

**Economic growth, Foreign Exchange and Tourism Receipts Nexus:  
An Econometric Analysis on Turkey**

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**ABSTRACT**

The growth trends in the tourism of Turkey have gained impetus since the early 1980s. Since then, tourism has held its indispensable position among the drives of economic growth and governments have introduced incentives to increase tourism receipts. The main objective of this study is to find out the relation among growth, foreign exchange and tourism receipts. To serve this purpose, we use data set of 1987 and 2009 period then using cointegration and Granger causality, The Granger causality results show that there is a causal relationship running from tourism incomes to economic growth, which supports the premise that tourism benefits economic growth.

**Keywords:** Tourism incomes, foreign exchange, growth, Granger causality, Vector Auto Regressive (VAR) Models

**INTRODUCTION**

There is no doubt that tourism especially international tourism movements have managed to become one of the most important sectors of all. International tourism movements hold its righteous place in that they fix balance of payments, provide the necessary financial tools for the technological equipment used in the manufacturing process, increasing the employment and leading to economic growth. The tourism movements began to gain momentum in the 1980s in parallel to the world tourism movements. Following the 1980s, tourism was regarded as a propelling force for economic growth and hence economic resources were allocated to tourism in order to boost economic growth. Nowadays, for Turkey, as a result of the investments following the 1980s in tourism sector, it is an undeniable fact that tourism is one of the foremost sectors in Turkey. The objective of this paper is to measure the impact of tourism in economic growth and foreign exchange regimes to be implemented in order to sustain and further growth and to see whether the policies designed to support tourism are effective. The changes over the foreign exchange rates have considerable effect on economic growth. In order to serve this purpose, using the data period of 1987-2009, this paper sets out to investigate impact of tourism receipts and foreign exchange rate on the Gross National Domestic Product (hereafter referred to as GDP).

**1. CONCEPT OF ECONOMIC GROWTH AND MEASUREMENT OF ECONOMIC GROWTH**

Some of the definitions of economic growth are as the followings; in its simple terms, economic growth is the increase in the national product in general (Görgün, 1973: 19). Economic growth, regarded as the only way to raise the level of wealth in a country, can be defined as the aggregations in the quantities of goods and services in a given period (Ünsal, 2005: 14). It is also possible to define economic growth as the increases in the real national product per capita. Besides, economic growth signifies a change and development in quantity and quality within the economic structure (İşgüden, 1982: 251).

The rate of economic growth is a concept denoting the percentile increment in the real national product compared to previous years. In order to measure the rate of economic growth, there are two main methods to follow; the first one is to measure the real national product and the second one is to measure the per capita increase in the rate of real national product. While performing the measurement, the rate of change in the goods and services produced compared to the previous years is taken into account. In economic growth, the concept of "Gross National Domestic Product" is widely used one. Since the nominal prices may hinder an accurate measurement of GDP, real values are taken into consideration in measuring GDP. GDP free from nominal values can reflect the real situation in a more accurate manner and will also give the opportunity to compare among years. Economic growth can be calculated using the formulae below; (Ünsal, 2005: 17)

$$t \text{ growth rate} = [ ( \text{GDP}_t - \text{GDP}_{t-1} ) / \text{GDP}_{t-1} ] \cdot 100 \quad (1)$$

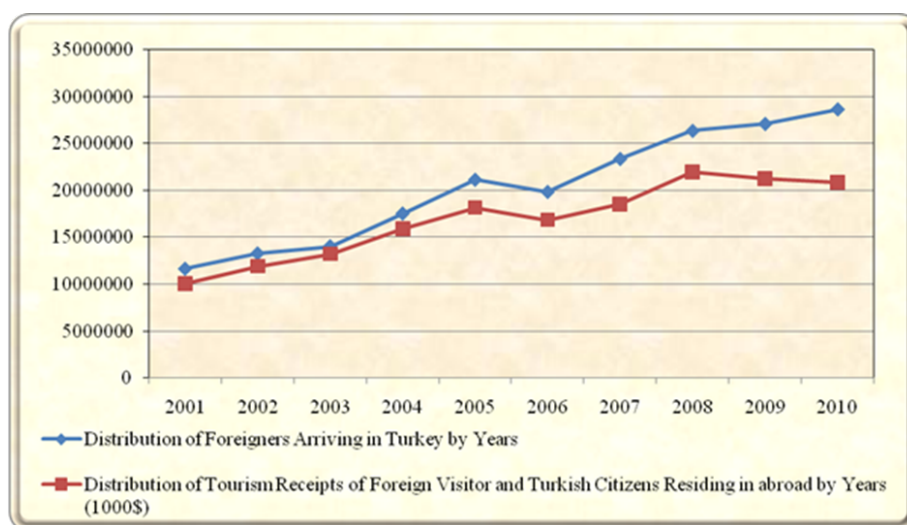
When it comes to international comparisons, the per capita Income matters more rather than the magnitude of GDP. While The formulae above exhibit the goods and services produced in an economy, this does not reflect the wealth increase of individuals in a society since it does not take the population increase into consideration (Sloman, 2004: 20).

In the event that the increment in GDP is below the population growth rate, the economic growth will only mean the increase in the goods and services produced. Hence, it would be much more appropriate to measure the Real GDP increase per capita in terms of reflecting the wealth increase of individuals. Therefore, it is better to define economic growth as the per capita increment in GDP compared to previous periods. Per capita GDP gives us more accurate information on the life standards of a country under consideration. Besides, it could also be used in the comparison of wealth among countries.

## 2. TOURISM AND ECONOMIC GROWTH AND TURKEY

For a long time, tourism activities and their economic impacts have been examined by many researchers. If we take the relation between exports and economic growth into account, we can say that the premise that tourism will lead to economic growth stems from this relationship (Vanegas and Croes, 2003). Tourism is heavily dependent on labor and listed in the section of international services under current accounts of the balance of payments. Therefore, tourism incomes have an export effect, for tourism incomes are of foreign exchange nature. That is to say, tourism might be considered to be an intangible export item (Theobald, 2001).

Goods and services demand in a country visited is related to the number of tourist arrivals. If the country visited has the capacity to meet the demand as a result of the number of tourists, the spending of the tourists will remain in the country visited. Thus, foreign exchange surpluses by tourism spending will have a positive impact on the balance of payments, and for this reason, it is widely acknowledged that tourism in the long run could create economic growth. The growth in the tourism sector yields a positive impact on the current account and offers more employment and induces an increase in GDP, thus having a sought-after effect on the economy (Brohman, 1996).



Resources: <http://www.ktbyatirimisletmeler.gov.tr/ana-sayfa/1-35579/20120109.html>

**Figure 1: Distribution of Foreigners Arriving in Turkey by Years and Distribution of Tourism Receipts of Foreign Visitor and Turkish Citizens Residing in abroad by Years**

A general overview on the Turkish economy indicates that the Tourism sector gained an impetus following the 1980s and became the major driving force of the economic development. The period following the military coup in September 1980 was a sign of the effective policy goals. First of all, a three-digit inflation figure saw nearly 30% in 2 years. Supported by the international communities, the liberalization period started with the January 24, 1980 economic decisions.

After the January 24, 1980 economic decisions, an economic development policy based on export and tourism was chosen as the fitting means in implementing export-based policies (Tosun, 2001). Another point to mention in the role of tourism sector is the “law of incentive” for tourism investments, by means of which a new

era of investment started and the place of tourism sector in Turkish economy became rooted (Tosun, 1999; Seckelmann, 2002). The share of tourism in GDP increased from 0.6% in 1980 to 5.5% in 2003. Besides, the share of tourism in export increased from 11.2% to 28% in 1980 and 2003 respectively. In the liberalization period, economic constraints and controls underwent structural changes. Dependent on depreciation of the domestic currency, the export-led growth approach reached its economic and political limits towards the end of the 1980s. Due to the negative per capita growth and the policies implemented, there was a growing sense that the economic policy needed a change. As a result of this, capital account liberalization was realized in August 1989 and full convertibility was put into action in the early 1990, both of which paved the way for capital inflows to Turkey.

### THE DATA SET AND ITS SCOPE

This study aims to examine the tourism and economic growth in the periods of 1987-2009. Drawing on the model of Balaguer and Jorda (2002), we use the following model.

$$\text{GDP: } f(T, \text{DK}) \quad (2)$$

Where

$Y_t$  : Gross National Domestic Product (GDP)

$T_t$  : Tourism Incomes

$\text{DK}_t$  : Foreign Exchange

$$Y_t = \alpha_0 + \alpha_1 T + \alpha_2 \text{DK} + \mu_t \quad (3)$$

In this paper, we use the data set covering 1987 – 2009, for the dependent and independent variables. The data set was obtained from Turkish Statistical Institute and Association of Turkish Travel Agencies. In econometric analyses, E-views 7.0 software was employed. Used as the dependent variable, GDP was obtained through expenditure method and measured in current prices. Tourism incomes, independent variable, were measured in Turkish lira. As for foreign exchange, the Turkish lira value of the USA dollar was used. To start with, we use the logarithm of the variables in the model set and they are linearized.

$$\log \text{GDP} = \alpha + \log T + \log \text{DK} + \mu_t \quad (4)$$

### RESULTS

The most important point to consider in studies in which time series are used is to turn non-stationary series into stationary series. Otherwise, the relations between the variables could yield spurious results. Hence, the stationary test should be conducted in the first place. The stationary of the variables are examined through ADF test and the results are reported in Table 1. For ADF equation, the fitting lag length is maximum 3 lags, selected with SC (Schwarz Criterion) criterion.

**Table 1: ADF Test Results for the Variable**

Variable	Model	Lag Length	ADF Statistics	Critical Value
LOGGSYİH	A	3	-4.149484*	-3.644963
LOGT	B	0	-3.366527*	-3.004861
LOGDK	A	0	-6.298447*	-3.658446

A: ADF model with no deterministic component

B: ADF model with a constant

C: ADF model with both a constant and trend

\* Stationary at 5% significance level

When the results in Table 1 are examined, all the variables considered are stationary I (0). Hence, the estimate results of the model described in the 4<sup>th</sup> equation is given in Table 2.

**Table 2: OLS Estimate Results of the Model**

Variable	Coefficient	Std. Error	t Statistic	Prob.
C	63447.98	2472.687	25.65953	0.0000
LOGT	2.177842	0.656451	3.317602	0.0034
LOGDK	-6073.360	8700.774	-0.698025	0.4932

$$R^2 = 0.782786 \quad F\text{-statistic} = 36.03761 \quad \text{Prob (F-statistic)} = 0.000000$$

As seen in Table 2, tourism incomes increase GDP. In other words, increases in tourism income contribute to economic growth in a positive manner. When it comes to foreign exchange, it affects GDP in a negative manner. In order to examine the causality between the variables, a Granger-causality test was applied. To start with, the lag length of the VAR model should be known. Table 3 reports the lag length of the VAR.

**Table 3: Lag length of the VAR Model**

Lag Length	SC
0	2.858275
1	-3.956724
2	-4.022365*
3	-4.007180

The lag length in the VAR model was found out to be 2 by the SC criterion. Granger causality results reported in Table 4.

**Table 4: Granger Causality Results**

Null Hypothesis	F - statistic	Prob.
LOGT does not Granger Cause LOGGSYH	<b>3.51126</b>	<b>0.0544</b>
LOGGSYH does not Granger Cause LOGT	0.54428	0.5906
LOGDK does not Granger Cause LOGGSYH	2.12889	0.1514
LOGGSYH does not Granger Cause LOGDK	<b>5.99369</b>	<b>0.0114</b>
LOGDK does not Granger Cause LOGT	1.07775	0.3638
LOGT does not Granger Cause LOGDK	0.27513	0.7630

As seen in Table 4, there is one way Granger causality from tourism incomes to GDP and from GDP to foreign exchange rate. Following the causality tests, VAR analysis is performed, which aids the short term policies. In order to do this, the variables should be sorted from external to internal. As a result of the causality tests, the variables are sorted as DK, T and GSYH. Table 5 reports the results of VAR model.

**Table 5: VAR Model Results**

	LOGDK	LOGT	LOGGSYH
LOGDK(-1)	2.173673	1.764426	-0.076919
	(0.37749)	(0.43921)	(0.10712)
	[ 5.75816]	[ 4.01724]	[-0.71804]
LOGDK(-2)	-0.313417	-0.116108	-0.226420
	(0.45908)	(0.53413)	(0.13027)
	[-0.68271]	[-0.21738]	[-1.73802]
LOGT (-1)	-0.380018	-0.055771	0.033452
	(0.33782)	(0.39305)	(0.09586)
	[-1.12492]	[-0.14189]	[ 0.34895]
LOGT (-2)	-0.456524	-0.478083	0.257281
	(0.34844)	(0.40541)	(0.09888)
	[-1.31019]	[-1.17926]	[ 2.60197]
LOGGSYH(-1)	3.950431	4.445596	0.490445
	(1.01738)	(1.18372)	(0.28871)
	[ 3.88293]	[ 3.75560]	[ 1.69875]
LOGGSYH(-2)	-1.978467	-1.749505	-0.271009
	(0.97750)	(1.13732)	(0.27739)
	[-2.02401]	[-1.53828]	[-0.97699]

C	-14.79730	-16.46997	6.243219
	(6.48626)	(7.54674)	(1.84064)
	[-2.28133]	[-2.18240]	[ 3.39187]

Standard errors in ( ) & t-statistics in [ ]

In the study, for GDP variable, the analysis of impulse-response and variance decomposition analyses are conducted. The impulse-response values are reported in Table 6 and the graphics are given in Figure 2.

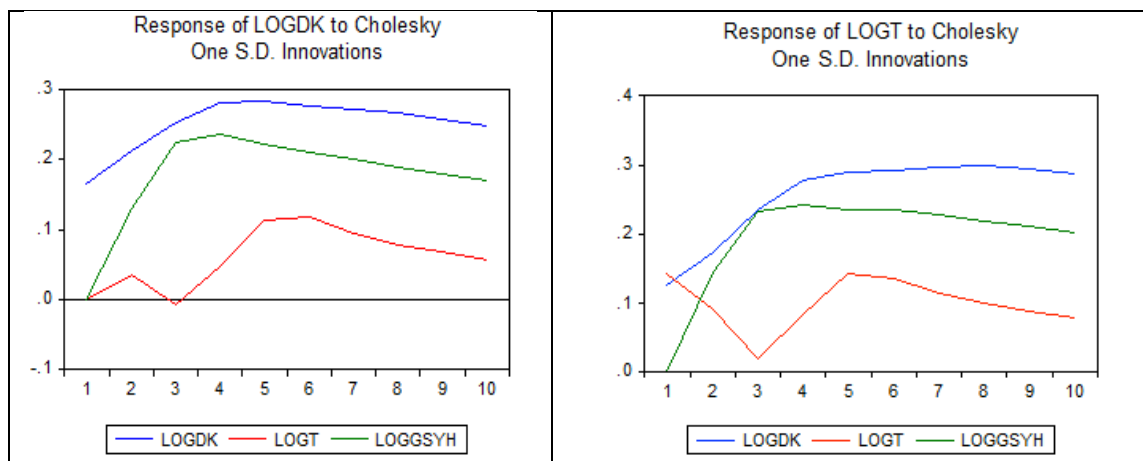
**Table 6: Impulse - Response Coefficient for GDP**

Period	LOGDK	LOGT	LOGGSYH
1	-0.024838	0.022540	0.032585
	(0.00946)	(0.00792)	(0.00503)
2	-0.020587	0.015841	0.015981
	(0.00972)	(0.01304)	(0.00973)
3	-0.018319	0.038889	-0.006048
	(0.01260)	(0.01589)	(0.01061)
4	-0.018249	0.031820	-0.008562
	(0.01478)	(0.01657)	(0.01229)
5	-0.012772	0.010628	-0.003160
	(0.01553)	(0.01710)	(0.01236)
6	-0.005377	0.003592	0.000782
	(0.01658)	(0.01493)	(0.01103)
7	-0.000124	0.005883	0.003774
	(0.01668)	(0.01097)	(0.00884)
8	0.003402	0.007351	0.006541
	(0.01588)	(0.00911)	(0.00833)
9	0.006305	0.007437	0.008391
	(0.01482)	(0.00715)	(0.00825)
10	0.008677	0.007617	0.009358
	(0.01351)	(0.00580)	(0.00758)

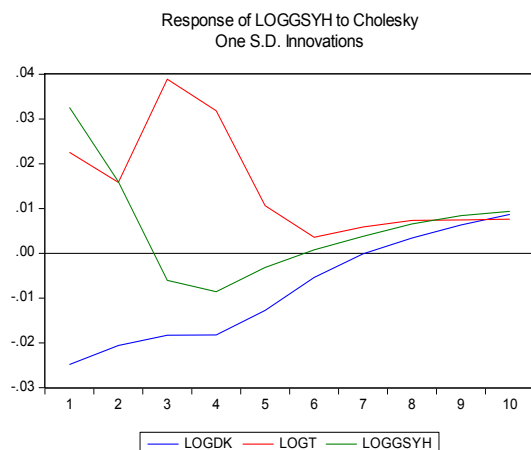
**Cholesky Ordering:** LOGDK LOGT LOGGSYH

**Standard Errors:** Analytic

**Figure 2: Impulse - Response Function**







As seen in Figure 2, when a shock of 1 standard deviation is applied to GDP, tourism incomes and foreign exchange rate separately, it is seen that although there are differences in the responses in the first periods, in the following periods these differences decrease and the system keeps its balance. Afterwards, the variance decomposition for GDP was performed and the results are given in Table 7.

**Table 7: Variance Decomposition Results**

Period	S.E.	LOGDK	LOGT	LOGGSYH
1	0.164786	28.21200	23.23302	48.55497
2	0.299479	33.39095	24.35032	42.25873
3	0.450704	27.51914	45.41393	27.06693
4	0.582810	26.62465	51.14824	22.22711
5	0.693684	27.92144	50.65075	21.42781
6	0.784109	28.17432	50.52351	21.30217
7	0.858400	27.97198	50.66946	21.35855
8	0.921461	27.70051	50.65657	21.64292
9	0.975619	27.61449	50.25331	22.13220
10	1.022079	27.81042	49.52688	22.66269

**Cholesky Ordering:** LOGDK LOGT LOGGSYH

As seen Table 7, in the first period GDP explains itself at a rate of 48% and tourism incomes with 23% and foreign exchange with 28%. Looking at the 10<sup>th</sup> term, the rate of explaining itself for GDP is 22%, and 49% for tourism incomes, in a decreasing manner, while it is on the increase for foreign exchange at 27%.

## CONCLUSION

This paper investigates the effect of tourism income on economic growth. The Granger causality results Show that there is a causal relationship running from tourism incomes to economic growth, which supports the premise that tourism benefits economic growth. Following the VAR model, when a shock of 1 standard deviation is given to GDP and foreign exchange separately, we test the power of effect between the variables. Although the first periods suggest some differences in the responses to each shock, the following periods indicate that the system reaches a balance, with relatively few differences.

Afterwards, the explanatory power of the variables in the model in analysed through Variance Decomposition test. Overall, while the explanatory power of GDP in the first period is high, it is low in the following periods. It is seen that the fastest growing sector, tourism, in parallel to the development in the World, has made a huge stride in the economy of Turkey. Besides, the increasing level of wealth, safer and faster means of transports and the income allocated for tourism activities will undoubtedly mean brighter future for tourism and for those involved in tourism, countries included and it will continue growing more and more. Considering the share of Turkey in the World tourism activities, which is only 2,5% according to 2003 data and the income of \$13,2b (Bahar and Kozak, 2005: 176), the government and the forerunners in tourism sector should do more than their bits in order to get the bigger share Turkey deserves, hence increasing the economic growth and the wealth of the country.

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