, Granger causality testing	1960-2010 Annual	Greece	No relation
Hüsein& Kara (2011)	VECM (Johansen), Granger causality	1964-2006 Annual	Turkey	TD ⟶ EG

Source: Ridderstaat, 2013; Brida et al. (2014)

The main tested variables in these studies are real international tourism receipts, reel effective exchange rate and real GDP with the exceptions of Gündüz&Hatemi (2005) and Katırcıoğlu (2009) that applied international tourism arrivals as a measure with other variables of real exchange rates and real GDP.

The investigation of the relationship between tourism and economic growth in the long term can provide crucial information for policy formulations and strategic planning by the government, as well as tourism businesses (Cortés-Jiménez, 2009: 3).

2. Tourism Indicators of Turkey

As stated in the report of UNWTO released in 2014, international tourist arrivals worldwide grew by 5%, reaching a record 1087 million arrivals with an additional 52 million international tourists in 2013 and Europe led the growth, welcoming 29 million more international tourists, raising the total to 563 million (UNWTO 2014).

As stated in the report of UNWTO released in 2014, international tourist arrivals worldwide grew by 5%, reaching a record 1087 million arrivals with an additional 52 million international tourists in 2013 and Europe led the growth, welcoming 29 million more international tourists, raising the total to 563 million. According the same source, by regions in Europe, Central/Eastern Europe and Southern Mediterranean Europe have shown remarkable increase in the international tourist arrives. The Southern Mediterranean Europe including Turkey surpassed Western Europe in 2005 with 5,9% increase and became the first most visited region. Turkey remained its place in world's top tourism destinations in terms of arrivals in 2013 after moving up one place to 6th in 2011. However, Turkey has not entered the top 10 by receipts since losing its 9th position in 2010 and continues to rank 12th(UNWTO 2014). According to the statistical data provided from TurkStat, the number of visitors is 35,8 million and the tourism income is 34,3 billion dollars in 2014 (Table 2).

Table 2:The number of International Arrivals and Tourism Income of Turkey

Year	International Foreigner Arrivals (million)	Tourism Income (billion $)	Tourism Income Per Capita ($)
1980	1 288 060	326 654	253,6
1985	2 614 924	1 482 000	566,7
1990	5 389 308	3 225 000	598,4
1995	7 726 886	4 957 000	641,5
2000	10 428 153	7 636 000	732,2
2001	11 569 000	8 090 000	699,2
2002	13 247 000	8 481 000	640,2
2003	13 701 419	13 854 868	1011,1
2004	17 202 996	17 076 609	992,6
2005	20 522 621	20 322 111	990,2
2006	19 275 948	18 593 950	964,6
2007	23 017 081	20 942 501	909,8
2008	26 431 124	25 415 067	961,5
2009	27 347 977	25 064 481	916,5
2010	28 510 852	24 930 996	874,4
2011	31 324 528	28 115 694	897,5
2012	31 342 464	29 007 003	925,4

2013	33 827 474	32 308 991	955,1
2014	35 850 286	34 305 904	956,9

Source: TurkStat – Departing Visitors Survey

Statistics reveals that the percentage of tourism receipts in GDP increased to 4,2% in 2013 while it was only 0,5% in 1970. The share of tourism receipts in exports was 8,8% in 1940, it reached to 21,2% in 2013. Although the number of net tourism income in Turkey has been steadily increasing in the last ten years reaching 27 billion dollars in 2013, Turkey runs a persistently large trade deficit. Tourism receipts have financed trade deficit at the rate of 28,2% in 2013 (Table 3).

Table 3: The Share of Tourism Receipts in GDP, Exports and Trade Deficit (%)

Years	**1970**	**1980**	**1990**	**2000**	**2013**
Tourism Receipts/GDP	0,5	0,6	2,1	2,9	4,2
Tourism Receipts/Export	8,8	11,2	24,9	27,5	21,2
Tourism Receipts/Trade Deficit	-	6,5	27,7	28,6	28,2

Source: Based upon tourism statistics of AKTOB (Association of Mediterranean Touristic Hoteliers and Operators) & TUİK (Turkish Statistical Institute)

3. Data, Model and Findings

In this study, the effect of the tourism incomes in Turkey on Gross Domestic Product (GDP) was analysed by means of the method of time series analyses (unit root, least squares, co-integration, Vector Error Correction) in theframework ofthe periodof 1980-2013. Data used in the study are in annual frequency and allof themwere included in theanalysis in the logarithmic form.

Table 4: The Variables Used in the Model

Name of Variable	**Definition of Variable**	**Sources**
Gross Domestic Product (GDP)	**GDP**,within the borders of country, is defined as total value of the final goods and services produced by both the citizensof thatcountry and the other countries. In calculation of GDP, three different techniques are used; spending, income, and production. GDP is accepted as the most important indicator of economic growth in the literature of economics.	Turkish Statistical Institute (TUİK), Main Statistics, National Accounts, Gross Domestic Product by Production Approach
Tourism Income (TUR)	**Tourism Income** is obtained by subtracting the tourism expenditures from tourism incomes.	Association of Turkish Travel Agencies(TURSAB)
D1	1 when the economy shrinks, 0 when it expands.	

3.1. Method and Model

In this study, in order to analyse the effect of nettourism incomes on the economic growth in the period of 1980-2013, Vector Error Correction Model (VEC) hasbeen used.*

In VAR model, if twovariables are co-integrated, for these two variables, VEC model can be expressed as follows:

$$\Delta y_t = \beta_{y0} + \beta_{y1}\Delta y_{t-1} + \beta_{yp}\Delta y_{t-p} + \gamma_{y1}\Delta x_{t-1} + \cdots + \gamma_{yp}\Delta x_{t-p} - \lambda_y(y_{t-1} - a_0 - a_1 x_{t-1}) + v_t^y$$

$$\Delta x_t = \beta_{x0} + \beta_{x1}\Delta y_{t-1} + \cdots + \beta_{xp}\Delta y_{t-p} + \gamma_{x1}\Delta x_{t-1} + \cdots + \gamma_{yp}\Delta x_{t-p} - \lambda_x(y_{t-1} - a_0 - a_1 x_{t-1}) + v_t^x$$

In the equations, $y_t = a_0 + a_1 x_t$represents co-integration relationship between two variables, while$\lambda_y$and λ_x represent vector correction parameters measuring that how a reaction the variables of y and x show the deviations in the long period (Parker, 2010: 70).

With moving from the equation above, VEC Model that will be predicted can be formulated as follows:

$$\Delta lngdp_t = \beta_{y0} + \beta_{yy1}\Delta lngdp_{t-1} + \beta_{yx1}\Delta lntur_{t-1} + \lambda_y(lngdp_{t-1} - a_0 - a_1 lntur_{t-1}) + v_t^y$$

$$\Delta lntur_t = \beta_{x0} + \beta_{xy1}\Delta lntur_{t_{t-1}} + \beta_{xx1}\Delta lngdp_{t-1} + \lambda_x(lntur_{t-1} - a_0 - a_1 lngdp_{t-1}) + v_t^x$$

3.2. Findings

In this part, the results of times series analyses, carried out to examine the effects of net tourism incomes onGDP,are given place.

In the econometric analyses, for the problem of pseudo-regression not to occur between the variables, it is necessary for the series usedto be stationary. The concept stationary, defined that the average, variance, and auto-covariance of a stochastic variable in time are constant, has importance in terms of being able to make the accurate predictions forthe future.

*For the information about VEC, see Heckman, J., J., and Leamer, E., (2001), Handbook of Econometrics, Amsterdam: Elsevier Science B.V.

In the scope of analysis, firstly, whether or not the variables that will be used in the study are stationary were tested by means of unit root tests of Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP), then, by means of the method of Johansen Co-Integration, it was determined whether or not there was a long termed relationship between the series and, in the light of findings obtained, by using VEC model, the degree and direction of this relationship were studied.

In the study, in testing the stationary of series, Augmented Dickey-Fuller (ADF) test was used. The results of tests are seen in Table 3. In the study of stationaries, both the models with constant and with constant-trended models were used and the number of laggings belonging to the variables subjected to the unit root test was determined by considering Schwarz Information Criterion (SIC). In this direction, the variable LNGDP is not stationary in the case of constant and trended and LNTUR only turned out stationary in the trended case of PP. In general it is accepted that both dependent and independent variable are not stationary in original levels. Taking the first differentials of series is considerably important in the meaning of preventing a possible regression problem. Therefore, their first differentials were taken and it was observed that all series were stationary in their first differences.

Table 5: Unit Root Analysis[a]

Unit Root Test	**Variable**		**LNGDP**	**LNTUR**
ADF	**With constant**	**Stats.**	-0.2606	-1.8486
		Prop	*0.9193*	*0.3516*
	With constant and trended	**Stats.**	-5.2895	-2.1231
		Prop.	***0.0001***	*0.5151*
PP	**With constant**	**Stats.**	-1.3313	-5.2600
		Prop.	*0.6129*	***0.0001***
	With constant and trended	**Stats.**	-5.3295	-1.6293
		Prop.	***0.0006***	*0.7599*
First Differentials				
Unit Root Test	**Variable**		**LNGDP**	**LNTUR**
ADF	**With constant**	**Stats.**	-8.8655	-5.7713
		Prop.	*0.0000*	*0.0000*
	With constant and trended	**Stats.**	-8.7366	-6.5407
		Prop.	*0.0000*	*0.0000*
PP	**With constant**	**Stats.**	-21.9756	-5.8476
		Prop.	*0.0001*	*0.0000*
	With constant and trended	**Stats.**	-24.8249	-13.1014
		Prop.	*0.0000*	*0.0000*

a= in the selectionof lagging length, Schwarz criteria was considered.

For co-integration analysis to be able to be applied, it is necessary for the series handled notto be stationary and all series to becomestationary fromthe same degree. According to the results of unit root test carried out, it was seen that all series are not stationary and, taking their first differentials, that they become stationary i.e. they are integrated from the first degree, I (1). Therefore, in these models, it is suitable to conduct Johansen co-integration test.

4. The Predication Results of Model

In the model, the effect of tourism incomes on GDP has been investigated. In this scope, first of all, the average relationship between the variables was predicted by means of the method of least squares (LSs) and the results are summarized in Table 6.

Table 6: The Results of LSs

GDP (Dependent Variable)	**Coefficient**	**Standard Error**	**t**	**P>|t|**	**95% Confidence Interval**
LNTUR	.5176475	.078281	6.61	0.000	.3581943 .6771006
D1	-.4500461	.2348362	-1.92	0.064	-.9283917 .0282995
CONS	7.846676	.7091118	11.07	0.000	6.402262 9.291089
F (2, 32) = 31.96, Prob> F = 0.0000 R-squared = 0.6664					
Durbin-Watson d-statistics (3, 35) = 1.505217 Breusch-Godfrey LM test: chi2: 1.751, Prob> chi2: 0.1857 Ho: There is no autocorrelation					
Breusch-Pagan / Cook-Weisberg Changing Variance Test, H_0: Constant variance. chi2(1) = 3.06 Prob> chi2 = 0.0800					

According to this, tourism incomes turned out significant in explaining GDP. In spite of this, when the main identification tests were regarded to, according to autocorrelation test (Durbin-Watson), autocorrelation is problematic for model and, according to Breusch-Pagan/Cook-Weisberg changing

variance test, it is understood that variance does change from observation to observation i.e. so there is problem of changing variance. In the model, for eliminating the problem of autocorrelation and changing variance, it was used Prais-Winsten Regression and new results are presented in Table 7. As other methods (i.e.; Cochrane-Orcutt, Maximum Likelihood, Hildreth-Lu, Theil-Negar) Prais-Winsten Regression can be produce consistent results in case of autocorrelation and changing variance.

When the new results obtained are regarded to, it is seen that the autocorrelation problem (Durbin-Watson d statistics approached to 2) in the model was eliminated.

Table 7: Results of Prais-Winsten Regression (Cochrane-Orcutt AR(1) regression)

LNGDP (Dependent Variable)	Coefficient	Standard Error	t	P>|t|	95% Confidence Interval
L.LNGDP	5158082	.1508317	3.42	0.002	.2073227 .8242937
LNTUR	.2887087	.1218397	2.37	0.025	.0395185 .537899
D1	-.3909872	.2153736	-1.82	0.080	-.8314757 .0495012
CONS	3.604454	1.033854	3.49	0.002	1.489984 5.718923
F (3, 29) = 64.92, Prob> F = 0.0000 R-squared = 0.8704					
Durbin-Watson statistic (original)= 1.505217 Durbin-Watson statistic (transformed)= 2.017367					

Hence, it can be said that 1 percent increase occurring in tourism incomes increased GDP in the rate of approx. 0.28.

Unit root analyses shows that the variables LNGDP and LNTURare not stationary at their levels and, thus, that apossible long termed relationship between thesevariables will be able to be tested. In the model, before proceeding to Johansen co-integration analysis, using VAR (Vector Autoregressive) model, optimallagging length was determined. The results of lagginglengths tests, conducted in this scope, aregiven in Table 8. According to this, FPE, AIC, and HQIC criteria show that optimal lagging length is 3.

Table 8: Test Results of Optimal Lagging Lengths

q*	LL	LR	P	FPE	AIC	HQIC	SBIC
0	-66.5756			.286082	4.42423	4.45439	4.51675
1	-11.1405	110.87	0.000	.010371	1.10584	1.19631	1.38339*
2	-9.31412	3.6528	0.455	.011986	1.24607	1.39686	1.70865
3	-.693402	17.241*	0.002	.008987*	.947961*	1.15907*	1.59557
4	1.15714	3.7011	0.448	.010517	1.08664	1.35805	1.91927

*: shows lagging length.

Using the third lagging level, determined via VAR model, the results of Johansen co-integration test conducted take place in Table 9. According to these results, since the value of maximum eigenvalue statistics and trace statistics is higher than the critical values atthe significant level of 5%, the hypothesis that H0: r = 0, "there is no co-, integration between data". According to this result, it is possibleto say that there is at least one co-integrated vector between the series. In other words, it can be expressed that there is a co-integration relationship between the variables handled and that the series move together in the long term.

Table 9: Results of Johansen Co-Integration Test

Hypotheses	Maximum Eigenvalue Statistics			Trace Statistics		
	Statistic	5% Critical value	Significance	Statistic	5% Critical value	Significance
H_0: r=0	19.3337	14.2646	0.0072	24.8496	15.4947	0.0015
H_0: r≤1	5.5185	3.8414	0.0188	5.5158	3.8414	0.0188

In case that there is co-integration relationship between series, it isuseful to determinethe short termed causality relationship by using error correction mechanism. Error correction mechanism is a method used for making a distinction between long termed balance and short termed dynamics and determining the dynamics of short term.

Here, two different parameters are predicted for VEC analysis. These are:

- β parameters used in co-integration equation
- Adaptation coefficients, α
- Short term coefficients,
- Functions related toβ and α parameters

The results of test of error correction mechanism, carried out to test the relationship between tourism incomes and GDP, are presented in Table 10. Table consists of three main parts.First part, sample, is related to determining model and fitness of each equation as well as parameters in co-integration equation. In the second part, together with standard errors and confidence intervals of parameters of second period, the

results of main prediction take place. In the last part, together with the standard errors and confidence intervals of the parameters in co-integration equation, the results of prediction are presented.

Table 10: Test Results of Vector Error Correction Mechanism

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_lngdp	6	.486517	0.4919	25.16818*	0.0003
D_lntur	6	.181002	0.5915	37.64744*	0.0000

Variable	Coefficient	Std. Error	z	P>|z|	95% confidence interval
ce1 L.1.	-.3183368	.142093	-2.24**	0.025	-.596834 -.0398396
Dlngdp LD	-.3912907	.1733246	-2.26**	0.024	-.7310006 -.0515808
L2D	-.2001125	.1603972	-1.25	0.212	-.5144854 .1142603
Dlntur LD	-.2570327	.4070742	-0.63	0.528	-1.054884 .540818
L2D	.8570108	.4084348	2.10**	0.036	.0564932 1.657528
Cons	.0912263	.1255739	0.73*	0.468	-.154894 .3373465
D_lntur ce1 L.1.	.1528617	.0528637	2.89	0.004	.0492508 .2564725
Dlngdp LD	-.1387134	.0644829	-2.15**	0.031	-.2650975 -.0123292
L2D	-.1596776 .	0596735	-2.68*	0.007	-.2766355 -.0427197
Dlntur LD	-.0319813	.1514461	-0.21	0.833	-.3288101 .2648476
L2D	-.3221843	.1519523	-2.12**	0.034	-.6200052 -.0243633
Cons	.1899801	.0467179	4.07	0.000	.0984146 .2815456

Co-integration Equalities

Equation	Parms	chi2	P> chi2
_ce1	1	64.42474 *	0.0000

beta	Coefficient	Std. Error	z	P>|z|	95% Confidence interval
_ce1 dlngsyh D1.	1	.	.	.	.
dlnturgel D1.	-1.04778	.1305401	-8.03*	0.000	-1.303634 -.7919266
cons	-2.963239	.	.	.	.

*: Coefficient is significant at 1% level **: Coefficient was accepted assignificant at the level of 5%:

With moving from the notation related to VEC, the predictions made can be summarized as follows:

$$\hat{a} = (-0.3183, 0.1528), \qquad \hat{\beta} = (1, -1.0477)$$

$$\hat{r} = \begin{matrix} -0.3912 & 0.8570 \\ -0.1387 & 0.1528 \end{matrix}$$

First part of the results indicates model fits well. If it is necessary to make a general evaluation on the results of model, as in adaptation parameters in co-integration equation, it can be said that there is a long-term relationship the between LNGDP and LNTUR. Like that the short-term coefficient belonging to LNTURis significant. So there is a short-term relationship between LNGDP and LNTUR. As it will also be understood from the statistical value of adaptation parameter, in model the orientation to balance is highly fast. According to this, error correction parameter, ECT_{t-1} (-0.3183), is negative signed and statistically significant as expected. This result suggests that the unbalance which will form as a result of a deviation from the long termed relationship between the dependent variable LNGDP and explanatory variable LNTUR will get better in the right of 32% in the next year. For the variable LNGDP to reach its balance value before deviation, the necessary time is 1/0.32 i.e. approx. 3 years. On the other hand, it can also be expressed that tourism incomes affect GDP in positive direction as expected.

Whether there is autocorrelation in the model, Lagrange-multiplier test was performed and results were summarized in Table 11. According to results in selected lag length there is no autocorrelation in the VEC model.

Table 11: Lagrange-Multiplier Test

Lag	Chi2	Prob> chi2
1	1.8630	0.76094
2	1.8038	0.77178
3	7.6320	0.10603
H0: no autocorrelation at lag order		

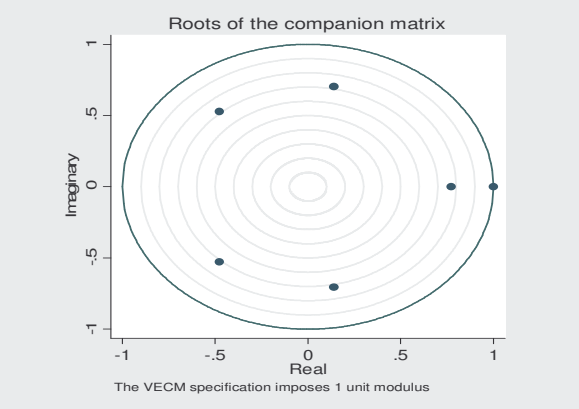
In order to check whether or not co-integration equation in the right number is used, analysis of eigenvalue stationary analysis was carried out. If the process is stationary, eigenvalues become smaller than 1. As also seen in Table 12, the eigenvalues received the values smaller than 1. That the eigenvalues are

smaller than1 can be followed from Figure 1. Hence, it can be expressed that the results of co-integration analysis are reliable.

Table 12: Condition of Eigenvalue Stationary

Eigenvalue	Module
1	1
.7716303	77163
.1403011 + .7041335i	.717975
.1403011 - .7041335i	.717975
-.4770034 + .5278163i	.711423
-.4770034 - .5278163i	.711423

Figure 1: Eigenvalue Graph



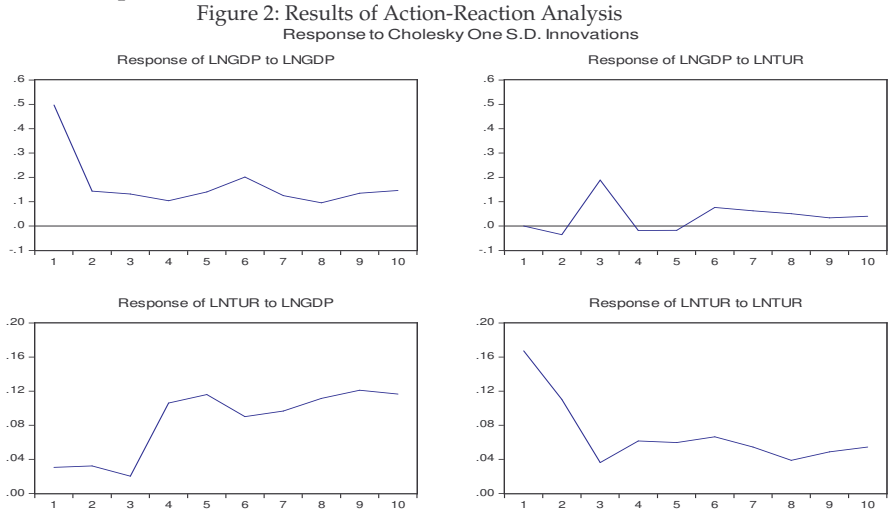
The results of Granger Causality are presented in Table 13. According to results "LNTUR does not Granger cause LNGDP" hypothesis can be rejected. So, LNTUR is granger cause of LNGDP in line with expectations.

Table 13. Granger Causality Tests

LNTUR does not Granger cause LNGDP	F-stat=4.4607	Prop=0.0122
LNGDP does not Granger cause LNTUR	F-stat =1.5192	Prop=0.2340

In Figure 2, the results of action-reaction analysis take place. The dashed lines in the figure show the confidence intervals of one standard error, while the continuous i.e. straight lines shows the point estimations calculated as a result of prediction. The reaction of a shock of one standard error in GDP to the tourism incomes in general followed a positive course in the period discussed. In the reaction of tourism incomes to GDP, there is also positive case.

Figure 2: Results of Action-Reaction Analysis



Variance decomposition, in the period of 10 years, presents the contributions of each variable to the change occurring in the other systemic variables. According to this, in the period discussed, about 11% ofthe variation in LNGDP is determined by LNTUR. In spite of this, in the first year, about 4% of the variation in LNTUR are determined by GDP, while 50% of it inthe tenth years (see, Table 14).

Table 14: Variance Decomposition, the Interaction Degree of Variables

Variance Decomposition of LNGDP			
Period	**Standard Error**	**LNGDP**	**LNTUR**
1	0.496613	100.0000	0.000000
2	0.518121	99.53627	0.463735
3	0.566799	88.55256	11.44744
4	0.576473	88.83779	11.16221
5	0.593457	89.38261	10.61739
6	0.631297	89.14223	10.85777
7	0.646526	88.70710	11.29290
8	0.655471	88.40958	11.59042
9	0.669935	88.65251	11.34749
10	0.686785	88.86571	11.13429
Variance decomposition of LNTUR			
Period	**Standard Error**	**LNGDP**	**LNTUR**
1	0.170110	3.244909	96.75509
2	0.205342	4.691793	95.30821
3	0.209508	5.444814	94.55519
4	0.242756	23.11445	76.88555
5	0.275683	35.67263	64.32737
6	0.297513	39.79241	60.20759
7	0.317545	44.20490	55.79510
8	0.338771	49.67093	50.32907
9	0.363070	54.36656	45.63344
10	0.385171	57.46209	42.53791

Conclusion

Tourism is seen as an important input of economic development process for the countries. Tourism is among the top priorities of the economy policies in terms of reducing the dependence on import, increasing the level of national well-being and supporting small and medium-sized enterprise development as well as its contribution to the employment. In this context, tourism gained importance notably after 1980s in Turkey. There is no doubt that the tourism income of Turkey has played an important role as the main source of finance to sustain the trade deficit as well. While the share of tourism receipts in GDP was 0,5% in 1970, it reached 4,2% in 2013. Similarly, the share of tourism receipts in exports which was 8,8% in 1970, increased to the level of 21,2% in 2013.

The impact of the tourism receipts on economic development was analysed using time series analysis (unit root, VAR, VEC) within the time span between 1980 and 2014. According to the basic EKKresults, there is a positive relationship between the tourism receipts and economic development. Empirical estimates confirmed the importance of tourism to economic activities with a 1% increase in tourism receipts causing 0,28% rise in GDP. On the other hand, the cointegration analysis revealed the long run relationships between two variables. The ECT coefficient is estimated to be -0.3183. This means that approximately 32% of disequilibrium from the previous year's shock will be eliminated in the next year. The time required for the variable of LNGSYH to turn back to the balance value before deviation is 1/0.32, about 3 years. The results of Variant Analysis reveals that nearly 11 per cent of change in GDP is determined by the tourism receipts. It can be mentioned that the tourism receipts have affected GDP positively as it is expected.

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