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THE EFFECTS OF THE TOURISM SECTOR ON ECONOMIC GROWTH: THE CASE OF TÜRKİYE

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Abstract

Tourism refers to the travelling and accommodation activities of individuals for various purposes from the regions where they continue their lives permanently to other regions. Economic growth and development are very crucial concepts for developing countries. Tourism plays a crucial role in fostering economic growth and development within societies. The study investigates the utilization of the tourism sector as a catalyst for economic growth and development in the context of the Turkish economy, employing quarterly data spanning from 2003:1 to 2023:2. Methodologically, the analysis incorporates Zivot-Andrews unit root test, Gregory Hansen cointegration test, and Toda Yamamoto causality test. The study contributes to the literature by using the most recent quarterly data and taking into account the structural breaks in the impact of the tourism sector on economic growth and the model used. According to the analyzes, it is concluded that there exists a cointegrated relationship between tourism expenditures, exchange rate and economic growth series and a reciprocal causality relationship between tourism expenditures and economic growth.

Anahtar Kelimeler: Tourism Expenditures, Turkish Economy, Structural Break

Turizm Sektörünün Ekonomik Büyümeye Etkisi: Türkiye Örneği

Öz

Turizm bireylerin kalıcı şekilde yaşamlarını devam ettirdikleri bölgelerden başka bölgelere çeşitli amaçlarla yaptığı seyahat ve konaklama faaliyetlerini ifade etmektedir. Gelişmekte olan ülkeler için İktisadi büyüme ve kalkınma oldukça önemli kavramlardır. Turizm faaliyetleri toplumların iktisadi büyüme ve kalkınmalarını sağlamaları için oldukça önemli bir sektördür. Turizm sektörü ülkelerin iktisadi büyüme ve kalkınmalarını sağlamaları açısından araç olarak kullanılabilmektedir. Bu doğrultuda çalışmada Türkiye ekonomisi için turizm sektörünün iktisadi büyüme üzerindeki etkisi çeyreklik verilerle analiz edilmektedir. Çalışma 2003:1 ve 2023:2 çeyreklik dönemini kapsamaktadır. Çalışmada eşbütünleşme ve nedensellik analizi kullanılmıştır. Bu çerçevede Zivot-Andrews birim kök testi, Gregory

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Hansen Eşbütünleşme testi ve Toda Yamamoto Nedensellik testi kullanılarak analizler gerçekleştirilmiştir. Çalışma en güncel çeyreklik verileri kullanılarak turizm sektörünün iktisadi büyüme üzerindeki etkisini yapısal kırılmaları da dikkate alan bir çalışma olması ve kullanılan modelle birlikte literatüre katkı sağlamaktadır. Yapılan analizlere göre; turizm harcamaları, döviz kuru ve iktisadi büyüme serileri arasında eşbütünleşik bir ilişki olduğu ve turizm harcamaları ile iktisadi büyüme arasında karşılıklı nedensellik ilişkisi bulunduğu sonuçlarına ulaşılmıştır.

Keywords: Turizm Harcamaları, Türkiye Ekonomisi, Yapısal Kırılma

Introduction

Tourism encompasses the activities related to travel and accommodation that individuals engage in for various purposes in regions distinct from their permanent residences (Gee, 1997: 138). Historically rooted in ancient times, tourism has experienced a marked acceleration, particularly following the Second World War. In contemporary economies, the tourism sector is recognized as a crucial economic activity, exerting both positive and negative impacts. A comprehensive analysis of the tourism sector reveals its significant role in governmental strategies aimed at addressing issues such as foreign trade deficits, inflation, and unemployment (Çımat & Bahar, 2003: 2). As a sector, tourism is also in a very close relationship with other sectors. Therefore, the expenditures made in the tourism sector provide income not only to the people operating in the tourism sector, but also to the sectors related to other tourism sectors, both directly and indirectly (Kar et al., 2004: 90). Today, governments that want to ensure their economic growth and development can use tourism as a tool in this regard. Especially in developing countries, tourism sector is one of the sectors that are seen as a potential source of income (Opuş, 2001: 37). Turkey is one of the most important developing countries in the world. Tourism sector is seen as an important economic sector in Turkey. The focus of interest resides in the conspicuous direct and ancillary impacts on the national economy, thus prompting the investigation of scholars within the purview of social sciences. Numerous inquiries have been undertaken to scrutinize the nexus between tourism and economic advancement. Especially in recent periods, analyzes have been carried

out using different methods to determine the place and importance of the tourism sector in the economy. In the current investigation, data pertaining about tourism expenditures, exchange rates, and gross domestic product (GDP) are utilized, covering the period spanning from the first quarter of 2003 to the second quarter of 2023. The study aims to determine whether the relationship between tourism and economic growth in the relevant years has a cointegrated relationship and the direction of causality between them. The main objective is to determine the importance of the tourism sector on the Turkish economy, especially in the light of recent data. Since economic crises occurred in the Turkish economy in the relevant years, econometric tests taking into account structural breaks are applied in order to provide more accurate results in the study. This study, which aims to determine the relationship between tourism sector and economic growth in Turkey, contributes to the literature in various aspects. In terms of literature, the study is critical in terms of being an up-to-date study using quarterly data in the analyzes made for the tourism sector, which has seasonality effects within itself. The study contributes to literature in two ways. As a priority, it is the first study to analyze the impact of the tourism sector on economic growth in Turkey, considering the relevant model. Second of all, by taking into account the disruptions in an economy experiencing economic crises, such as the Turkish economy, it distinguishes itself from the literature. On the other hand, the study is important as it is a study that analyzes the effects of tourism on the economy by using econometric methods with structural breaks in the Turkish economy, which experienced crises in the relevant years. In other words, the study is also important for the literature in terms of applying analyzes that take structural breaks into account by using current quarterly data for Turkey. Following an elaborate introduction, the initial section delves into exploring the interplay between the tourism sector and economic growth. Subsequently, the second section comprises a comprehensive review of pertinent literature. The third section is dedicated to delineating the methodology, encompassing data collection and the model utilized. Subsequent to this, the fourth section elucidates the findings derived from the

analysis, accompanied by an evaluation thereof. Finally, the concluding section encapsulates the study's summary and furnishes policy recommendations.

1. Relationship Between Tourism Sector and Economic Growth

Throughout historical retrospection, the tourism sector has been wielded as a developmental instrument by numerous societies, spanning from antiquity to contemporary times. In general, we see that the countries that use tourism as a development tool are developed and developing countries. Tourism activities were not seen as a development tool for economies when they first started. After the Industrial Revolution, the contribution of mass tourism, that is, the activities of large communities going from one place to another and back to the country has been recognised by the states and today's understanding of tourism has begun to show itself in economic policies. Regarding the discussion of the place of tourism in the economies of countries, it directs the economies of countries in many aspects. Developed and developing countries use the tourism sector as a tool, especially in terms of positive contributions to gross domestic product and employment (Bozgeyik and Yoloğlu, 2015: 627). Another macro area in which the tourism sector interacts with the economy is employment. Today, unemployment is one of the major macro problems in many countries within the national economies. All countries in the world focus on different sectors in order to provide employment. In this context, one of the sectors seen as a tool to increase employment has been the tourism sector. The tourism sector, which is developing very quickly, is seen as an essential sector in terms of creating employment in many countries because it is a dynamic sector and has many direct and indirect effects (Şit, 2016: 115). Tourism sector is a sector that is related to several fields in the economy. Tourism activities, which have experienced significant growth particularly in recent years, are utilized by countries as a means to advance their objectives across various domains. However, while tourism activities are often viewed positively, they also entail certain adverse effects on the economies of countries (Yanardağ and Avcı, 2012: 41).

The tourism sector yields several beneficial impacts on the economy, including: generating income for countries, creating employment opportunities, promoting both intra-regional and inter-regional development, enabling countries to address their balance of payments deficits, and exerting an indirect positive influence on other sectors (Yanardağ ve Avcı, 2012: 41).

The adverse direct consequences of the tourism sector on the economy include the following: increased imports, higher inflation rates, elevated opportunity costs, and the periodic effects of seasonality (Emir, 2015: 51-52).

The tourism sector also produces indirect adverse effects on the economy, manifesting in various ways. These indirect negative repercussions can be delineated as follows: environmental degradation, pollution of water resources, deterioration of the ecological balance, irregular urbanization activities, and the generation of harmful waste (Yanardağ and Avcı, 2012: 41).

In conducting tourism activities, countries often focus exclusively on the sector's positive impacts. However, when utilizing tourism as a tool for economic decision making, it is imperative to consider both its positive and negative aspects. The sector's positive effects on the economy are counterbalanced by negative impacts, which can extend beyond national borders and contribute to global problems (Yıldız & Kalağan, 2008: 42). To minimize the negative effects of the tourism sector on the economy, other sectors, and the environment, it is essential to implement policies that address both its positive and negative dimensions.

2. Literature Review

The correlation between tourism and economic growth has long been a focal point of scholarly interest within the social sciences. Over time, numerous studies have investigated this phenomenon. Notably, there has been a marked increase in the number of researchers analyzing the relationship between tourism and economic growth, particularly over the past 15-20 years. These studies have employed a variety of methodologies to explore the dynamics between tourism and economic performance. Some investigations have focused on the impact of tourism revenues

on economic growth, while others have examined the effects of tourism expenditures. The literature review emphasizes recent studies to provide a comprehensive understanding of the current state of research on this topic.

The analysis of studies on the relationship between tourism and economic growth can be categorized into two groups: those focused on Turkey and those examining other countries. Within the context of Turkey, various scholars have provided diverse insights. Göymen (2000) posits that tourism interacts with social and economic factors, while Kasman and Kasman (2004) assert that tourism contributes to economic growth. Hatemi and Gündüz (2005) support the tourism-led growth hypothesis, and Demiröz and Ongan (2005) argue that tourism significantly influences economic growth. Bahar (2006) also demonstrates the positive impact of tourism on economic growth. Özdemir and Öksüzler (2006) indicate that tourism enhances economic growth, and Zortuk (2009) shows a positive contribution of tourism to economic development. Husein and Kara (2011) argue that tourism revenues affect economic growth, while Arslantürk and Atan (2012) find a positive effect of tourism revenues on economic growth. Bozkurt and Topçuoğlu (2013) state that tourism revenues positively influence economic growth, and Samırkaş and Samırkaş (2014) conclude similarly that tourism revenues bolster economic growth. Kanca (2015) also finds a positive effect of tourism on economic growth. Conversely, Türkcan (2015) challenges the validity of the tourism-led growth hypothesis, and Çınar (2018) argues that tourism does not cause economic growth. Most recently, Özışık (2023) revealed that tourism revenues have a positive effect on economic growth.

When examining studies conducted outside of Turkey, diverse findings emerge. Ghali (1976) shows that the tourism sector does not serve as a measure of welfare in Hawaii. Balaguer and Jorda (2002) find that tourism contributes positively to economic growth in Spain. Oh (2005) demonstrates that the tourism-biased growth hypothesis is not valid for Korea. Pulina and Jimenez (2006) report a cointegrated relationship between tourism and economic growth in Italy and Spain.

Kim et al. (2006) show that tourism significantly impacts economic growth in Taiwan, while Perilla et al. (2007) suggest similar effects for Spain. Jimenez et al. (2009) reveal a relationship between tourism and economic growth in Italy and Spain. Futermore, Katırcıoğlu (2009) demonstrates a relationship between economic growth and tourism revenues in Cyprus. Figini and Pigi (2010) find that tourism-based countries experience faster economic growth compared to non-tourism-based countries in a study spanning over 150 countries. Belloumi (2010) shows that tourism affects economic growth in Tunisia. Katırcıoğlu (2010a) argues that the tourism-led growth hypothesis is valid for Singapore, while in a separate study, Katırcıoğlu (2010b) reports that tourism revenues impact economic growth in Northern Cyprus. Brida and Risso (2010) conclude that tourism positively influences economic growth in South Tyrol, and Brida et al. (2010) find that tourism expenditures affect economic growth in Uruguay. Mello-Sampayo and Sousa-Vale (2010) conclude that tourism impacts economic growth in Northern and Southern Europe. Srinivasan (2012) suggests that tourism revenues affect economic growth in both the short and long run in Sri Lanka. Albaladejo et al. (2014) show that tourism effectively promotes growth in Spain. Muhtaseb and Daoud (2017) reveal that the tourism sector impacts economic growth in Jordan, and Rasool et al. (2021) find a positive relationship between tourism and economic growth in BRICS countries.

An analysis of the literature reveals that studies conducted on both Turkey and other countries consistently demonstrate a relationship between the tourism sector and economic growth. The findings frequently indicate that the tourism sector positively affects economic growth. In this context, this study examines the impact of the tourism sector on economic growth in Turkey using the Balaguer and Jorda (2002) model. By employing a large sample and quarterly data, this study provides a comprehensive analysis of the Turkish economy. The study makes two significant contributions to literature. First, it represents the inaugural effort to analyze the influence of the tourism sector on economic growth in Turkey using a pertinent model. Second, it distinguishes itself by considering the economic disruptions

characteristic of economies experiencing crises, such as Turkey. This approach provides a nuanced understanding of the tourism sector's impact on economic growth within a turbulent economic context.

3. Methodology

The study scrutinizes Türkiye's gross domestic product, tourism expenditures, and exchange rate values spanning from the first quarter of 2003 to the second quarter of 2023.The main reason for preferring quarterly data instead of annual data in the study is the thought that the tourism sector, which is highly affected by seasonality both in the world and in our country, will reveal more accurate results in terms of seeing the effects of the tourism sector in the country's economy. In addition, in terms of the data set, the study includes an analysis with a sample set consisting of 82 data dealing with quarterly data in the current period.

The variables in this study include quarterly data for Turkey's gross domestic product (GDP), measured in Turkish Lira using the expenditure method and based on 2009 constant prices. The data, obtained from the Turkish Statistical Institute (TURKSTAT), spans from the first quarter of 2003 to the second quarter of 2023. The GDP data are converted into US dollars using the exchange rate of the respective periods to maintain consistency in currency units with the other variables. Given that GDP is calculated via the expenditure method, this study employs tourism expenditure data to represent the tourism variable. The tourism expenditures are not seasonally adjusted for two main reasons. First, as discussed in Davidson and MacKinnon's (1993) study, which is frequently cited in the literature, using seasonally adjusted variables, especially in analyzes involving unit root tests, can yield misleading results. This is because unit root tests with seasonally adjusted data tend to produce biased outcomes. Second, because the tourism sector is heavily influenced by seasonality, analyzing non-seasonally adjusted data provides a more accurate depiction of its impact on the economy. Another variable in the model is the real effective exchange rate, with quarterly data covering the period from the first quarter of 2003 to the second quarter of 2023. This exchange rate data is sourced

from the Central Bank of the Republic of Turkey (CBRT). The study analyzes Turkey's GDP, tourism expenditures, and exchange rate data using a model initially proposed by Balaguer and Cantavella-Jorda (2002), which has since been widely adopted in the literature. The model employed in this study is as follows:

$$GSYİH=f(\text{Tourism Expenditure, Exchange Rate}) \quad (1)$$

Equation 1 shows that gross domestic product is the dependent variable while tourism expenditures and exchange rate are the independent variables. This means that gross domestic products are a function of tourism expenditures and exchange rate. The exchange rate variable is also included in the model analysing the relationship between gross domestic product and tourism expenditures. The reason for including the exchange rate variable in the model is that this variable is used in many studies in literature. The exchange rate variable (Balaguer and Cantavella- Jorda, 2002; Belloumi, 2010; Çağlayan et al., 2012 etc.) has been included in the model in many studies. The reason for including this variable in the model in many studies in the literature is that it is an important variable in terms of the necessity of not excluding an important variable from the model and increasing the explanatory power of the model. In the model estimated in the study, the necessity of evaluating the study over logarithmic values in order to provide more accurate results is frequently found in empirical literature. Due to this situation, the logarithm of the variables in the model has been taken. As a result, the necessary analyzes were carried out through the following model:

$$LogGSYİHt=\alpha0+\alpha1logTURHt+\alpha2logDOVt+et \quad (2)$$

In the model used in the analysis, The GDP variable represents Turkey's gross domestic product data in the relevant years, the TURH variable represents Turkey's tourism expenditure data in the relevant years and the DOV variable represents Turkey's real effective exchange rate in the relevant years. In the model, ‘t’ in the dependent and independent variables denotes the time dimension and ‘et’ denotes the error term in the model. The study is a time series analysis. The method used in the study is the Structural Break Cointegration and Causality method.

Cointegration studies represent a commonly employed method within literature for scrutinizing the relationship between variables in time series analysis equations. In their study, Gregory and Hansen (1996) criticised in many ways the studies conducted without taking into account the structural breaks in the studies conducted while performing cointegration analyzes. They emphasised that cointegration analyzes that do not take structural breaks into account are not sufficient to explain the long-run relationships between variables. Gregory-Hansen test is a cointegration test that allows structural breaks. In their study, Gregory and Hansen (1996) state that the structural break dates within the cointegrated vector for the cointegration test are determined endogenously in the equation. The cointegration test that allows structural breaks is based on the Zivot-Andrews Unit Root Test when the Gregory-Hansen cointegration test is fully analyzed. These models obtained in the study are presented as Model A, Model B and Model C as follows: (Gregory and Hansen, 1996: 103).

Model A: $y1t = \mu1 + \mu2\ \phi t\tau\ + \alpha T\ y2t + et$ t= 1,2,…..,n (3)

Model B: $y1t = \mu1 + \mu2\ \phi\ t\tau + \beta t + \alpha T\ y\ 2t + et$ t=1,2,…..,n (4)

Model C: $y_{1t} = \mu_1 + \mu_2\ \phi_{t\tau} + \alpha_1{}^T y_{2t} + \alpha_2{}^T y_{2t} \phi_{tT} + e_t$ t=1,2,…..n (5)

When analyzed in Model A, μ1 in the model represents the constant that occurs before the break, while μ2 represents the change in the constant that occurs after the break period. The other parameter τ, which is a coefficient in the model, is a parameter that can take values between 0 and 1 representing the timing of the break. While $\phi_{t\tau}$ is included in the model as a dummy variable, $\phi_{t\tau} = 1$ when $t > (n_\tau)$, and $\phi_{t\tau} = O$ in the other case. In the equation, α_T represents the coefficient vector for the explanatory variables as a coefficient vector. This model appears as a model that allows a break in the constant.

Although the parameters in Model B serve the same function as the parameters in Model A, βt is also added to this equation. This parameter represents the trend variable in the model. With the added parameter, this model appears as a model that allows a break in both the constant and the trend. In Model C, in addition

to the constant break model in Model A, the parameter α1 represents the cointegration vector that occurred before the regime change, while the parameter α2 represents the change in the cointegration vector that occurred after the regime change. In the Gregory-Hansen cointegration test, Least Squares estimation is performed for each τ value in Model A, B and C Models. Although residuals are obtained from the estimations, Extended Dickey Fuller (ADF) or Philips Perron (1988) test statistics can be calculated from the error terms of Models A, B and C.

Gregory- Hansen (1996) uses the ADF* statistics, Z^*_a statistics and Z^*_t statistics to test the three models. The minimum test statistics obtained in the analysis for each τ value in the model represent the breakpoints in the model as point values (Gregory and Hansen, 1996: 106).

$$Z^*_a = \min_{\tau \epsilon T} Z_\alpha(\tau) \quad (6)$$

$$Z^*_t = \min_{\tau \epsilon T} Z_t(\tau) \quad (7)$$

$$ADF^* = \min_{\tau \epsilon T} ADF(\tau) \quad (8)$$

The decision is made by comparing the breakpoint where the test statistics calculated in the analysis are minimum with the critical value calculated in Gregory-Hansen. In the test, while the null hypothesis (H0) indicates that cointegration does not exist, the alternative hypothesis (H1) states that cointegration does exist. The null hypothesis is rejected when the absolute value of the specified breakpoint exceeds the critical value computed in the Gregory-Hansen test. This outcome signifies the presence of cointegration. Conversely, acceptance of the null hypothesis implies the absence of cointegration.

In time series cointegration analysis involving structural breaks, it is crucial to ascertain the presence of a causality relationship between the variables. Should such a relationship exist, it is imperative to further investigate its nature and implications. Whether the causality between the variables is unidirectional or reciprocal. It is thought that the Granger Causality Test, which is frequently used in causality analyzes in literature, does not give completely accurate results for analyzes with structural breaks. The Toda Yamamoto Causality Test is a method used

to analyze causality between variables in studies that take structural breaks into account.

Toda and Yamamoto (1995) developed a new method based on the Granger Causality Test. This method, which allows to investigate Granger causality based on VAR model estimations, has become a method used in the literature to investigate the causality between variables in studies with structural breaks. This method allows the analysis of the causality relationship between variables regardless of whether the series are stationary or non-stationary. The number of cointegrated vectors among the existing series used in the model affects the validity of the Toda-Yamamoto Causality Test. Toda-Yamamoto (1995) represents the lag length (k) obtained by the VAR model in the causality test. This causality test is sensitive to the maximum number of cointegrated vectors ($d_{maximum}$). After these steps, the analysis is carried out by estimating the VAR model over the lag length value ($k+ d_{maximum}$) based on these values obtained as available (Toda and Yamamoto, 1995: 245-246).

$$yt = \gamma 0 + \sum i=1^{k+dmax} \alpha 1iyt-1 + \sum i=1^{k+dmax} \beta 1iXt-1 + \epsilon 1t \quad (9)$$

$$xt = \gamma 0 + \sum i=1^{k+dmax} \alpha 2iyt-1 + \sum i=1^{k+dmax} \beta 2iXt-1 + \epsilon 2t \quad (10)$$

In the first equation above, y_t equation, the null hypothesis (H_0) in the Toda-Yamamoto Causality test states that x variable is not the Granger cause of y variable, while the alternative hypothesis (H_1) states that it is the Granger cause. In the second equation above, x_t equation, the null hypothesis (H_0) represents that the y variable is not the cause of the x variable, while the alternative hypothesis (H_1) represents that it is the cause. In this test, the decision is made with the help of Wald test by looking at the degrees of freedom k and Chi-Square (X2) table (Yılancı and Özcan, 2010: 28).

4. Empirical Results

Table 1: Augmented Dickey Fuller and Zivot Andrews Test Results

	Gross Domestic Product			**Tourism Expenditures**			**Exchange Rate**	
	T	P	Break	T	P	Break	T Break	P
ADF	-4.18	0.00	-	-3,67	0.03	-	-3.71 -	0.02
ZIVOT ANDREWS (modelC)	-5.78	0.08	2020:1	-8.09	0.00	2020:1	-5.16 2018:3	0.00

*Note: * denotes statistical significance at 10%, ** denotes statistical significance at 5%, *** denotes statistical significance at 1% level.*

In this context, the series exhibits a unit root issue at the level values, prompting the need for remediation. To address this concern, the analysis proceeds by considering the first differences of the series. Table 1, presented above, encapsulates the analyzes conducted based on these first differences. In Table 1, the results of the Extended Dickey Fuller (ADF) Test at first differences show that gross domestic product is significant at 1%, tourism expenditures and exchange rate are significant at 5%. There is no unit root problem in the ADF Test for all series. As a result, all of the series are stationary in the ADF Test performed on the first differences. When the results of Zivot Andrews Test Model C are analyzed, gross domestic product is significant at 10% in Model C. Tourism expenditures and exchange rates are significant at 1%.

Table 2: Gregory Hansen Cointegration Test Result

Model	**ADF**	**Break Date**

Model A	-5.354	2019 (Q4)
Model B	-6.076	2017 (Q1)
Model C	-7.092	2016 (Q4)

The results of the cointegration test for Models A, B, and C are presented in Table 2. This table includes the ADF test statistics and the identified break dates. To determine the outcome of the cointegration test, the obtained values must be compared with the critical values established by Gregory and Hansen in their 1996 study. The critical values provided by Gregory and Hansen (1996) are as follows:

Model A: %1 -5.44 %5 -4.92 %10 -4.69

Model B: %1 -5.80 %5 -5.29 %10 -5.03

Model C: %1 -5.97 %5 -5.50 %10 -5.23

To determine the presence of cointegration, the critical values from Gregory and Hansen's (1996) study are compared with the cointegration results obtained in this study. If the ADF test statistics from this study exceed the critical values from Gregory and Hansen's study, it indicates cointegration between the series; otherwise, it indicates no cointegration. Analyzing the ADF test statistics in absolute terms reveals the existence of a cointegrated relationship at the 5% significance level in Model A and at the 1% significance level in Models B and C. Additionally, the break dates are identified as the fourth quarter of 2019 for Model A, the first quarter of 2017 for Model B, and the fourth quarter of 2016 for Model C. Given that Model C is the most preferred model in literature, it was utilized in this study. Consequently, the results indicate a cointegrated relationship at the 1% significance level.

Table 3: VAR Lags Test Results

Lag	**LogL**	**LR**	**FPE**	**AIC**	**SC**	**HQ**

0	-2659.634	NA	7.52e+28	75.00378	75.09939	75.04180
1	-2403.738	482.9587	7.18e+25	68.04896	68.43139	68.20104
2	-2381.865	39.43311	5.00e+25	67.68634	**68.35558***	67.95248
3	-2365.914	27.40940	4.13e+25	67.49053	68.44659	67.87072
4	-2355.576	16.88982	4.00e+25	67.45284	68.69573	67.94710
5	-2325.347	46.83307	2.23e+25	66.85486	68.38455	67.46317
6	-2305.769	28.67769	1.68e+25	66.55688	68.37340	67.27925
7	-2288.462	**23.88870***	**1.36e+25***	**66.32288***	68.42622	**67.15931***

* indicates lag order selected by the criterion

In the literature, the Toda-Yamamoto causality test is commonly used to examine causality in studies employing the cointegration method with time series that have structural breaks. This test also determines the direction of causality if it exists. While the Gregory-Hansen cointegration method identifies cointegration, it does not provide insights into causality. Therefore, the Toda-Yamamoto causality test is utilized in this study to analyze the causality relationship between the variables. Table 3 is constructed to determine the number of lags needed to perform the Toda-Yamamoto causality test. In this table, an asterisk (*) indicates the number of lags according to the specified criteria: LR denotes the sequential modified LR test statistic (each test at the 5% level), FPE represents the Final Prediction Error, AIC stands for the Akaike Information Criterion, SC is the Schwarz Information Criterion, and HQ denotes the Hannan-Quinn Information Criterion. To determine the number of lags for the Toda-Yamamoto causality test, which is performed to identify causality between variables in time series analyzes with structural breaks, two methods are typically adopted. The first method involves selecting the optimal number of lags based on the most appropriate Akaike Information Criterion (AIC) value. The second method involves determining the lag value that best fits the LR, FPE, AIC, SC, and HQ criteria. In this study, the Toda-Yamamoto causality test is conducted using 7 lags, which provide the most appropriate values. The results of the Toda-Yamamoto causality test, performed with $dmax$=7, are as follows:

Table 4: Toda-Yamamoto Causality Test Results

Causality Direction (Probability)	**χ^2 Statistic**	**P**
Tourism Expenditures → GSYİH	48.93871	0.00
Exchange Rate → GSYİH	12.24487	0.03
GSYİH → Tourism Expenditures	32.67098	0.00
Exchange Rate → Tourism Expenditures	12.38314	0.02
GSYİH → Exchange Rate	5.779329	0.32
Tourism Expenditures → Exchange Rate	5.206185	0.39

Table 4 presents the causality relationships among the variables. Upon analysis at the 5% significance level, causality is observed from tourism expenditures to gross domestic product, from exchange rate to gross domestic product, from gross domestic product to tourism expenditures, and from exchange rate to tourism expenditures. Conversely, there is no discernible causality from gross domestic product to exchange rate, nor from tourism expenditures to exchange rate. Notably, a unidirectional causality is evidenced from the exchange rate to both gross domestic product and tourism expenditures, while a reciprocal causality exists between gross domestic product and tourism expenditures.

5. Conclusion and Suggestions

Historically, societies have engaged in tourism activities since ancient times. However, during the early stages of these endeavors, the direct and indirect contributions of tourism to their economies were often not fully recognized. It was only in later periods that tourism began to be seen as integral to economic development. The onset of the Industrial Revolution marked a pivotal moment when tourism emerged as a recognized economic activity. Following this period, societies gradually acknowledged the positive impact of tourism on their economies. Nonetheless, the trajectory of tourism activities shifted significantly with the onset

of the Second World War, leading to the contemporary stage observed today. Notably, there has been a substantial surge in tourism activities since the post-World War II period, continuing to the present day. The increasing tourism activities following the Industrial Revolution encouraged societies to evaluate the tourism sector as a significant economic activity. Although tourism has gained importance from the past to the present, its significance is expected to grow even more in the future. As an important economic sector, tourism serves as a tool for countries to enhance their economic growth. This is particularly true for developing countries, where the tourism sector contributes significantly to economic growth both directly and indirectly, providing numerous advantages to the economy. However, in addition to the positive economic contributions, tourism activities also have negative impacts on nature and the economy. While the tourism sector is known for its many positive contributions, its adverse effects on the environment, especially through negative externalities, impact both individuals and the economy. Numerous scientific studies have examined the tourism sector, which has increased in importance over time and is expected to play an even greater role in boosting economic growth and development in the future. Although recent studies have intensified, the relationship between tourism and economic growth has been analyzed using various methods.

This study analyzes the relationship between tourism and economic growth using the Gregory-Hansen cointegration method and the Toda-Yamamoto causality analysis. The variables employed in the analysis include gross domestic product (GDP), tourism expenditures, and exchange rates for Turkey, covering the period from the first quarter of 2003 to the second quarter of 2023. Due to the presence of a unit root problem in the level values, the analyzes are performed using the first differences of the series. The results of the Augmented Dickey-Fuller (ADF) test on the first differences indicate that GDP is significant at the 1% level, while tourism expenditures and exchange rates are significant at the 5% level, showing that all series are stationary in their first differences. Additionally, the Zivot-Andrews Test Model C, which accounts for structural breaks, reveals that GDP is significant at the

10% level, and both tourism expenditures and exchange rates are significant at the 1% level. To determine the presence of cointegration, the critical values from the Gregory and Hansen (1996) study are compared with the cointegration results obtained in this study. If the ADF test statistics exceed the Gregory and Hansen values, it indicates cointegration between the series. The ADF test statistics in absolute terms suggest the presence of a cointegrated relationship at the 5% level for Model A and at the 1% level for Models B and C. The break dates are identified as the fourth quarter of 2019 for Model A, the first quarter of 2017 for Model B, and the fourth quarter of 2016 for Model C. Model C, the most preferred model in the literature, is used in this study, indicating a cointegrated relationship at the 1% level. According to the results of the Toda-Yamamoto causality test, there is a causality relationship from tourism expenditures to GDP, from exchange rates to GDP, from GDP to tourism expenditures, and from exchange rates to tourism expenditures. However, there is no causality relationship between GDP to exchange rates or tourism expenditures to exchange rates. Specifically, there is a unidirectional causality from exchange rates to both GDP and tourism expenditures, and a reciprocal causality between GDP and tourism expenditures. These findings suggest that the tourism sector can be a strategic tool for enhancing Turkey's economic growth. Policymakers should incorporate tourism as a key objective in their strategies, emphasizing its potential to boost economic performance. Given Turkey's geographic advantage, with its extensive coastline, marketing efforts should focus on promoting sea, sand, and sun tourism, while also highlighting the country's natural attractions. Additionally, winter tourism should be developed by identifying suitable areas and increasing their international recognition. Furthermore, alternative forms of tourism, such as highland tourism in the Black Sea region and congress tourism in Istanbul, should be supported based on regional potential. Ensuring safety and security within the country is also crucial for creating a welcoming environment for tourists. A well-developed tourism policy, aligned with macroeconomic goals, will not only enhance economic growth but also contribute positively to the tourism

sector, creating a synergistic effect that benefits the overall economy. To maximize the benefits from the tourism sector and use it as a catalyst for economic growth and development, Turkey needs a comprehensive tourism policy that leverages its full tourism potential and aligns with its macroeconomic targets. This approach will ensure that tourism supports economic growth, which in turn will further enhance the tourism sector.

Yazarın Notu

Bu çalışma 'Turizm Sektörünün Ekonomik Büyümeye Etkisi: Türkiye Örneği' yüksek lisans tezinden türetilmiştir.

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References

Albaladejo, I. P., Gonzalez-Martinez, M. I. Martinez-Garcia, M. P. (2014). Quality and Endogenous Tourism: An Empricial Approach, *Tourism Management*, 41, ss. 141147.

Arslantürk, Y., Atan, S. (2012). Dynamic Relationship Between Economic Growth, Foreign Exchange and Tourism Incomes: An Econometric Perspective on Turkey, *Journal of Business, Economics & Finance,* 1(1), ss. 30-37.

Ayas, I., Çallı, S. D. (2022). Turizm Gelirleri ve Ekonomik Büyüme İlişkisine ARDL Sınır Testi ve Zamanla Değişen ARDL Teknikleri ile Ekonometrik Bakış. *Doğuş Üniversitesi Dergisi*, 23(2), 345-361.

Bahar, O. (2006). Turizm Sektörünün Türkiye'nin Ekonomik Büyümesi Üzerindeki Etkisi: VAR Analizi Yaklaşımı, *Yönetim ve Ekonomi Araştırmaları Dergisi*, 13 (2).

Balaguer, J., Jorda, M. (2002). Tourism as a Long-Run Economic Growth Factor: The Spanish Case, *Applied Economics*, 34, ss. 877-884.

Belloumi, M. (2010). The Relationship Between Tourism Receipts, Real Effective Exchange Rate and Economic Grotwth in Tunusia, *International Journal of Tourism Research,* 12, ss. 550-560.

Bozgeyik, Y., Yoloğlu, Y. (2015). Türkiye'de Turizm Gelirleri İle GSYH Arasındaki İlişki, *Uluslararası Sosyal Araştırmalar Dergisi*, 8(40), ss. 627-640.

Bozkurt, E., Topçuoğlu, Ö. (2013). Türkiye'de Ekonomik Büyüme ve Turizm İlişkisi, *Sosyal Bilimler Elektronik Dergisi*, 7, ss. 92-105.

Brida, J. G., Risso, W. A. (2010). Tourism as a Determinant of Long Run Economic Growth'', *Journal of Policy Research in Tourism*, Leisure and Events, 2(1), ss. 14-28.

Brida, J. G., Lanzilotta, B., Lionetti, S., Risso, W. A. (2010). The Tourism-led Growth Hypothesis for Uruguay, *Tourism Economics*, 16(3), ss. 765-771.

Çımat, A., Bahar, O. (2003). Turizm Sektörünün Türkiye Ekonomisi İçindeki Yeri ve Önemi Üzerine Bir Değerlendirme, *Akdeniz Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, (6), ss. 1-18.

Çınar, S. (2018). Turizm Sektörünün Ekonomik Büyüme Etkisi: Türkiye Örneği. Yüksek Lisans Tezi. İzmir.

Demiröz, D. M., Ongan, S. (2005). The Contribution of Tourism to the Long-run Turkish Economic Growth, *Ekonomicky Casopis*, 09, 880.

Dickey, D. A., Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root, *Journal of the American Statistical Association*, 74, ss. 427–431.

Dickey, D. A., Fuller, W. A. (1981), "Distribution of the estimators for autoregressive time series with a unit root", *Econometrica*, 49, ss. 1057-1072.

Emir, G. (2015). Turizm Ekonomisi, *Bartın Üniversitesi Yayınları*, No:24, Bartın Meslek Yüksekokulu Yayın No: 02, ss. 1-73.

Figini, P., Vici, L. (2010). Tourism and Growth in Cross-Section of Countries, *Tourism Economics*, 16(4), ss. 789–805.

Gee, Chuck Y. (Ed.) (1997), International Tourism: A Global Perspective, *World Tourism Organization*

Gee, C. Y. (1997). International Tourism: A Global Perspective, *Dünya Turizm Örgütü (WTO) Yayınları*, Madrid.

Ghali, M. (1976). Tourism and Economic Growth: An Empiricial Study, *Economic Development and Cultural Change*, 24(3), ss. 527-538.

Göymen, K. (2000). Tourism and Governance in Turkey, *Annals of Tourism Research*, 27(4) ss. 10251048.

Gündüz, L., Hatemi-J,A. (2005). Is the Tourism-led Growth Hypothesis Valid for Turkey?, *Applied Economics Letters*, 12(8), ss. 499-504.

Husein, J., Kara, S. M. (2011). Re-examimining the Tourism-Led Growth Hypothesis for Turkey, *Tourism Economics*, 17(4), ss. 917-924

Jimenez, I., Pulina, M. Prunera, C. R., Artis, M. (2009). Tourism and Export as a Means of Growth, Irea Working Papers 200910, *University of Barcelona, Research Institute of Applied Economics*, ss. 128.

Kanca, O.C. (2015). Turizm Gelirleri ve Ekonomik Büyüme: Türkiye Örneği, *Marmara Üniversitesi Sosyal Araştırmalar Dergisi*, (8), ss. 1-14.

Kar, M., Zorkirişçi, E., Yıldırım, M. (2004). Turizmin Ekonomiye Katkısı Üzerine Ampirik Bir Değerlendirme, *Akdeniz Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 4(8), ss. 87-112.

Kasman, A., Kasman, S. (2004). Cointegration and Causality Between Tourism Revenues and Economic Growth, *İktisat İşletme ve Finans Dergisi*, 19(220), ss. 122131.

Katırcıoğlu, S. T. (2009a). Tourism, Trade and Growth: The Case of Cyprus, *Applied Economics*, 41, ss. 2741-2750.

Katırcıoğlu, S. T. (2009b). Testing the Tourism-Led Growth Hypothesis: The Case of Malta, *Acta Oeconomica*, 59(3), ss. 331-343.

Katırcıoğlu, S. T. (2010a). Research note: Testing the Tourism-led Growth Hypothesis for Singapore - an Empirical Investigation from Bounds Test to Cointegration and Granger Causality Tests, *Tourism Economics*, 16(4), ss. 1095- 1101.

Katırcıoğlu, S. T. (2010b). International Tourism, Higher Education and Economic Growth: The Case of North Cyprus, *The World Economy*, Doi:10.1111/j.14679701.2010.0.x.

Kim, H. J., Chen, M-H., Jang, S. (2006). Tourism Expansion and Economic Development: The Case of Taiwan, *Tourism Management*, 27(5), ss. 925-933.

Muhtaseb, B. M. A., Daoud, H. E. (2017). Tourism and Economic Growth in Jordan: Evidence From Linear and Nonlinear Frameworks, *International Journal of Economics and Financial Issues*, 7(1), ss. 215-223.

Oh, C. O. (2005). The Contribution of Tourism Development to Economic Growth in the Korean Economy, *Tourism Management*, 26, ss. 39-44.

Opuş, S. (2001). Turizmin Ekonomik Etkileri: Erzurum'daki Turistik İşletme Belgeli Konaklama Tesislerinde Bir Araştırma, *Atatürk Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 15, 3-4, 3758.

Özdemir, A. R., Öksüzler, O. (2006). Türkiye'de Turizm Bir Ekonomik Büyüme Politikası Aracı Olabilir mi? Bir Granger Nedensellik Analizi, *Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, ss. 107126.

Özışık, T. (2023). Türkiye'deki Turizm Gelirleri ile Ekonomik Büyüme Arasındaki Nedensellik İlişkisi. *Journal of Life Economics*, 10(1), 37-46.

Parrilla, J. C., Font, A. R., Nadal, J. R. (2007). Tourism and Long-Term Growth: A Spanish Perspective, *Annals of Tourism Research*, 34(3), ss. 709-726.

Perron, P. (1989). The Great Crash, the Oil Price Shock, and the Unit Root Hypothesis, *Econometrica,* 57(6), ss.1361-1401.

Perron, P., Phillips P.C.B. (1988), Testing for a Unit Root in Time Series Regression, *Biometrika*, 75, ss. 335-346.

Pulina, J., Jimenez, I. (2006). Tourism and Growth: Evidence for Spain and Italy, 46th Congress of the European Regional Science Association: Enlargement, Southern Europe and the Mediterranean'', 30 Ağustos- 3 Eylül, Volos, Yunanistan.

Rasool, H., Maqbool, S., Tarquie, M. (2021). The Relationship Between Tourism and Economic Growth Among BRICS Countries: A Panel Cointegration Analysis. *Future Business Journal,* 7(1), 1(11).

Samırkaş, M., Samırkaş, M.C. (2014). Turizm Sektörünün Ekonomik Büyümeye Etkisi: Türkiye Örneği, *İşletme Fakültesi Dergisi*, 15 (1), ss. 63-76.

Sampayo-Mello, F., Sousa-Vale, S. (2010). Tourism and Growth in European Countries: An Application of Likelihood- Based Panel Cointegration, *Working Papers Series 1*, 2012/7, ss. 1-22.

Srinivasan, P., Santhosh, P. K., Ganesh, L. (2012). Tourism and Economic Growth in Sri-Lanka An ARDL Bounds Testing Approach, *Environment and Urbanization Asia,* 3(2), ss. 397–405.

Toda, H. Y., Yamamoto, T. (1995). Statistical Inference in Vector Autoregressions with Possibly Integrated Processes, *Journal of Econometrics*, 66(1), ss. 225-250.

TÜİK. ''Turizm İstatistikleri'', http://www.tuik.gov.tr/. (e.t. 05/08/2023).

Türkcan, B. (2015)., 2000'li Yıllarda Türkiye İçin Turizm Yanlı Büyüme Hipotezinin Analizi, *Dokuz Eylül Üniversitesi İİBF Dergisi*, 30 (2).

Yanardağ, M. Ö., Avcı, M. (2012). Turizm Sektöründe İstihdam Sorunları: Marmaris, Fethiye, Bodrum İlçeleri Üzerine Ampirik Bir Çalışma, *Ege Stratejik Araştırmalar Dergisi,* 3(2), ss. 39-62.

Yılancı, V., Özcan, B. (2010). Yapısal Kırılmalar Altında Türkiye için Savunma Harcamaları ile GSMH Arasındaki İlişkinin Analizi, *Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi,* 11(1), ss. 21-33.

Yıldız, Z., Kalağan, G. (2008). Alternatif Turizm Kavramı ve Çevresel Etkileri, *Yerel Siyaset Dergisi*, ss. 42-44.

Zivot, E., Andrews, D. (1992). Further Evidence On The Great Crash, The OilPrice Shock, and The Unit Root Hypothesis, *Journal of Business & Economic Statistics*, 10(3), ss. 251-270.

Zortuk, M. (2009). An Econometric Analysis on the Relationship Between Tourism and Economic Growth: Empirical Evidence from Nepal, *International Journal of Econometrics and Financial Management,* 3(2), ss. 84-90.