

## Are Number Of Tourist Arrivals The Driving Force Of Economic Growth in Mediterranean Countries?: Augmented Mean Group Estimator <sup>1</sup>

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### Abstract

This paper investigates the relationship between tourist arrivals and economic growth in selected Mediterranean countries. The annual data consider the number of tourist arrivals, real effective exchange rate and economic growth for the period of 1995-2017. In the study, the coefficient estimates of each country are made by using the Augmented Mean Group (AMG) estimator. Prior to applying these tests, cross-sectional dependence and homogeneity tests were implemented. The AMG estimator results show that the number of tourist arrivals has a positive impact on economic growth. Empirical results show that tourist arrivals have positive impact on economic growth for France, Malta, Spain, Cyprus, Morocco, and Tunisia. According to the study findings, it can be expressed that the tourism policies applied in these countries increase the number of tourist arrivals. Additionally, it is found no significant effect for Greece, Italy, and Israel.

**Keywords:** Tourism, Economic Growth, Cross-Sectional Dependence, Augmented Mean Group Estimator, Mediterranean Countries.

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## **Turist Varış Sayısı Akdeniz Ülkelerinde Ekonominin İtici Gücü Müdür? : Arttırılmış Ortalama Grup Tahmincisi**

### **Öz**

Bu makalede, seçilmiş Akdeniz ülkelerinde turist varışları ile ekonomik büyüme arasındaki ilişki araştırılmaktadır. Yıllık veriler 1995-2017 dönemi için turist varış sayısını, reel efektif döviz kurunu ve ekonomik büyümeyi dikkate almaktadır. Çalışmada, her ülkenin katsayı tahminleri Arttırılmış Ortalama Grubu (AMG) tahmincisi kullanılarak yapılmıştır. Bu testlerin uygulanmasından önce yatay kesit bağımlılığı ve homojenlik testleri yapılmıştır. AMG tahmincisi sonuçları turist varış sayısının ekonomik büyüme üzerinde olumlu bir etkisi olduğunu göstermektedir. Ampirik sonuçlar, turist girişlerinin Fransa, Malta, İspanya, Kıbrıs, Fas ve Tunus için ekonomik büyüme üzerinde olumlu etkisi olduğunu göstermektedir. Araştırma bulgularına göre, bu ülkelerde uygulanan turizm politikalarının turist varış sayısını arttırdığı ifade edilebilir. Ayrıca Yunanistan, İtalya ve İsrail için anlamlı bir etki bulunmadı.

**Anahtar Kelimeler:** Turizm, Ekonomik Büyüme, Yatay Kesit Bağımlılığı, Arttırılmış Ortalama Grup Tahmincisi, Akdeniz ülkeleri.

### **INTRODUCTION**

Countries with comparative advantages in terms of cultural traditions, historical artifacts or natural beauties tend to tourism as they contribute to the growth of their economy and diversify the economy. The biggest benefit of international tourism for countries is that it provides foreign currency inflow to countries, creates employment and supports the gross national product. Economists emphasize that the revenues from international tourism contribute to the economy of the country as much as the income from exports of goods in the development of the economy. It is suggested that tourism will be the determinant of economic growth, especially when the revenues from tourism were to be used for capital investment and intermediate goods imports, which will increase the country's production of goods and services (McKinnon, 1964: 389; Sinclair, 1998:2; Li et al., 2018: 135). In addition, tourism revenues contribute to growth through direct / indirect interaction with other sectors of the economy by creating a multiplier effect in the economy (Khan et.al, : 1990: 409; Aslan, 2014: 363).

In econometric studies, the effects of tourism-led growth hypothesis are divided into four sub-hypotheses and analyzed. The first one is the growth

hypothesis that contributes to the growth process in the economic output by the developments in the tourism sector by activating other production processes. The second one is the conservation hypothesis. The conservation hypothesis suggests that economic growth brings movement to the tourism sector. The third one is the feedback hypothesis that suggests that there is a two-way relationship between tourism and economic growth. According to this hypothesis, tourism and economic growth feed each other mutually. Lastly, according to the fourth sub-hypothesis, which is the neutrality hypothesis, there is no relationship between the tourism sector and economic growth (Tuğcu, 2014: 207; Dođru ve Bulut, 2018:428). After the permeation of the tourism globally, understanding the relationship between tourism and economic growth has attracted the attention of many academics. Application examples that have been tried to put together by Pablo Romero-Molina (2013), Brida et.al. (2016), Gwenhure and Odhiambo (2017) are proof that a wide literature has been created on the subject.

International tourism has been accelerating for the last ten years with technological developments, new business models, affordable travel expenses and the effect of the growing middle class in developing economies. According to UNWTO Tourism Highlights (2019) tourism exports have grown faster than exports of goods in the last seven consecutive years, reducing the trade deficit in many countries. Compared to 2017, tourism export growth in 2018 was 4% and growth in goods exports was 3%. In 2017, the global tourism industry became the world's third-largest export category after the chemicals (\$ 1.993 trillion) and fuels (\$ 1.996 trillion) sectors. According to UNWTO, in 2018, export revenues from tourism reached 1.7 trillion US dollars and international tourist arrivals reached 1.4 billion. The divergence of the growth trend in the tourism sector by differentiating it from the development of the global economy attracts the attention of economists. Therefore, understanding the relationship between tourism and economic growth remains an attractive area that does not lose its importance.

The Mediterranean Sea area in the development of international tourism, hosting 40% of the world tourists in 2018, is the world's leading attraction region in terms of international and domestic tourism. Increasing the number of visits of both foreign tourists and domestic tourists annually accelerates the income flow to the country and positively affects economic growth. The Mediterranean countries, which has different development models, socio-cultural and political systems, has a common tourism characteristics, has a warm climate, sea, sand and sun trilogy and carries the traces of the world's oldest culture. (Apostolopoulos et. all., 2014:5; Gao et.all, 2019: 2).. This region is located in the Northern European countries, such as France, Italy, Spain, Greece, Turkey are the leaders of the world in terms of high income levels gained from tourism and the number of tourists they host. Additionally, in recent years, Morocco,

Tunisia, Algeria from the African region and Egypt, Cyprus, Malta from the Asian region not only have their tourism revenues captured high growth figures in GDP but also their employment rates increased in the industry. Because of this reason, this study focuses on Mediterranean countries as its application area. Lanquar (2011), states that despite the global economic crisis, security risks, natural disasters, increases in oil prices and economic uncertainties in the region, Mediterranean countries such as Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia, and Turkey record high growth rates. In the selected countries for the study, the number of arrivals decreased in France, Greece, Spain, Cyprus, Israel due to the impact of the 2007-2008 global economic crisis, and in Tunisia with the effect of the Arab Spring in 2011. Changes in the number of tourist arrivals also reflected international tourism revenues. However, the number of tourist arrivals and tourism revenues constantly increase. Accordingly, Moroccan tourism revenues and the number of arrivals are constantly increasing.

In the study, it is aimed to determine the causality aspect and degree of the relationship between tourism and economic growth in selected countries that have a coast to the Mediterranean by using panel data method. Following the introduction, the literature review section is included in the second part of the study. The third section presents data and methodology. The fourth section describes the empirical analysis results. Lastly, the final section includes results and policy implications.

### **LITERATURE REVIEW**

After the 1950s, the globalization of tourism became popular and tourism revenues has been started to be evaluated among export items for national economies. Hence, understanding the relationship between tourism and economic growth attracted the attention of many academics.

Ghali (1976), the first researcher who examined the relationship between tourism and economic growth, in the literature, concluded that personal income would be 17% lower if there were no tourism activities in Hawaii for the period 1953-70 with the least squares method. Balaguer and Cantavella-Jordà (2002), referring to the export-led growth hypothesis of Balassa (1978), who stated that the increase in export revenues was also effective in the process of economic growth as well as labor and capital, suggested the tourism-led growth hypothesis and that the validity of this hypothesis. They analyzed the validity of this hypothesis for the Spanish economy and concluded that there is a stable, one-way relationship between tourism and economic growth in Spain.

In their study, Gündüz and Hatemi-J (2005) employ tourist arrivals in Turkey, GDP, and exchange rate data and concluded that there is causality from tourism

to economic growth for the Turkish economy. Kim et al. (2006) find a two-way causality between gross domestic product and international tourist arrivals in Taiwan for the period of 1971-2003. Brida and Risso (2009) find a one-way causality from tourism spending to real exchange rate and real GDP in the Johansen co-integration and Granger causality analysis conducted in Chile for the period of 1988-2008 with GDP, tourism expenditures and exchange rate data. Akan and Işık (2009) find a one-way causality from tourism to economic growth in Turkey for the period of 1970-2007 by using economic growth and tourism revenue data. Bahar (2010), examines the relationship among foreign direct investment provided to the tourism sector in Turkey, the exchange rate, employment, and economic growth for the period of 1986-2006. As a result of the analysis, it has been concluded that there is a causality relationship from tourism to economic growth in the long term. According to this study, the increase in capital and labor factors in the tourism sector will also be the source of growth. Mishra et al. (2011), employ real gross domestic product (GDP), earnings from tourism, and foreign tourist arrivals data in the economy of India for the period of 1978 – 2009. As a result of Johansen co-integration and Granger causality analysis, they determine a causality relationship from tourism revenues to economic growth in the long term even though there was no balance in the short term between the variables. Tang and Tan (2015) questioned the validity of the growth hypothesis in Malaysia with the annual data of 1975- 2011 using a multivariate model derived from the Solow growth theory. Tourism has a positive effect on Malaysia's economic growth in both the long and short run, and the Granger causality test shows that tourism is the Granger cause of economic growth. Kızılkaya et al. (2016), investigates the relationship between tourism and economic growth in Turkey for the period of 1980-2014 by using the GDP, tourism revenues and the number of international tourists. According to ARDL boundary test and long-term co-integration coefficient estimates, it has been found that long-term and short-term tourism revenues affect economic growth positively. Aratuo and Etienne (2019) investigate the relationship between six sub-sector of tourism and economic growth in the U.S. for the period of 1998-2017. Within the framework of the ARDL method, Toda-Yamamoto and Augmented Granger causality tests are applied. Apart from the accommodation and food and beverage sectors, there was no long-term relationship between other subsidiary tourism sectors and economic growth. They have demonstrated a one-way Granger causality from economic growth to each of the sub-sectors of tourism.

In addition to the studies that employ the time-series analysis method and confirm the tourism-led growth hypothesis; in the literature, there are also analyses in which there is no evidence of the relationship between tourism and growth. Oh (2005), in the causality relationships between tourism and economic growth in Korea; according to the co-integration test, he could not find a long-

term relationship between the tourism revenues and real gross domestic product data of 1975: Q1 - 2001: Q1 period. He found a one-way causality relationship from gross domestic product to tourism in the Granger causality test. In his article, Katırcıoğlu (2009), uses the data of real GDP, the total number of international tourists, and real exchange rates for the period of 1960-2006 and could not find a long-term relationship between economic growth and tourism in Turkey and; therefore, rejects the validity of led growth hypothesis for Turkey.

Literature examples using the panel data method, which allows working with more country groups, are as follows: Lanza et al. (2003) are the first researchers to examine the relationship between tourism and economic growth in OECD's thirteen countries using panel data analysis. For the period of 1977-1992, they used variables such as gross national product, number of tourists, total spending, and tourism prices and gained the finding that there was a causality relationship from economic growth to income.

Eugenio-Martín et al. (2004) applied the Arellano-Bond estimator test for the period of 1985- 1998 from twenty-one Latin American countries. Latin American countries have been divided into three different groups according to GDP per capita. They found that tourism is associated with economic growth only in low-income and middle-income countries, and the relationship between tourism and economic growth in high-income countries is uncertain.

Fayissa et al. (2008) concluded that tourism revenues had a significant impact on economic growth in the 1995-2004 period in forty-two Sub-Saharan African countries, as well as affecting physical and human capital investments positively. Lee and Chang (2008) studied the 1990-2002 period of 23 OECD members and 32 non-OECD countries. They found that tourism development had a higher impact on GDP in non-OECD countries than in OECD countries.

In the analysis covering ninety-four countries, Sequeira and Maças Nunes (2008) stated that tourism is a positive determinant of economic growth both in a wide sample of countries and in the case of poor countries.

Narayan et al. (2010), as a result of Pedroni panel co-integration, FMOLS and Granger causality analyses in Pacific Island countries for the period of 1988-2004, they concluded that real GDP is the Granger cause of tourism for the short-run and in the long-run tourism exports are the real GDP's Granger cause.

Samimi et al. (2011) examined the causality and long-term relationship between economic growth and tourism development in developing countries for the period of 1995-2009. The findings reveal a two-way causality and a long-term positive relationship between economic growth and tourism development.

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In his study, Chou (2013) examined the causality relationship between tourism spending and economic growth in 10 transition countries for the period of 1988-2011. In the empirical results, 3 of the 10 transition countries (i.e. Bulgaria, Romania, and Slovenia) were found to be the neutral hypothesis. For Cyprus, Latvia and Slovakia the growth hypothesis was valid and the tourism-led growth hypothesis was valid for the Czech Republic and Poland. The feedback hypothesis is also valid for Estonia and Hungary.

Aslan (2014) analyzed the relationship between tourism and economic growth in Mediterranean countries for the period of 1995-2010 using the panel causality method. In the analysis, while there was a two-way relationship between tourism and economic growth in Portugal, no causality relationship was detected between the two variables in Egypt and Malta. In Spain, Tunisia, Italy, Cyprus, Croatia, Bulgaria and Greece, one-way causality relationship has been determined from economic growth to tourism. Growth-based tourism hypothesis was determined in seven countries. Panel group test results support the economic growth-based hypothesis in the Mediterranean regions.

Bilen et al. (2017) investigated the relationship between tourism and economic growth for the Mediterranean countries for the period of 1995-2012. While the findings of Dumitrescu Hurlin causality test indicate the causality relationship from tourism to economic growth, the panel Granger causality test in the frequency domain test confirms the presence of a two-way relationship.

Wu and Wu (2019) conducted a multivariate panel Granger causality analysis with data for the period 1995-2016 in 11 Asian countries. In the analysis using international tourist arrivals, capital formation, and real GDP variables, there was a causality relationship in Macau and Singapore, while evidence of tourism-growth relationship was found in others.

Mitra (2019) conducted Dumitrescu and Hurlin panel causality test with data of international tourist arrivals, tourism income, tourism expenditure, GDP and exchange rate data for 158 countries of 158 countries. According to the results of the analysis, the three sub-samples revealed a two-way causality relationship between tourism revenues and economic growth.

There are also some studies that have not found evidence regarding the relationship between tourism and economic growth that have been revealed by the panel data method. Some of the examples of these studies are as follows:

Ekanayake and Long (2012) investigated the economic growth and development of tourism in developing countries for the period of 1995-2009. They found no evidence supporting the tourism-based growth hypothesis. It was stated that although the elasticity of tourism income relative to real GDP is not

statistically significant for all regions, tourism income contributes positively to economic growth in developing countries.

Du et al. (2016) developed a tourism growth model as an extension of Solow's (1956) economic growth model and tried to estimate for 109 countries. Findings showed that investments made in tourism sector alone are insufficient for economic growth.

In the analysis of bootstrap rolling window Granger causality, Shahbaz et al. (2018) stated that the causal connections between the development of tourism and economic growth to the international tourism volume of the 1990-2015 period and GDP variables in both countries in terms of size and direction are not stable.

Antonakakis et al. (2019) applied Panel VAR and Panel causality analyses to the 1995-2014 period data of 113 countries in the WHS (World Heritage Site) list. They benefited from a wide range of variables such as tourism income per capita, tourism expenditures, tourist arrivals, GDP, policy index and tourism competition index. As a result, they could not confirm if the tourism-led hypothesis applies to these countries. However, they have obtained some evidence supporting the economic-driven tourism growth hypothesis.

In studies examining the relationship between tourist arrivals, tourist income and economic growth, the results obtained vary according to countries, time and methods. However, it is a common belief that tourist arrivals and tourism revenues are an important determinant of economic growth. Unlike the studies that generally examine the causality relationship, in this study coefficient estimates are made for countries.

## **DATA**

The aim of this study is to investigate the relationship between the number of tourism arrivals, real effective exchange rate and real GDP growth in selected Mediterranean countries. The data is obtained from the World Development Indicators database for the period of 1995-2017. Selected ten Mediterranean countries are Croatia, France, Greece, Italy, Malta, Spain, Cyprus, Israel, Tunisia, and Morocco. The variables used in the analysis are listed below:

GDP: GDP per capita at 2010 US dollar constant prices

TA: International tourism, number of tourist arrivals,

EXC: real effective exchange rate

All the variables except real exchange rate are in natural logarithms. The regression model used in the analysis is shown below:

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$$\ln GDP_{i,t} = \beta_1 + \beta_2 \ln TA_{i,t} + \beta_3 EXC_{i,t} + u_{it} \quad (1)$$

i: 1,2...N; t: 1995...2017

$u_{it}$ : the error term;

**METHODOLOGY**

The first step of the analysis to investigate whether cross sectional dependence or not and slope homogeneity test. After given the cross sectional dependence and slope homogeneity, AMG (Augmented Mean Group) estimator is applied. In the study, first of all, horizontal cross-section dependence test was applied among the countries and secondly, the long-term relationship among the variables was estimated. The first of the cross-section dependence tests, which is Breusch-Pagan (1980) developed the LM test, can be written as the following:

$$LM = T \sum_{i=1}^{N-1} \sum_{j=i+1}^N \check{P}_{ij}^2 \quad (2)$$

$\check{P}_{ij}^2$  is the estimated dual correlation of residuals. In the horizontal cross-section dependence test, in LM test statistics developed by Breusch-Pagan (1980), the time dimension is larger than the horizontal cross-section size.

$$CD_{LM} = \sqrt{\frac{1}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T \check{P}_{ij}^2 - 1)} \quad (3)$$

In the CD (cross-section dependence) test developed by Pesaran (2004), the horizontal section size is larger than the time dimension. The formulation of the CD test;

$$CD = \sqrt{\frac{2T}{N(N-1)} \left( \sum_{i=1}^{N-1} \sum_{j=i+1}^N \check{P}_{ij} \right)} \quad (4)$$

$\check{P}_{ij}$  refers to the double correlation between horizontal cross-section units in the CD test. In the CD test, is deviated because while the group average is zero, the individual average is different from zero.  $LM_{ADJ}$  tests developed by Pesaran et al. (2008), both time and horizontal cross-section size is large. The equation for the deviation corrected  $LM_{ADJ}$  test, one of the last tests to test the cross-sectional dependence, is as follows:

$$LM_{adj} = \sqrt{\left(\frac{2T}{N(N-1)}\right)} \sum_{i=1}^{N-1} \sum_{j=i+1}^N \check{F}_{ij}^2 \frac{(T-k)\beta_{ij}^2}{\sqrt{v_{Tij}}} \mu_{Tij} \sim N(0,1) \quad (5)$$

In the LMadj test,  $\mu_{Tij}$  represents the mean and  $v_{Tij}$  represents the variance. In the LMADJ test developed by Pesaran et al. (2008), the asymptotic standard has normal distribution under the null hypothesis when  $T \rightarrow \infty$  and  $N \rightarrow \infty$ .

Within the scope of these tests, the following hypotheses are tested:

Ho: No cross-sectional dependence.

H<sub>1</sub>: There is a cross-section dependence.

The null hypothesis in the slope homogeneity test is  $H_0 = \beta_i = \beta$  for all i's.

H<sub>1</sub> =  $\beta_i \neq \beta_j$  For the F test, the horizontal cut size (N) is relatively small, and the time dimension (T) is relatively larger. Formulation of test statistics developed by Pesaran and Yamagata (2008) for large and small samples:

$$\text{For large samples: } \check{\Delta} = \sqrt{N} \left( \frac{N^{-1}\check{S} - k}{\sqrt{2k}} \right) \quad (6)$$

$$\text{For small samples: } \check{\Delta}_{adj} = \sqrt{N} \left( \frac{N^{-1}\check{S} - E(\check{z}_{it})}{\sqrt{\text{var}(\check{z}_{it})}} \right) \quad (7)$$

In order to investigate the long-run relationship among the variables, one should employ unit root test. This study employs CADF unit root test developed by Pesaran (2007) which takes into account cross-sectional dependency and coefficient heterogeneity. CADF test is an extended version of standard ADF regressions which proposes to use averages of cross sections (Pesaran, 2007:302).

After the panel unit root test, Westerlund cointegration test which consist of two different test statistics, namely group statistics and panel statistics, is preferred due to the cross-sectional dependency. The null hypothesis of no cointegration relationship is tested against the alternative hypothesis.

The coefficient estimation of the variables is tested with the AMG (Augmented Mean Group) estimator developed by Eberhardt and Bond (2009). The AMG estimator is a test that allows cross-sectional dependence and heterogeneity. Also, in this approach, common factors that cannot be observed are taken into account The AMG estimator also sets up the following equation in the OLS estimate based on the dummy and first difference in the T period.

$$\Delta \ln GDP_{it} = \alpha_{1i} + \beta_1 \Delta TA_{it} + \beta_2 \Delta EXC_{it} + \sum_{t=2}^T p_t \text{dummy}_t + u_{it} \quad (8)$$

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Dummy refers to the first-order difference and  $\beta_t$  refers to the time dummies coefficient.

**EMPIRICAL RESULTS**

The results of the cross-sectional dependence test performed in the first stage of the analysis are given in Table 1.

**Table 1.** Cross sectional dependence results

Variables	LM	CD <sub>LM</sub>	CD	LM <sub>adj</sub>
GDP	195.611 (0.000)	15.876 (0.000)	-2.893 (0.002)	10.546 (0.000)
EXC	439.680 (0.000)	41.603 (0.000)	-3.601(0.000)	13.184 (0.000)
TA	239.490 (0.000)	20.501 (0.000)	-3.038 (0.000)	9.154 (0.000)

\*Values in parentheses represent probability values.

In Table 1, it is shown that the null hypothesis is rejected for the Mediterranean countries. At four different statistical values, the statistical value is significant at the level of 1%. This situation indicates that a shock to one country affects other countries as well.

**Table 2.** Slope Homogeneity

Homogeneity	Statistics	p-values
$\Delta$	10.788	0.000
$\Delta_{adj}$	11.417	0.000

After testing the horizontal cross-section dependency, the homogeneity test was applied. With the delta test developed by Peseran and Yamagata (2008), it is determined whether the constant term in the model and the slope coefficient of each variable in the model are homogeneously distributed for each country. In Table 2, the null hypothesis is rejected for both tests. Since  $\Delta$  and  $\Delta_{adj}$  probability values are greater than 0.10 at a 90% confidence level, it can be concluded that there is homogeneity. The homogeneity test shows that country-specific heterogeneity exists among countries. It can be said that the slope coefficients among countries have not changed in the long run, that is, they are homogeneous. After applying the cross sectional dependence and homogeneity test Table 3 illustrates the CADF unit root test results. As can be seen from the table, country-specific CADF findings have performed mixed results. According to the findings, GDP variable is stationary for Croatia, France, Morocco and Tunisia at level. It

can be also seen that TA variable is stationary for Croatia, France, Malta, Morocco and Tunisia at level. EXC variable shows stationary characteristic for seven countries out of ten included in the panel. On the other hand, GDP variable for Malta, TA variable for Italy and Malta and EXC variable for Morocco become stationary at first difference.

Table for also reveals the CIPS statistics for the whole panel. The findings of the CIPS statistics indicate that all variables are stationary at level and first differences. According to this result, one can investigate the cointegration relationship among the variables.

**Table 3.** CADF Unit Root Test Results

Country	Test Statistic					
	GDP	$\Delta$ GDP	TA	$\Delta$ TA	EXC	$\Delta$ EXC
Croatia	-4.261**	-9.710***	-4.119**	7.736***	-3.824**	-5.509***
France	-4.127**	-8.610***	-3.873**	-8.340***	-3.945**	-2.271
Greece	-2.820	-1.265	-3.938**	-6.992***	-3.432**	-2.591
Italy	-2.079	-1.969	-2.238	-6.758***	-3.391**	-2.960
Malta	-2.545	-4.075**	-2.545	-7.730***	-2.401	-2.314
Spain	-2.400	-2.411	-1.658	-1.955	-1.215	-1.611
Cyprus	-2.000	-1.760	-1.536	-3.129*	-3.924**	-4.513***
Israel	-1.490	-2.020	-1.335	-1.724	-3.669**	-2.020
Morocco	-4.974***	-8.993***	-5.168***	-1.233	-3.163*	-5.085***
Tunisia	-4.650***	-8.191***	-5.145***	-1.134	-2.388	-2.669
<b>CIPS</b>	<b>-3.135***</b>	<b>-4.900***</b>	<b>-3.156***</b>	<b>-4.673***</b>	<b>-3.135***</b>	<b>-3.154***</b>

Critical Values for individual units are -4.35, -3.43, -3.00 at 1%, 5% and 10% respectively. Critical values for whole panel are -2.60, -2.34, -2.21 at 1%, 5% and 10%. Critical values are obtained from Peseran (2007) Table I(b) and Table II(b).

\*\*\* denotes 1% statistical significance

\*\* denotes 5% statistical significance

\* denotes 10% statistical significance

After the unit root test it is examined the validity of the long-term relationship between gdp, tourist arrivals, real effective exchange rate by Westerlund cointegration test. Westerlund cointegration test results are presented in Table 5. The results show that the null hypothesis that states no cointegration relationship is rejected at 1% statistical significance level. In respect to this, one can suggest

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that there is a long-run relation among GDP, TA and EXC variables according to both test statistics.

**Table 4.** Westerlund Cointegration Test Results

	<b>Test Statistic</b>	<b>P-Value</b>
DH <sub>g</sub>	35.165	0.000
DH <sub>p</sub>	78.260	0.000

After testing the long run relationship along the variables through Westerlund Cointegration Test, the number of tourists' arrival and exchange rate coefficients on the GDP are estimated for each country by AMG estimator.

**Table 5.** AMG Estimator (Dependent Variable is lnGDP)

<b>Country</b>	<b>lnarrival</b>	<b>Exchange rate</b>
Croatia	-0.0121494 [0.0702002]	-0.000559 [0.0023115]
France	0.5341592* [0.836634]	0.0002093 [0.0007543]
Greece	0.3160488 [0.2876244]	-0.0025823 [0.038557]
Italy	0.1914889 [0.1672319]	0.017854 [0.013678]
Malta	0.5430441 * [0.199103]	0.0042828 * [0.0019662]
Spain	0.440901 * [0.083873]	-0.0020635 [0.0022069]
Cyprus	0.2154076** [0.1063943]	0.0060562* [0.0017834]
Israel	0.0001784 [0.337754]	0.001482*** [0.006774]

Morocco	0.2636918* [0.987885]	-0.0040029* [0.0014044 ]
Tunisia	0.2368746** [0.102551]	-0.0007192 [0.0012904]
<b>Panel</b>	0.2729645* [0.0613067]	0.0003558 [0.000978]

Note: Values in parentheses refer to standard errors. \*, \*\*, \*\*\* express significance at 1, 5, and 10 levels respectively.

While the number of tourist arrivals across the panel affects economic growth statistically significantly and positively, the exchange rate variable has no effect on economic growth. The coefficient of tourist arrivals in France is positive. In Cyprus, the coefficient of both variables is positive and statistically significant. In Greece, Italy, and Israel, there is no significant effect on economic growth.

The exchange rate coefficient was positive for Israel. The number of tourist arrivals in Morocco affects economic growth positively. The exchange rate variable is statistically significant and negative at the level of 1%. While the number of tourist arrivals in Tunisia is statistically significant and has a positive effect on economic growth, the exchange rate variable is statistically insignificant. The fact that the number of tourist arrivals positively affects economic growth in the countries for France, Malta, Spain, Cyprus, Morocco and Tunisia.

### CONCLUSIONS AND POLICY IMPLICATIONS

The tourism industry has become important for both developed and developing countries due to its contribution to the national income and employment in terms of a country's economy. The study examines the relationship between tourist arrivals and economic growth in Mediterranean countries selected for the period of 1995-2017. In the study, the rejection of the  $H_0$  hypothesis in the cross-section dependence test shows that policy decision-makers should take into account any shocks occurring in other countries. Whether there is a long-term relationship between variables is examined by the Westerlund cointegration test after CADF unit root test. As a result of the analysis, it is determined a long-term relationship among the variables. In the AMG estimator results, it was determined that the number of tourist arrivals affects the economic growth statistically significantly and positively. It has been determined that the number of tourist arrivals to the country contributes to the economy of the country

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and increases economic growth. The exchange rate coefficient is not statistically significant across the panel test.

Due to the warm climate, historical, social and cultural structure of the countries in the Mediterranean basin, it constantly maintains the dynamic of tourist mobility. The finding obtained in the study is that the effect of any shock affecting other countries is due to the effect of common policies implemented in the European Union. In addition, the presence of the largest international tour operators and travel agencies in these European countries affects their competitiveness. In the coefficient estimates, the coefficient estimate of France is higher than the other countries. France's tourism awareness has developed before other countries and besides industry, the tourism sector constitutes an important export item in France (Avcıkurt and İlban, 2016: 79). In Spain, diversification of alternatives such as cultural and gastronomy tourism as well as sea tourism increases tourist mobility in the country day by day (Garda et al., 2015: 11). Italy is one of the countries with the highest number of tourist arrivals, and its coefficient estimate is lower than in Spain and France. In addition to traditional tourism, Malta's culture and history attract tourists to the country. Furthermore, medical tourism in the country is increasing day by day (Mallia, 2018:16).

In this context, taking the tourism policies regarding the tourism destinations of the relevant countries in countries with similar conditions may contribute to the development of the tourism sector and economic growth.

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