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Araştırma Makalesi

Tourism and Economic Growth in Turkey: Fourier Approach

Mustafa Orhan ÖZER

Anadolu Üniversitesi, AÖF, İktisadi ve İdari Programlar Bölümü,
mustafaorhanozer@anadolu.edu.tr , ORCID: 0000-0002-3222-9913

Abstract

This study deals with the relationship between tourism revenues and economic growth in Turkey over the period 2003Q1-2019Q3 within the framework of Fourier approach. The results of the Fourier ADF unit root test show that the two variables are I(1). Upon this, the Fourier ADL and the Hidden Fourier ADL cointegration tests are applied to investigate the existence of long-term relationship among the aforementioned variables. According to the results of cointegration tests, there is a unidirectional long-term relationship running from economic growth to tourism revenues. Finally, long-term coefficients are estimated through the FMOLS method. When economic growth increases 1%, tourism revenues increase 0.67% considering raw data. According to the asymmetric components of the variables, when economic growth increases 1%, tourism revenues increase 1.41%.

Keywords: Tourism Revenues, Economic Growth, Fourier Approach, Turkey
JEL Classification Codes: C22, L83, O40, O50

Türkiye'de Turizm ve Ekonomik Büyüme: Fourier Yaklaşımı

Öz

Bu çalışma Türkiye'de 2003Q1-2019:Q3 dönemi için turizm gelirleri ve ekonomik büyüme arasındaki ilişkiyi Fourier yaklaşımı çerçevesinde ele almaktadır. Fourier ADF birim kök testine ait sonuçlar iki değişkenin de I(1) olduğunu göstermektedir. Bunun üzerine, söz konusu değişkenler arasındaki uzun dönemli ilişkinin varlığını araştırmak için Fourier ADL ve Fourier ADL saklı eşbütünleşme testleri uygulanmıştır. Eşbütünleşme testlerinden elde edilen sonuçlara göre, uzun dönemde ekonomik büyümeden turizm gelirlerine doğru olmak üzere tek yönlü bir ilişki bulunmaktadır. Son olarak, uzun dönem katsayıları FMOLS yöntemi aracılığıyla tahmin edilmiştir. Ham veriler dikkate alındığında, ekonomik büyümede meydana gelen yüzde birlik bir artış turizm gelirlerinin yüzde 0.67 artmasına neden olmaktadır. Değişkenlerin asimetrik bileşenleri dikkate alındığında ise ekonomik büyümede görülen yüzde birlik bir artış turizm gelirlerinin yüzde 1.41 artmasına yol açmaktadır.

Anahtar Kelimeler: Turizm Gelirleri, Ekonomik Büyüme, Fourier Yaklaşımı, Türkiye
JEL Sınıflandırma Kodları: C22, L83, O40, O50

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1. Introduction

There are four different hypotheses regarding the relationship between tourism development and economic growth. The first is the "tourism-led growth hypothesis", which alleges that there is a unidirectional relationship between variables from tourism development to economic growth. According to the "growth-driven tourism" or "supply-side" hypothesis, only economic growth affects tourism (Jackman and Lorde, 2012, p. 206). The third and fourth hypothesis imply that there is a bilateral relationship and no long-term relationship between the relevant variables, respectively. This study attempts to determine which of these four hypotheses is valid for Turkey.

Turkey is among the most important tourism centers of the world because of its ancient history, rich culture and natural wonders. The current account deficit and unemployment rate are at high levels in this country. Tourism revenues play a critical role in reducing these problems. Over and above this, it is generally accepted that tourism promotes economic growth. Under these circumstances, it is not possible to underestimate the potential positive effects of the tourism sector on the Turkish economy. However, as mentioned before, the relationship between tourism and economic growth can occur in different ways.

Tablo 1: Tourism Statistics of Turkey

Years	Tourist Arrivals	Tourism Receipts ($1000)	Average Expenditure ($)	Tourism receipts in GDP (%)
2003	16 463 623	13 854 866	850	4,4
2004	20 753 734	17 076 607	843	4,2
2005	25 045 142	20 322 111	842	4,1
2006	23 924 023	18 593 951	803	3,4
2007	27 239 630	20 942 500	770	3,1
2008	31 137 774	25 415 067	820	3,3
2009	31 759 816	25 064 482	783	3,9
2010	32 997 308	24 930 997	755	3,2
2011	36 769 039	28 115 692	778	3,4
2012	37 715 225	29 007 003	795	3,3
2013	39 860 771	32 308 991	824	3,4
2014	41 627 246	34 305 903	828	3,7
2015	41 114 069	31 464 777	756	3,7
2016	30 906 680	22 107 440	705	2,6
2017	37 969 824	26 283 656	681	3,1
2018	46 112 592	29 512 926	647	3,8
2019	51 747 198	34 520 332	666	4,6

Source: Republic of Turkish Ministry of Culture and Tourism

Tourism industry of Turkey has come a long way in recent years. According to the statistics of Republic of Turkish Ministry of Culture and Tourism (2020), international tourism receipts enhanced from 13.8 billion dollars in 2003 to 34.5 billion dollars in 2019. The number of international tourist arrivals which was 16.4 million in 2003, have reached 51.7 million in 2019. Advantageous exchange rate has been a considerable degree effective in this success (UNWTO, 2020). On the other hand, international tourism receipts grew by 5.9 percent although the number of international tourist arrivals increased by 7.4 percent on average in each year. Moreover, average spending decreased dramatically in this period.

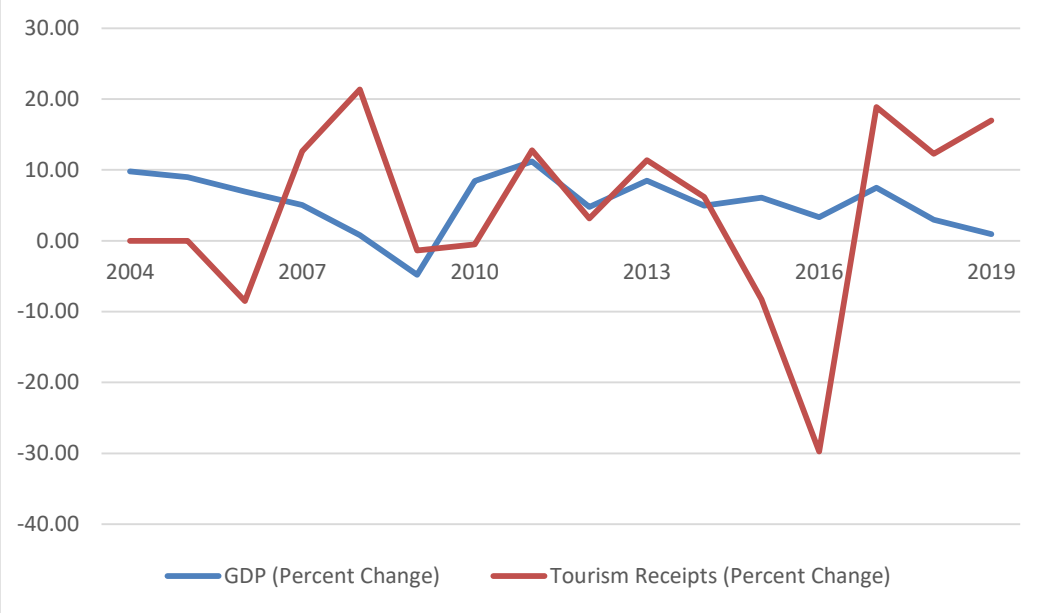

Figure 1: Tourism and Economic Growth in Turkey

Source: Republic of Turkish Ministry of Culture and Tourism (Tourism Receipts) and The Central Bank of the Republic of Turkey (GDP).

Figure 1 shows the relationship between tourism and economic growth in Turkey over the period 2004-2019. During this period, GDP shrank only once due to the global financial crisis of 2008-2009. Tourism receipts were negatively affected by both the global crisis and the aircraft crisis between Turkey and Russia in november 2015. It is estimated that the aircraft crisis cost about 2.1 billion dollars to Turkish tourism (Şahin, Konak and Karaca, 2017, p. 476). The impact of the global crisis was less costly (Gök, Tuna, Binbaşıoğlu and Kuluşaklı, 2012, p. 1057). It is noteworthy that the variables moved together in the 2009-2014 sub-period between the two crises.

Unlike other studies, the Fourier ADL and the hidden Fourier ADL cointegration tests are employed to investigate the relationship between tourism revenues and

economic growth in this study. Cointegration tests based on Fourier functions capture unknown form and number of structural breaks in the variables (Tsong, Lee, Tsai and Hu, 2016, p. 1087). Furthermore, these tests do not need to estimate a large number of parameters (Banerjee, Arcabic and Lee, 2017, p. 115). The hidden Fourier ADL cointegration test separates the asymmetric impacts of the positive and negative components on the long-term relationship between the series (Yılancı, Özgür and Görüş, 2019, p. 2). Therefore, this test not only takes into account structural breaks but also unveils the possible hidden relationships.

The rest of the paper is organised as follows: the second section presents the related empirical literature. The third section gives information about the data and introduces empirical model and econometric methodology. The fourth section reports empirical findings. The last section finalizes the paper.

2. Literature Review

The literature on the relationship between tourism and economic growth can be epitomized as follows:

Durbarry (2004) examines the link between tourism development and economic expansion in Mauritius, a small island country in eastern Africa, utilizing data from 1952 to 1999. The paper employs Johansen cointegration and Granger causality tests. Empirical findings show that tourism development encourages economic growth. Aratuo, Etienne, Gebremedhin and Fryson (2019) examine the relationship between tourism arrivals and GDP in United States over the period 1996:01-2016:03 using monthly data. They use ARDL bound testing approach and Granger causality test. This study reveals that tourism positively affects economic growth not only in the long-term but also in the short-term.

Oh (2005) investigates the relationship between tourism revenues and economic growth in South Korea for the period 1975Q1-2001Q1 through Engle-Granger cointegration and Granger causality tests. According to the cointegration test results, there is no long-term relationship between these variables. However, results of the causality test reveal that there is a one-way causality runs from economic growth to tourism revenues. Phiri (2016) peruses the link between tourism development and economic expansion in South Africa, utilizing data from 1994 to 2014. The study employs Engle-Granger and Enders-Granger cointegration tests. According to the results of Engle-Granger cointegration test, tourist arrivals supports economic growth. However, results of Enders-Granger cointegration test reveal that there is no relationship between the aforementioned variables.

Seetanah (2011) examines the impacts of tourism development on economic growth in 19 island countries for the period 1990 to 2007 using GMM estimator. According to the findings, tourism supports economic growth in these countries.

Furthermore, causality test demonstrates that there is a bidirectional relationship between the two variables. Antonakakis, Dragouni and Filis (2015) analyze the relationship between tourism performance and economic growth in 10 selected European economies during the period 1995-2012 using the spillover index approach. The study provides three important results. The way and size of relationship changes in the course of time. The relationship is shaped by economic crisis. The impact of economic crises on this relationship is more pronounced in weak countries such as Spain, Portugal, Greece and South Cyprus. Sağlam and Egeli (2018) investigate the selected Commonwealth of Independent States (Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan Russia and Ukraine) for the period 1995-2015 with the Durbin-Hausman cointegration and the Dumitrescu-Hurlin causality tests. The first test reveals that the variables are cointegrated and the second test shows that there is only one-way relationship from GDP per capita to tourism receipts.

There are many studies which are examining the relationship between tourism and economic growth for Turkey. Gündüz and Hatemi-J (2005), Zortuk (2009), Polat and Günay (2012), Çoban and Özcan (2013), Bozgeyik (2015), Kaygısız (2015), Özcan (2015), Topallı (2015), Bal, Akça and Bayraktar (2016), Gövdeli (2018), Dereli and Akiş (2019) depict that tourism encourages economic growth. Moreover, Kızılkaya, Sofuoğlu and Karaçor (2016), Altıner (2019) find that this effect is valid both in the short and long-term. However, Kızılgöl and Erbaykal (2008) argues that there is a unidirectional relationship from economic growth to tourism revenues. Bozkurt and Topçuoğlu (2013), Samırkaş and Samırkaş (2014), Kanca (2015), Beşel ve Uyğun (2017), Aytun and Akın (2019), Ballı, Sigeze and Coşkun (2020) explore that there is a bilateral relationship among the variables. On the other hand, Yavuz (2006), Katırcıoğlu (2009), Yamak (2012), Kızılkaya (2018), Bingöl, Pehlivan and Han (2020) reveal that there is no relationship between the relevant variables.

3. Data and Econometric Methodology

3.1. Data

The main goal of this study is to investigate the long-term relationship between tourism revenues (LTR) and economic growth (LY) for Turkey. GDP in chain linked volume by expenditure approach are considered as an indicator of economic growth. The dataset obtained from Electronic Data Delivery System of the Central Bank of the Republic of Turkey are quarterly and covers the period 2003Q1-2019Q3. Both series are in natural logarithms.

3.2. Fourier ADF Unit Root Test

This study utilizes the following Fourier ADF model of Christopoulos and Leon-Ledesma (2010) in order to examine the stationarity of variables:

$$y_t = \delta_0 + \delta_1 sin\left(\frac{2\pi kt}{T}\right) + \delta_2 cos\left(\frac{2\pi kt}{T}\right) + v_t, \qquad \pi = 3.1415 \tag{1}$$

where y_t denote LTR or LY or positive and negative components of these variables. T and t represent number of observations and trend term, respectively. k indicates the number of frequencies and it is a positive integer less than six. The value that minimizes the sum of squares residual (SSR) is defined as the optimal k. This value is determined and then the residues are obtained:

$$\hat{v}_t = y_t - \hat{\delta}_0 + \hat{\delta}_1 sin\left(\frac{2\pi k^* t}{T}\right) + \delta_2 cos\left(\frac{2\pi k^* t}{T}\right) \tag{2}$$

In the next stage, the unit root test is applied on the residues:

$$\Delta v_t = \alpha_1 v_{t-1} + \sum_{j=1}^{p} \beta_j \Delta v_{t-j} + u_t \tag{3}$$

Where p stands for lag length and u_t white noise error term. The null hypothesis implying that the variable contains a unit root and the alternative hypothesis that represents for the opposite are as follows:

$$H_0: \alpha_1 = 0 \tag{4}$$

$$H_1: \alpha_1 < 0 \tag{5}$$

The critical values required for the test are tabulated by Christopoulos and Leon-Ledesma (2010, p. 1083). Finally, F-test is performed to test the significance of trigonometric terms. The hypotheses are as follows:

$$H_0: \delta_1 = \delta_2 = 0 \tag{6}$$

$$H_1: \delta_1 = \delta_2 \neq 0 \tag{7}$$

The null hypothesis implies that trigonometric terms are insignificant. F-test is employed only if the variable is stationary. The critical values required for this test are tabulated by Becker, Enders and Lee (2006, p. 389). If trigonometric terms are insignificant, ADF unit root test is implemented to the variable.

3.3. Fourier ADL Cointegration Test

To investigate the long-term relationship between tourism revenues and economic growth using the Fourier ADL cointegration test, the following equations are taken into account (Banerjee et al., 2017, p. 116):

$$\Delta LY_t = \alpha_0 + \alpha_1 sin\left(\frac{2\pi k^* t}{T}\right) + \alpha_2 cos\left(\frac{2\pi k^* t}{T}\right) + \alpha_3 LY_{t-1} + \alpha_4 LTR_{t-1} + \alpha_5 \Delta LY_{t-1} + \alpha_6 \Delta LTR_{t-1} + e_t \tag{8}$$

$$\Delta LTR_t = \beta_0 + \beta_1 sin\left(\frac{2\pi k^* t}{T}\right) + \beta_2 cos\left(\frac{2\pi k^* t}{T}\right) + \beta_3 LTR_{t-1} + \beta_4 LY_{t-1} + \beta_5 \Delta LTR_{t-1} + \beta_6 \Delta LY_{t-1} + \varepsilon_t \quad (9)$$

where e_t and ε_t are error terms. The k value minimizing the Akaike Information Criteria (AIC) is defined as optimal k. As seen in equations (8) and (9), lags of ΔLY and ΔLTR are included in the model to eliminate possible serial correlation in e_t and ε_t. The hypotheses for this two models are as follows:

$$H_0: \alpha_3 = 0, \qquad H_0: \beta_3 = 0 \quad (10)$$

$$H_1: \alpha_3 = 0, \qquad H_1: \beta_3 = 0 \quad (11)$$

The null hypotheses imply that the variables are not cointegrated while the alternative hypotheses stand for that they are cointegrated. Banerjee et al. (2017, p. 117) recommend that t-statistic are used for the Fourier ADL Cointegration Test. So, the test statistics are identified by:

$$t_{ADL}^F = \frac{\hat{\alpha}_3}{se(\hat{\alpha}_3)}, \qquad t_{ADL}^F = \frac{\hat{\beta}_3}{se(\hat{\beta}_3)} \quad (12)$$

where $\hat{\alpha}_3$ and $\hat{\beta}_3$ are the ordinary least squares estimators of α_3 and β_3, respectively. $se(\hat{\alpha}_3)$ and $se(\hat{\beta}_3)$ are standart errors of $\hat{\alpha}_3$ and $\hat{\beta}_3$. The critical values required for this test are tabulated by Banerjee et al. (2017).

3.4. Hidden Fourier ADL Cointegration Test

Yılancı et al. (2019) suggest the hidden Fourier ADF cointegration test to unveil the hidden relationship between the variables. To show this test, LY_t and LTR_t are identified by (Yılancı et al., 2019, p. 3):

$$LY_t = LY_{t-1} + e_t = LY_0 + \sum_{i=1}^{t} e_i^+ + \sum_{i=1}^{t} e_i^- \quad (13)$$

$$LTR_t = LTR_{t-1} + \varepsilon_t = LTR_0 + \sum_{i=1}^{t} \varepsilon_i^+ + \sum_{i=1}^{t} \varepsilon_i^- \quad (14)$$

where e_i^+, ε_i^+ symbolize positive components and e_i^-, ε_i^- negative components. LY_0 and LTR_0 stand for the start values for LY and LTR, respectively. Positive and negative components are identified in a cumulative form as follows:

$$LY_t^+ = \sum_{i=1}^{t} e_i^+, LY_t^- = \sum_{i=1}^{t} e_i^-, LTR_t^+ = \sum_{i=1}^{t} \varepsilon_i^+, LTR_t^- = \sum_{i=1}^{t} \varepsilon_i^- \quad (15)$$

The following equations are taken into account to run the hidden Fourier ADL cointegration test (Yılancı et al., 2019, p. 4):

$$\Delta LY_t^+ = \alpha_0 + \alpha_1 sin\left(\frac{2\pi k^* t}{T}\right) + \alpha_2 cos\left(\frac{2\pi k^* t}{T}\right) + \alpha_3 LY_{t-1}^+ + \alpha_4 LTR_{t-1}^+ + \alpha_5 \Delta LY_{t-1}^+ + \alpha_6 \Delta LTR_{t-1}^+ + \zeta_t \quad (16)$$

$$\Delta LTR_t^+ = \beta_0 + \beta_1 sin\left(\frac{2\pi k^* t}{T}\right) + \beta_2 cos\left(\frac{2\pi k^* t}{T}\right) + \beta_3 LTR_{t-1}^+ + \beta_4 LY_{t-1}^+ + \beta_5 \Delta LTR_{t-1}^+ + \beta_6 \Delta LY_{t-1}^+ + \eta_t \quad (17)$$

$$\Delta LY_t^- = \gamma_0 + \gamma_1 sin\left(\frac{2\pi k^* t}{T}\right) + \gamma_2 cos\left(\frac{2\pi k^* t}{T}\right) + \gamma_3 LY_{t-1}^- + \gamma_4 LTR_{t-1}^- + \gamma_5 \Delta LY_{t-1}^- + \gamma_6 \Delta LTR_{t-1}^- + \xi_t \quad (18)$$

$$\Delta LTR_t^- = \theta_0 + \theta_1 sin\left(\frac{2\pi k^* t}{T}\right) + \theta_2 cos\left(\frac{2\pi k^* t}{T}\right) + \theta_3 LTR_{t-1}^- + \theta_4 LY_{t-1}^- + \theta_5 \Delta LTR_{t-1}^- + \theta_6 \Delta LY_{t-1}^- + \varsigma_t \quad (19)$$

where ζ_t, η_t, ξ_t and ς_t symbolize error terms. The procedure which is practiced in the next steps is identical to the Fourier ADL cointegration test (Yılancı et al., 2019).

4. Empirical Findings

Banerjee et al. (2017) stated that all variables must be integrated I(1), which is a required specification for the Fourier ADL cointegration test. Therefore, the Fourier ADF unit root test is applied to examine whether the two variables contain a unit root or not and the results are provided in Table 2.

Table 2: Fourier ADF Unit Root Test Results

Variables	k	Min SSR	Fourier ADF	ADF	F-statistic
LY	1	1.793	-1.862		45.102*
LTR	1	3.671	-1.269		21.817*
DLY	3	0.006	-3.179**		10.047*
DLTR	2	0.637	-6.212*	-5.983*	3.988

Note: *, ** indicate that the null hypothesis is rejected at the 1% and 5% significance levels, respectively. Fourier ADF critical values are -4.43 (1%), -3.85 (5%), -3.52 (10%); -3.95 (1%), -3.28 (5%), -2.91 (10%); -3.70 (1%), -3.06 (5%), -2.71 (10%) for k=1, k=2 and k=3, respectively. Critical values for F-test are 6.730 (1%), 4.929 (5%) and 4.133 (%10).

As can be seen in Table 2, the Fourier ADF unit root test results show that LY and LTR are not stationary at the levels. Then, the Fourier ADF unit root test is applied for DLY and DLTR, which are the first difference of LY and LTR, respectively. According to the F-test, trigonometric terms are significant for all variables except DLTR. Thus, the ADF unit root test is performed for this variable. To summarize, results obtained from stationary analysis demonstrate that the two variables are I(1). Accordingly, it is possible to run the Fourier ADL

cointegration test to investigate the existence of the long-term relationship between LY and LTR.

Table 3: Fourier ADL Cointegration Test Results

Dependent Variable	Independent Variable	k	Lag of Dependent Variable	Lag of Independent Variable	Min AIC	Fourier ADL Cointegration Test Statistic
LY	LTR	1	1	1	-6.976	-1.635
LTR	LY	2	1	3	-3.894	-3.811**

Note: ** indicates that the null hypothesis is rejected at the 5% significance level. Fourier ADL critical values are -4.73 (1%), -4.09 (5%), -3.76 (10%) for k=1 and -4.44 (1%), -3.75 (5%), -3.37 (10%) for k=2.

Table 3 illustrates the results of the Fourier ADL cointegration test. The null hypothesis implying that variables are not cointegrated is not rejected in the first model where LY is the dependent variable. On the other hand, LTR is the dependent variable in the second model and the null hypothesis is rejected. Fourier ADL cointegration test results reveal that there is a unidirectional long-term relationship from LY to LTR.

This study also employs hidden Fourier ADL cointegration test to determine the possible hidden long-term relationship between tourism revenues and economic growth. Yılancı et al. (2019) emphasized that positive and negative components of the variables must be integrated I(1) to carry out this test like Fourier ADL cointegration test. Thus, the Fourier ADF unit root test is performed for these components, and results in presented Table 4.

Table 4: Results of Fourier ADF Unit Root Test for Positive and Negative Components

Variable	k	Min SSR	Fourier ADF	ADF	F-statistic
LY^+	1	2.087	0.041		50.197*
LTR^+	1	8.700	-2.645		20.406*
LY^-	1	0.026	-0.808		69.805*
LTR^-	1	2.160	-1.660		27.792*
DLY^+	3	0.003	-3.018***		11.439*
$DLTR^+$	1	0.554	-6.179*	-6.024*	3.350
DLY^-	5	0.001	-3.773*	-3.606*	4.127
$DLTR^-$	5	0.039	-4.296*		5.206**

Note: *, **, *** indicate that the null hypothesis is rejected at the 1%, 5% and 10% significance levels, respectively. Fourier ADF critical values are -4.43 (1%), -3.85 (5%), -3.52 (10%); -3.70 (1%), -3.06 (5%), -2.71 (10%); -3.55 (1%), -2.90 (5%), -2.56 (10%) for k=1, k=3 and k=5, respectively. Critical values for F-test are 6.730 (1%), 4.929 (5%) and 4.133 (%10).

Table 4 shows that all positive and negative components have a unit root at the levels. We then implement again the Fourier ADF unit root test to these components at the first differences. However, according to the F-test, null hypothesis is not rejected for $DLTR^{+}$ and DLY^{-}. So, the ADF unit root test is applied for these components. The results of stationary analysis indicate that all four components are I(1). Thereby, it is possible to utilize the hidden Fourier ADL cointegration test to examine the presence of hidden relationship between the variables.

Table 5: Hidden Fourier ADL Cointegration Test Results

Dependent Variable	Independent Variable	k	Lag of Dependent Variable	Lag of Independent Variable	Min AIC	Hidden Fourier ADL Cointegration Test Statistic
LY^{+}	LTR^{+}	1	1	1	-7.514	-1.238
LTR^{+}	LY^{+}	2	1	3	-4.601	-3.997**
LY^{-}	LTR^{-}	1	3	1	-8.349	-2.637
LTR^{-}	LY-	2	1	3	-4.830	-1.600

Note: ** indicates that the null hypothesis is rejected at the 5% significance level. Hidden Fourier ADL critical values are -4.73 (1%), -4.09 (5%), -3.76 (10%) for k=1 and -4.44 (1%), -3.75 (5%), -3.37 (10%) for k=2.

The results from hidden Fourier ADL cointegration test are illustrated in Table 5. This test demonstrates that there is no cointegration considering negative components because the hidden Fourier ADL cointegration test statistics are smaller than critical values in absolute value. On the other hand, there is a unidirectional long-term relationship running from LY^{+} to LTR^{+}. This finding is similar to the results from the Fourier ADL cointegration test. Finally, the long-run coefficients are estimated by the FMOLS estimator and are reported in Table 6.

Table 6: Results of FMOLS Method

Dependent Variable	Independent Variable	Coefficient	Standard Error	t-statistic
LTR	Constant	-5.741	3.125	-1.836***
	LY	0.677	0.160	4.232*
LTR^{+}	Constant	1.056	0.050	20.796*
	LY^{+}	1.415	0.086	16.424*

Note: *, *** indicate statistical significance at 1% and 10%, respectively.

Table 6 shows that all estimated coefficients are significant. When the LY increases 1%, the LTR increases 0.67% considering raw data. According to the asymmetric components of the variables, when LY increases 1%, LTR increases 1.41%. So, economic growth has a positive impact on tourism revenues in Turkey.

5. Conclusion

This paper attempts to analyze the relationship between tourism revenues and economic growth in Turkey for the period 2003Q1-2019Q3. Firstly, the Fourier ADF unit root test is run to investigate the stationarity of the variables. The results of the unit root test indicate that both variables are stationary at the first variations while they have a unit root at the levels. Then, the Fourier ADL unit root test is implemented to examine the relationship among the aforementioned variables. The results reveal that there is a unidirectional long-term relationship running from economic growth to tourism revenues. The hidden Fourier ADL cointegration test also confirms these findings. Finally, the FMOLS method is employed to estimate long-term coefficients. One percent increase in economic growth leads to 0.67 percent and 1.41 percent increase in tourism revenues in the context of raw data and positive components, respectively.

This study shows that tourism-led growth hypothesis is invalid for Turkey in long-term. In other words, the increase or decrease in tourism revenues does not have a direct impact on economic growth. Therefore, it is not recommended to prefer tourism policies to promote economic growth as a policy tool. On the other hand, the results reveal that supply-side hypothesis is valid in Turkey, supporting the findings of Kızılgöl and Erbaykal (2008). Economic growth positively affects tourism receipts. For this reason, Turkey should focus on sustainable and stable economic growth to achieve more tourism revenues. For further studies in this topic, the reasons why tourism receipts do not encourage economic growth can be investigated and it may be useful to search for solutions.

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