THE EFFECT OF DUTCH DISEASE IN THE TOURISM SECTOR: THE CASE OF MEDITERRANEAN COUNTRIES

Original scientific paper
Received 22 July 2019
Revised 25 August 2019
2 December 2019
7 January 2020
Accepted 28 January 2020
https://doi.org/10.20867/thm.26.1.6

Nesrin Tuncay
Ceyhun Can Özcan

Abstract
Purpose – A flourishing tourism sector can produce the same increase in income as that from natural resource exports. Unlike the oil, gas, and mineral extraction industries, which cause depletion of natural resources, the tourism industry has the potential to become a renewable industry, if well managed. In this context, the aim of this study is to investigate the existence of the Dutch disease effect in Mediterranean countries with high tourism dependence.
Design – The data set used in this study was from 1996-2015, and it was obtained from the 2017 World Development Indicator [WDI] database. The logarithms of all variables were added to the model. In the study, 17 selected Mediterranean countries (Albania, Algeria, Bosnia and Herzegovina, Cyprus, Croatia, Egypt, France, Greece, Italy, Israel, Lebanon, Malta, Morocco, Slovenia, Spain, Tunisia, and Turkey) were used.
Methodology – In the study, the methods used by Figini and Vici (2009), Holzner (2011), Ghalia and Fidrmuc (2015) are followed. In addition, Panel AMG, CCE co-integration estimators were used.
Findings –The panel data analysis results for the country group imply that the Dutch disease does not exist overall but, on the other hand, the country based results reveal existence of the Dutch disease in some of the Mediterranean countries (Albania, Bosnia and Herzegovina, Croatia, Egypt, Greece, Italy, Morocco, and Turkey).
Originality of the Research – The originality of this study is twofold. First of all, to our knowledge, this is the first study investigating the Dutch disease in the Mediterranean countries. Moreover, the study employs recently developed panel data econometric methods and allows us to get results for each economy separately, unlike conventional panel data analysis methods. Therefore, we predict that this study will make an important contribution to the literature.
Keywords Tourism Sector, Dutch Disease, Mediterranean Countries

INTRODUCTION

The Dutch Disease was first mentioned in the Economist Journal on November 26, 1977. The event, which gave the name to the disease, took place in the 1960s following the discovery of natural gas reserves in the North Sea region of the Netherlands. Following this discovery, a significant amount of natural gas was exported from the Netherlands, yet the country's economy unexpectedly regressed. In the country, while income increased, serious economic collapse started to be seen. In the country's economy, which is based solely on raw materials export, significant production and other sector export decreases occurred (Macdonald 2007, 3; Arı and Özcan 2012, 156; Sahin and Sahin 2015, 600; Gurbanov 2012, 9). The Dutch Disease is a concept typically associated with natural resource exports. The abundance of natural resource exports increases the domestic demand. Due to the increase in domestic demand, prices of non-tradable goods also increase. Some of the temporarily higher natural resource revenues are spent on non-traded goods, which leads to relative price increases of non-tradable goods according to the prices of commercial goods (Van Wijnbergen 1984, 41). The resulting high price level causes the local currency to gain value. As the exports of other traded sectors decline, the competitiveness of the country in question decreases (Magud and Sosa 2015, 4; Corden and Neary 1982).

The Dutch Disease is not limited to natural resources. As a result, any foreign exchange inflow has similar results. Foreign workers' incomes, particularly in tourism, can be caused by other factors such as foreign workers' incomes, capital flows, public expenditures, and foreign aid which cause an increase in capital-foreign exchange inflows (Capo et al. 2007, 616; Magud and Sosa 2015, 2). Therefore, an expansion in the tourism sector can create shock effects in the economy. The fact that tourism has a significant contribution to revenue growth, is a fast growing sector, and has accessible natural resources provides a comparative advantage. In other words, an expansion in tourism can be compared with the increase in income from natural resource exports (Capo et al. 2007, 616).

Tourism is an industry with a wealth of natural resources due to its characteristics such as wildlife reserves and natural landscapes. A sudden upsurge in foreign exchange as a result of a tourism boom and subsequent employment of a large number of unskilled workers can be compared to a resource boom. Recently, some researchers have tried to explain the negative effects of tourism on economic growth and its effect on resource extraction industries such as oil and mineral extraction through the "Resource Curse Hypothesis." Some researchers have begun to examine the effect of the Dutch Disease especially in small tourism economies from different perspectives such as "Beach Disease."
According to research, increased tourism income from high foreign exchange earnings increase the marginal propensity of import to local people. Moreover, tourism might generate more final-goods imports, such as those to which tourists are accustomed in their countries of origin and for which they create a demand in the tourism host country (Holzner 2005; Ghalia and Fidrmuc 2015).

The most important point to know before examining the related literature; a tourism boom related to the tourism industry will have some consequences. First, unlike industries such as oil, natural gas, and mining, tourism has the potential to be "sustainable tourism," if it is well managed. Secondly, unlike other tradable industries, it can help produce goods that are commercially available, with increased income levels, allowing tourists to come to the host country to consume tourism products (Deng et al. 2014, 927; Copeland 1991, 515-516).

This study is important in terms of determining the effects of the Dutch Disease on the tourism sector in Mediterranean countries. In this study, the literature on the relationship between the tourism industry and the Dutch Disease is reviewed comparatively. Then the data used and the method of the study are explained. Finally, the findings of the study are included and then the study is completed by giving opinions on the subject in the conclusion section.

1. LITERATURE REVİEW

It has long been recognized that tourism can have an impact on economic activities. (e.g.,Lean and Tang 2010; Arslanturk et al. 2011; Tang and Tan 2013; Aslan 2014; Pavlic et al. 2015; Wu and Wu 2019). Many researchers argue that a positive relationship exists between tourism and economic growth (Kareem 2013; Lee and Brahmasrene 2013; Tugcu 2014; Pavlic et al. 2015; Wu et al. 2018).

However, in the Tourism Economics literature, there are four hypotheses to show the relationship between tourism consumption and economic growth, including growth, conservation, reciprocal, and neutrality hypotheses.

Tourism led growth is validated for all the following countries: the OECD, Asia and Africa (Lee and Chang 2008), Singapore (Katircıoğlu 2010, 2011), Australia, Germany, Japan, Singapore, Taiwan, Thailand (Tang 2011), and China (Deng et al. 2014).

A conservation hypothesis running from economic development to tourism activities is detected for the following countries: East and South Asia, Oceania (Caglayan et al. 2012), Malaysia (Li et al. 2013), Pakistan (Jalil et al. 2013), and South Korea (Lee and Kwag 2013).
The researchers find that there is a reciprocal relationship between tourism and economic growth. The following destinations include Pakistan (Khalil et al. 2007), Malta (Katircıoğlu 2009), Malaysia (Kadir and Jusoff 2010), Singapore (Othman et al. 2012), China (Wang and Xia 2013), and Vietnam (Trang et al. 2014).

The neutrality hypothesis implies that there are no spillover effects between tourism and economic development (Arslanturk et al. 2011; Brida et al. 2016).

Another thread of research relates to the so-called "Dutch Disease" first developed by Corden and Neary (1982) (Brida et al. 2016). The Dutch Disease framework was extended to the tourism sector, as a highly intensive labor sector characterized by a certain market power because of the abundance of natural resources, a heritage endowment of the destination (Copeland 1991; Deng et al. 2014). The Dutch Disease is a concept that affects economic growth in tourism. One of the most important reasons for research on the relationship between the tourism industry and economic growth is due to the fact that tourism-dependent countries suffer from a number of afflictions similar effects of the Dutch Disease (Ghalia and Fidrmuc 2015, 2; Corden and Neary 1982). Countries dependent on the tourism industry are particularly sensitive to the effect of the Dutch Disease due to the introduction of foreign currency (Inchausti-Sintes 2015, 173; Capo et al. 2007; Holzner 2011).

In this context, Copeland (1991) explored the increasing economic impacts of tourism by using a general international trade equilibrium model of welfare, production, and factor prices in the host country. Copeland studied the effects of the Dutch Disease in a small economy. Its main purpose was to determine the increasing level of welfare of tourism and to investigate the effects on the country's production. Chao et al. (2006) studied the effects of tourism in their open dynamic economy in terms of capital accumulation, sectoral output, and prosperity in their work in Hong Kong. They stated that growth of the tourism industry caused revenue growth due to price increases in non-tradable goods, that resource utilization shifted from the manufacturing industry to other industries and, in turn, the demand for domestic capital decreased. This study shows that the Dutch Disease, which causes development in other economic sectors, leading to the loss of welfare in the long term and causing deindustrialization, is a high possibility. Nowak and Sahli (2007), using a general equilibrium model, examined the relationship between the Dutch Disease and coastal tourism in a small island economy. They evaluated the economic effects of an increase in the tourism industry on coastal tourism. They found that a tourism boom could cause welfare loss due to the intensive use of the coastal areas. Capo et al. (2007) studied the two tourism-oriented islands in Spain (Balearics and the Canary Island) and identified the impact of the Dutch Disease. On both islands, the economy has turned to the tourism industry and production resources have moved away from agricultural and manufacturing industries. Due to the tourism industry's long-term development in these two regions, over-enrichment has been discussed in these regions. On the other hand, important factors such as education, technological developments, and innovation have not improved at all. Therefore, they stated that the economic growth in these regions will not continue unless some measures are taken. Similarly, Sheng and Tsui (2009) found the effects of the Dutch Disease in the tourism industry in Macao. They found that as a result of tourism booms, the tourism industry's rapid growth could lead to a decline in Macao's prosperity. They also argued that a boom in tourism could lead to other industries being neglected. Mieiro et al. (2012) stated in another study that in Macao that economic growth in gaming tourism could trigger the Dutch Disease. The growing numbers of visitors and casinos from various Chinese cities have led to the development of game tourism in Macao. After 2003, the region began talking about increasing expenditures and foreign exchange inflows. In Macao, if game tourism loses its privileged position, there is no alternative to support the region. For this reason, it is thought that the gains from game tourism can lead to economic growth by creating a strong human capital. Priority should be given to investments that will ensure sustainable development by creating lasting value to protect against the harmful effects of the Dutch Disease. Deng et al. (2014) examined the absence of economic growth in the tourism industry with the "resource curse hypothesis" approach. Between 1987 and 2010, using the panel data for 30 provinces in China, they examined the direct and indirect effects of the tourism industry on economic growth in the long run. According to empirical results, negative effects from the tourism industry in small economies related to tourism are likely to occur in the long term. It is stated that large economies that are not dependent on tourism have the capacity to cope with the Dutch Disease effect. Dwyer et al. (2014), unlike other studies, attempted to explain the economic impact of an upswing in the mining industry on Australia's tourism industry. The presence of the Dutch Disease effect has been identified in the tourism industry in Australia. They tried to reveal the extent of the impact of an increase in the mining industry on recreational tourism. Slowing down the mining industry's boom will contribute positively to the expansion of industries such as manufacturing, agriculture, tourism, employment creation, and strengthen the Australian economy. Investments in the tourism industry and infrastructure projects will continue to increase profitability, innovation, and economic growth in the long term by increasing productivity in production. However, it is not possible to invest in tourism while the explosion continues. According to another Australian study by Pham et al. (2015), the recent growth in Australia's mining industry has adversely affected many other industries, including the tourism industry, with a strong increase in the exchange rate. These negative effects on the tourism industry are explained in the context of the Dutch Disease. Inchausti-Sintes (2015) examined in detail the links between sectors and the effects of economic growth over time in the context of the Dutch Disease and the impact on the tourism economy in Spain. Ghalia and Fidrmuc (2015) analyzed the relationship between the tourism industry and economic growth by using the annual data from 133 countries between 1995-2007. According to the results, specialization in tourism did not have a significant effect on economic growth. However, countries with high dependence on tourism experienced significantly low economic growth. These findings indicate that dependence on tourism causes an effect similar to the Dutch Disease. Romao et al. (2016) examined the decline in tourism demand and the rapid increase in unemployment following the international financial crisis in the region of Algarve, an economically and socially advanced tourism region. It was found that economic growth in the tourism industry does not reflect the expected positive effects on economic growth in other industries. The positive effects of tourism were seen in the construction sector and in non-tradable goods, this paved the way for a significant decline in tradable goods. This situation was examined as an indicator of the "non-industrialization" process known as the Dutch Disease. Deng and Ma (2016) in their study in China, found that as a result of a high dependence on tourism in the Netherlands, evidence of the presence of the disease. However, unlike industries such as oil, natural gas, and mining, there is no evidence that dependence on the tourism industry reduces physical investment. A tourism boom in a region can cause all tourism-related sectors to grow rapidly and make investments in tourism industry infrastructure projects more attractive. According to Pham et al. (2017), an increase in the tourism demand by Chinese tourists coming to Australia may result in a significant increase in prices. A possible increase in tourist visa fees for Chinese tourists can have negative effects on the economy. An increase in visa fees for Chinese tourists will not yield successful results as visa revenues will take a long time to compensate for GDP losses. In other words, GDP losses cannot be compensated by increasing visa fees. Zhang and Yang (2018) developed a DSGE (Dynamic Stochastic General Balance) model to detect the effect of the Dutch Disease in a small open economy in Thailand, driven by the growth of the tourism industry. The model examines the effects of foreign tourism policy on a small open economy in terms of tourism and manufacturing industries. As a result, the effect of the Dutch Disease caused by the tourism industry was demonstrated. It is also emphasized that although a tourism boom can cause the Dutch Disease, it can have positive effects on welfare. It was stated that the government should take some measures in this regard. For example, it has been stated that it can tax the tourism industry and alleviate the effect of the Dutch Disease with production and investment subsidies in the manufacturing industry.

Some researchers in the literature have also considered the Dutch Disease to be "Beach Disease". For example, Holzner (2011) examined the effect of the Dutch Disease in countries with high tourism dependence. In his study conducted in 134 countries between 1970-2007, he analyzed the relationship between the tourism industry and economic growth in the long run. According to the analysis, there was no danger of the Dutch Disease or Beach Disease. It detected the presence of faster economic growth in the countries where tourism revenues have a high share in GDP compared to other countries. Katırcıoğlu (2009) examined the relationship between the tourism industry and economic growth in Turkey and could not find a link in the long term.

When the studies in the literature are considered, it is possible to state that destinations with high dependence on tourism are exposed to the Dutch Disease. As a result of the literature research, there are no studies investigating the impact of the Dutch Disease on Mediterranean countries. Therefore, this study will make an important contribution to the literature.

2. DATA, VARIABLES AND METHOD

The data set used in this study was from 1996-2015 and was obtained from the World Development Indicator [WDI] (2017) database. The logarithms of all variables were added to the model. In order to reveal the effect of the Dutch Disease on tourism as a result of multiplication of tourism and trade, we employ the economic growth (lny) as a dependent variable and the investments (lninv)(positive is expected), ratio of tourism to GDP (lntour) (positive is expected), the ratio of total trade to GDP (lntrade) (positive is expected), the presence of the Dutch Disease effect (lniterm) (negative is expected) as explanatory variables. All monetary variables used are US dollars. In the study, 17 selected Mediterranean countries (Albania, Algeria, Bosnia and Herzegovina, Cyprus, Croatia, Egypt, France, Greece, Italy, Israel, Lebanon, Malta, Morocco, Slovenia, Spain, Tunisia, Turkey) were used. In the study, the methods used by Figini and Vici (2009), Holzner (2011), Ghalia and Fidrmuc (2015) are followed. The logarithmic form of the model is as in Equation 1:

$$\ln y_{it} = \beta_0 + \beta_1 \ln inv_{it} + \beta_2 \ln tour_{it} + \beta_3 \ln trade_{it} + \beta_4 \ln iterm_{it} + \varepsilon_{it} \tag{1}$$

In order to examine the existence of the Dutch Disease effect on the tourism industry, the variable "*lniterm*" was included in the model. The theory of the Dutch Disease is that it undermines the competitiveness of exports and affects the economy. Therefore, a relatively simple and straightforward test of whether tourism has this kind of effect is to include the interaction between tourism specialization and openness to trade. While this is an indirect test, it has the advantage that it directly captures the interrelation between foreign trade overall and tourism specialization. We therefore introduce an interaction term *(lniterm)* constructed by multiplying trade as a share of GDP by tourism specialization. Both tourism and trade have positive and significant effects on economic growth. This confirms the finding in the literature, which also found a positive effect of tourism on growth (Capo et al. 2007; Holzner 2011; Inchausti-Sintes 2015; Ghalia and Fidrmuc 2015). Their interaction, however, is significant and negative. Hence, while tourism and trade each have a positive effect, the countries that rely heavily on both tend to experience lower growth. This is consistent with countries that rely heavily on tourism suffering from the Dutch Disease type of effect from tourism.

Another alternative would be to measure the impact of growth in the tourism economy on the real value of money (Ghalia and Fidrmuc 2015, 12).

In this econometric analysis, firstly, unit root analyzes of the series were analyzed by unit root tests developed by Hadri and Kurozumi (2012). Unit root analysis shows that variables can be co-integrated in the long run. Examining the co-integration properties of the variables allows the analysis to continue.

The Langrange Multiplier test, which is used to determine the long-term relationship between variables, was developed by Westerlund and Edgerton (2007), prepared by McCoskey and Kao (1998). This test takes into account the cross-sectional dependence between sections and gives strong results in small samples.

Westerlund and Edgerton (2007) developed an LM statistic to test that the null hypothesis is co-integration. In the first step of this approach, error terms (z_{it}) were obtained from the estimation of the following regression model with the Fully Modified Ordinary Least Squares (FMOLS) method.

$$y_{it} = \alpha_i + \beta_i x_{it} + z_{it} \qquad (2)$$

$$z_{it} = u_{it} + v_{it} \qquad (3)$$

In the second stage, the LM statistic is calculated as follows:

$$LM_N^+ = \frac{1}{NT^2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{\omega}_i^2 S_{it}^2 \sim N(0, \mathrm{var}(LM_N^+)) \qquad (4)$$

S_{it}^2 is part of z_{it} process which is an full modified estimation of z_{it}, while $\hat{\omega}_i^2$ is an estimation of long term variance (u_{it}).

Westerlund and Edgerton (2007) test, null and alternative hypotheses were defined as follows:

$H_0 : \sigma_i^2 = 0$ *; there is co-integration for all cross sections.*

$H_1 : \sigma_i^2 > 0$ *; there is no co-integration for some cross sections.*

Acceptance of the null hypothesis indicates that there is co-integration between the variables in the panel data set.

The increase in the relationships between countries in the modern age and the increasing social, cultural, and economic interactions of the countries cause a shock in one country to affect another country. For the econometric capture of these shocks, "cross-section dependency" (CD) tests are used in the literature.

Cross-sectional dependency test (CD), LM test developed by Breusch and Pagan (1980) or CD tests developed by Pesaran (2004) and Pesaran et al. (2008) are being investigated. These tests include differences from the time (T) and the cross-sectional (N) dimension of the panel. Breusch and Pagan (1980) in the LM test T > N, Pesaran (2004) CD test N/T→∞, N > T cases, The CD test developed by Pesaran (2004) T→∞ ya da N→∞, N > T, T > N can be used in both cases. In these three tests, the group mean is zero, the individual average is different from zero, so deviant results occur (Nazlioglu et al. 2011). The deviation is corrected by the addition of variance and mean to LMadj (deviation-corrected LM test) developed by Pesaran et al. (2008). The hypotheses of these tests; *"H_0: There is no cross-sectional dependency, H_1: cross-sectional dependency"*.

On the other hand, it is also important that the coefficients of each country included in Equation 1 are homogeneous. This is the decisive factor in the selection of the following tests. Homogeneity test (HT); the other countries are affected at the same level or at different levels. For this purpose, homogeneity ((Slope Homogeneity Test) or Delta ($\tilde{\Delta}$) Test)) test developed by Pesaran and Yamagata (2008) was used. This method suggests two different tests according to the size of the sample. While the $\tilde{\Delta}$ test is valid for large samples, the $\tilde{\Delta}_{adj}$ test is recommended for small samples. The hypotheses of these tests; *"H_0: $\beta_i = \beta$ (Slope coefficients are homogeneous) and H_1: $\beta_i \neq \beta$ (Slope coefficients are heterogeneous)"*.

After the co-integration analysis, AMG (Augmented Mean Group estimator) and Common Correlated Effects methods were used to estimate long-term coefficients. The Monte Carlo study by Pesaran (2006) shows that the cross-sectional dependence of the panel data models should be tested and the methods that take this into account should be used. The Common Associated Effects (CCE) estimators takes into account the dependence between the cross-sections forming the panel (Nazlioglu 2010, 101) and were developed by Pesaran (2006).

The CCE long-term coefficient estimators assume that independent variables and unobservable common effects are static and external. It is also consistent in cases where independent variables and unobservable common effects are stationary (I (0)), first order integral (I (1)) and/or cointegrated (Nazlioglu 2010, 101). In 2006, Pesaran (2006) developed two estimators for estimating the long-term coefficients of independent variables under cross-sectional dependency. The first is a Common Correlated Effects Mean Group (CCEMG) estimator. The second is called the Common Correlated Effects Pooled (CCEP) estimator. In the CCEMG approach, long-term parameters for explanatory variables are calculated by taking the arithmetic mean of the coefficients for each cross-section.

Eberhardt and Bond (2009), Eberhardt and Teal (2011), and Eberhardt (2012) developed the Augmented Mean Group (AMG) method, which takes into account cross-sectional dependence. The AMG estimator takes into account the time series characteristics as well as the differences in the observable and unobservable factors among the panel groups. The AMG (Augmented Mean Group Estimator) method, which was developed by Eberhardt and Bond (2009) and Eberhardt (2012) and considers the cross-sectional dependency, was used. With AMG testing, they developed an estimator that can calculate the co-integration coefficients of the panel forming countries and the overall panel. This method takes into account the common factors in the series and is also used in the presence of an internality problem indicating that there is a correlation between the explanatory variables and the error terms (Eberhardt and Bond 2009). Cross-sectionally group-specific AMG estimators are calculated by taking the average of the coefficients from each country in the panel. Since this test also estimates the arithmetic mean of the co-integration coefficients, the other coefficient is stronger than the prediction methods.

3. FINDINGS

In the first stage of the analysis, the cross-section tested to determine whether there is a cross-sectional dependency for the model. The presence of cross-section dependency between the series significantly affected the results of the analysis (Breusch and Pagan 1980). Table 1 shows the results of CD and HT for Equation 1.

Table 1: **Homogeneity and Cross-section dependency**

	Statistic	**p-value**
Cross-section dependency tests:		
CD_{lm1} (Breusch and Pagan 1980)	224.838***	0.000
CD_{lm2} (Pesaran 2004)	5.387***	0.000
CD_{lm3} (Pesaran 2004)	6.155***	0.000
LM_{adj} (Pesaran, Ullah and Yamagata 2008)	5.653***	0.000
Homogeneity tests:		
$\tilde{\Delta}$	4.454***	0.000
$\tilde{\Delta}_{adj}$	4.831***	0.000

The results show that the model has heterogeneous and cross-section dependency. Hadri-Kurozumi unit root test; KPSS test is adapted for panel data sets and was developed by Pesaran (2007). The null hypothesis and alternative of the KPSS test are displaced. Two types of test statistics are calculated for this test. These are ZA_spc and ZA_la. Both are assumed to have normal distribution when converging to infinity. The findings are given in the table below (Hadri and Kurozumi 2012, 31).

Table 2: **Hadri & Kurozumi Panel-KPSS Unitroot Test**

	Constant		**Constant and Trend**	
Levels	**Statistic**	**p-value**	**Statistic**	**p-value**
lny				
ZA_spc	-0.8696	0.8077	8.7059	0.0000
ZA_la	-1.1182	0.8683	14.0043	0.0000
lninv				
ZA_spc	2.8997	0.0019	-2.4334	0.9925
ZA_la	1.6901	0.0455	-0.5645	0.7138
lntour				
ZA_spc	-0.1394	0.5554	-2.8519	0.9978

	Constant		**Constant and Trend**	
Levels	**Statistic**	**p-value**	**Statistic**	**p-value**
ZA_la	0.9473	0.1718	-2.8437	0.9978
lntrade				
ZA_spc	-3.2167	0.9994	-0.4165	0.6615
ZA_la	-3.4223	0.9997	-0.2303	0.5911
lniterm				
ZA_spc	-1.3718	0.9149	4.4346	0.0000
ZA_la	-1.9012	0.9714	13.5150	0.0000
First difference				
lny				
ZA_spc	1.4934	0.0677	10.2445	0.0000
ZA_la	6.1650	0.0000	23.3339	0.0000
lninv				
ZA_spc	0.7337	0.2316	1.4764	0.0699
ZA_la	1.5575	0.0597	6.9857	0.0000
lntour				
ZA_spc	3.9354	0.0000	6.4840	0.0000
ZA_la	22.8982	0.0000	6.0522	0.0000
lntrade				
ZA_spc	-0.4922	0.6887	2.7347	0.0031
ZA_la	5.7000	0.0000	6.1850	0.0000
lniterm				
ZA_spc	4.6484	0.0000	2.5591	0.0052
ZA_la	10.2025	0.0000	5.4306	0.0000

The maximum lag length is taken as 4 and the optimal lag lengths for each cross-section are determined according to the Schwarz information criterion. **ZA_spc:** The panel in which long-term variance is calculated by Sul et. al (2005) is an extended KPSS test. **ZA_la:** The panel in which long-term variance is calculated by Choi (2009) and Toda and Yamamoto (1995) is an extended KPSS test.

According to Table 2, the variables contain unit root at the level and become stable when the first differences are taken. Findings obtained from panel unit root tests show that second-generation panel co-integration tests should be performed considering cross-sectional dependence and stationary degrees of variables. In econometric modeling, the existence of long-term relationships between variables can be investigated by co-integration tests. However, in co-integration analysis, the cross-sectional dependence should be taken into account as in the unit root analysis. Otherwise, although there is no co-integration relationship, there may be problems such as the acceptance of the false hypothesis that the co-integration is the case. For such reasons, the existence of long-term relationships between variables will be investigated by the LM Bootstrap co-integration test developed by Westerlund and Edgerton (2007), taking into account the cross-sectional dependence. The important feature of the LM Bootstrap co-integration test is its strong results in small samples.

Table 3: **LM Bootstrap Cointegration Test Results**

	Constant			**Constant and Trend**		
Test	**Statistic**	**Asymptotic p-value**	**Bootstrap p-value**	**Statistic**	**Asymptotic p-value**	**Bootstrap p-value**
LM bootstrap (Ho: cointegration)						
LM_N^+	10.730	0.000	0.973	26.088	0.000	0.509

In this test, there is a cross-sectional dependence for the model, as the hypothesis is considered to be interpreted only in the Bootsrap p-value. These results show that the series are co-integrated. The series moves together in the long run. From this point on, it is possible to proceed to the estimation of long-term coefficients and to test the impact of the Dutch Disease on tourism in sample countries.

Table 4: **AMG Estimation Results**

		ININV		***INTOUR***	
	Share of Tourism in GDP	Coefficient	P-val.	Coefficient	P-val.
Albania	12,3	0.076	0.296	1.055	0.157
Algeria	0.2	-0.162	0.336	390.11***	0.002
Bosnia and Herzegovina	4,7	1.962	0.000	-3.837	0.876
Cyprus	18,8	0.382***	0.004	4.880***	0.000
Croatia	14,7	0.133	0.370	5.793***	0.004
Egypt	5,0	0.283**	0.012	-2.668**	0.013
France	2,3	-0.362	0.409	10.586	0.675
Greece	6	0.949***	0.000	-9.422**	0.037
Italy	2,2	0.554**	0.019	12.259	0.555
Israel	2,6	-0.131	0.789	-11.247	0.413
Lebanon	10,3	0.432	0.288	-1.350	0.423
Malta	18,9	0.226	0.418	-1.703	0.186
Morocco	8,5	0.172	0.820	0.156	0.954
Slovenia	5,3	0.397	0.221	-7.180	0.320
Spain	4,6	0.197***	0.005	-1.451	0.851
Tunisia	7,8	-0.384	0.294	-2.531	0.344
Turkey	3.7	0.862**	0.015	24.021	0.152
PANEL RESULTS					
17 Mediterranean Countries		0.328**	0.015	23.969	0.297

		INTRADE		***INITERM***	
	Share of Tourism in GDP	Coefficient	P-val.	Coefficient	P-val.
Albania	12,3	0.251	0.293	-0.021	0.191
Algeria	0.2	0.790**	0.035	-5.367***	0.004
Bosnia and Herzegovina	4,7	0.402	0.776	-0.079	0.758
Cyprus	18,8	0.875***	0.000	-.045***	0.000
Croatia	14,7	1.384***	0.004	-0.085***	0.005
Egypt	5,0	-0.538**	0.018	0.082***	0.002
France	2,3	0.521	0.641	-0.188	0.709
Greece	6	-1.329**	0.013	0.226**	0.016
Italy	2,2	0.497	0.593	-0.139	0.746
Israel	2,6	-0.379	0.456	0.195	0.350
Lebanon	10,3	-0.227	0.486	0.024	0.368
Malta	18,9	-0.102	0.269	0.008	0.170
Morocco	8,5	-0.100	0.805	0.006	0.900
Slovenia	5,3	-0.176	0.673	0.048	0.517
Spain	4,6	-0.201	0.764	0.073	0.624
Tunisia	7,8	-0.344	0.150	0.041	0.153
Turkey	3.7	1.703	0.197	-0.546	0.174
PANEL RESULTS					
17 Mediterranean Countries		0.177	0.325	-0.339	0.285

Note: Values in parentheses represent the average values of countries' share of tourism in GDP. **AMG:** Augmented Mean Group. *, **, *** expressions show statistical significance levels of 10%, 5% and 1%, respectively.

The results obtained from the AMG estimator are given in Table 4. In Algeria, Cyprus, Croatia, and Egypt both tourism and trade have positive and significant effects on economic growth. This confirms the findings of Holzner (2011) and Ghalia and Fidrmuc (2015) in other studies that have a positive effect on tourism growth. However, the interaction coefficient which shows the Dutch Disease effect is significant and negative. Therefore, while both tourism and trade have a positive impact, countries that are over-dependent on both are have a lower growth or negative impact. This finding is consistent with the fact that the countries dependent on tourism contain the Dutch Disease.

Table 5: **CCE Estimation Results**

		ININV		***INTOUR***	
	Share of Tourism in GDP	Coefficient	P-val.	Coefficient	P-val.
Albania	12,3	-0.282*	0.067	3.871***	0.009
Algeria	0.2	-0.454	0.109	794.42***	0.000
Bosnia and Herzegovina	4,7	0.953	0.127	64.073*	0.067
Cyprus	18,8	0.019	0.956	3.247	0.109
Croatia	14,7	-0.286	0.553	4.891**	0.029
Egypt	5,0	-0.128	0.538	-2.902***	0.006

		ININV		***INTOUR***	
	Share of Tourism in GDP	Coefficient	P-val.	Coefficient	P-val.
France	2,3	-0.862	0.723	42.283	0.256
Greece	6	0.606	0.326	-11.446*	0.033
Italy	2,2	1.410**	0.020	63.516**	0.045
Israel	2,6	-1.050	0.193	20.804	0.318
Lebanon	10,3	1.143**	0.018	-2.061	0.108
Malta	18,9	0.322	0.330	0.251	0.913
Morocco	8,5	0.257	0.782	3.952	0.644
Slovenia	5,3	0.335	0.640	-0.454	0.973
Spain	4,6	0.353	0.205	-5.695	0.330
Tunisia	7,8	-0.037	0.462	-7.272	0.137
Turkey	3.7	0.499	0.317	47.637**	0.016
PANEL RESULTS					
17 Mediterranean Countries		0.142	0.383	59.948	0.195

		INTRADE		***INITERM***	
	Share of Tourism in GDP	Coefficient	P-val.	Coefficient	P-val.
Albania	12,3	1.552***	0.004	-0.077***	0.009
Algeria	0.2	1.836***	0.000	-11.177***	0.000
Bosnia and Herzegovina	4,7	3.750**	0.035	-0.739**	0.029
Cyprus	18,8	0.611**	0.031	-0.027	0.110
Croatia	14,7	1.084**	0.037	-0.064*	0.059
Egypt	5,0	-0.824***	0.000	0.09***	0.001
France	2,3	2.030	0.179	-0.838	0.229
Greece	6	-1.715	0.105	0.264**	0.028
Italy	2,2	3.151**	0.022	-1.123*	0.071
Israel	2,6	0.675	0.303	-0.273	0.372
Lebanon	10,3	-0.649*	0.075	0.029	0.154
Malta	18,9	0.005	0.979	-0.002	0.879
Morocco	8,5	0.035	0.980	-0.046	0.743
Slovenia	5,3	0.277	0.754	-0.008	0.950
Spain	4,6	0.540	0.247	0.065	0.523
Tunisia	7,8	-0.936*	0.083	0.101*	0.085
Turkey	3.7	4.360***	0.004	-1.223***	0.010
PANEL RESULTS					
17 Mediterranean Countries		0.928**	0.023	-0.885	0.175

Note: Values in parentheses represent the average values of countries' share of tourism in GDP. **CCE:** Shows Common Correlated Effects. *, **, *** expressions show statistical significance levels of 10%, 5% and 1%, respectively.

In Table 5, similar to the results obtained from the CCE estimator; Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Greece, Italy, and Turkey tourism as well as trade has positive and significant effect on economic growth. In other countries, it is meaningless. In 6 of the 17 Mediterranean countries, the effect of the Dutch Disease in tourism is revealed. In the overall panel, the effect of the Dutch Disease on tourism is empirically meaningless while theoretically significant.

CONCLUSION

The main feature of the Dutch Disease, for whatever reason is, there is a large amount of foreign exchange entry into the country. Due to excessive foreign exchange inflows, national currency is valued, and overvalued national currency causes weakening of the external competitiveness of the country's industry and the country's economy is severely injured.

The aim of this study is to investigate the effect of the Dutch Disease in Mediterranean countries that have high dependence on tourism. Therefore, in this study, the existence of a long-term Dutch Disease effect was studied econometrically for selected Mediterranean countries with high tourism dependence, as described in Copeland (1991), Chao et al. (2006), Ghalia and Fidrmuc (2015), and Holzner (2011).

During the period of 1996-2015, econometric analyzes of the long-term effects of the tourism sector on total production were made by using data from 17 selected Mediterranean countries. In the study, the econometric model was estimated by using cross-sectional dependence, homogeneity, co-integration (LM bootstrap) and co-integration estimators (AMG and CCE).

The findings show that there is a cross-sectional dependence among the mentioned countries. In other words, it is possible to say that a shock that may occur in one country affects other countries as well. According to the established model, a long-term relationship was determined. When the long-term findings are evaluated, the results obtained from the AMG estimator reveal the Dutch Disease effect in Algeria, Cyprus, Croatia, and Egypt. Results from the CCE estimator show that Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Greece, Ital, and Turkey, have the influence of the Dutch Disease. On the other hand, both CCE and AMG estimators imply that the Dutch Disease does not exist in Cyprus, France, Malta, Slovenia, and Spain. The common point of these countries is to be member of money union called Eurozone. In the light of this finding, it is possible to say that membership in the Eurozone provides immunity to the Dutch Disease. Because of the negative effects of the tourism sector on the industrial sector of related country via exchange rate distortion are absorbed by monetary union.

As a basic policy proposal, investing in the manufacturing sector in line with the traditional infrastructure of the tourism sector rather than increasing consumption expenditures (raising marginal propensity to import) can prevent possible effects of exchange rate distortions such as increasing import demand and decreasing export competitiveness and so, help to reduce the overall costs of doing business. Hence, investments in physical infrastructure for both a productive tourism sector and a productive manufacturing industry can generate higher-than-average income and lead to economic growth.

In this study, we focus Mediterranean countries which have tourism potential and to differentiate from existing literature we obtained country specific empirical results though the application of panel data econometric methods. This allow us to conclude the empirical results for each country. For further and extended research can include empirical results that can be matched with specific features of each country. In addition, these models can be tested in different econometric and statistical methods. We focus on only some econometric methods and variables. In this context, the literature review will be useful for further research.

REFERENCES

Arı, A. and Özcan, B. (2012), "Hollanda Hastalığı: Gelişmekte Olan Ülkeler Üzerine Bir Uygulama", *Sosyo Ekonomi*, Vol. 18, No. 18 pp. 154-172.

Arslanturk, Y., Balcilar, M. and Ozdemir, Z.A. (2011), "Time-varying linkages between tourism receipts and economic growth in a small open economy", *Economic Modelling*, Vol. 28, No. 1, pp. 664-671. https://doi.org/10.1016/j.econmod.2010.06.003

Aslan, A. (2014), "Tourism development and economic growth in the Mediterranean countries: Evidence from panel Granger causality tests", *Current Issues in Tourism*, Vol. 17, No. 4, pp. 363-372. https://doi.org/10.1080/13683500.2013.768607

Breusch, T. and Pagan, A. (1980), "The Lagrange Multiplier Test and its Application to Model Specifications in Econometrics", *Rev. Econ. Stud.* Vol. 47, No. 1, pp. 239-253. https://doi.org/10.2307/2297111

Brida, J. G., Cortes-Jimenez, I. and Pulina, M. (2016), "Has the tourism-led growth hypothesis been validated? A literature review", *Current Issues in Tourism*, Vol. 19, No. 5, pp. 394-430. https://doi.org/10.1080/13683500.2013.868414

Caglayan, E., Sak, N. and Karymshakov, K. (2012), "Relationship between tourism and economic growth: A panel Granger causality approach", *Asian Economic and Financial Review*, Vol. 2, No. 5, pp. 591-602.

Capo, J., Font, A. R. and Nadal, J. R. (2007), "Dutch Disease in Tourism Economies: Evidence from the Balearics and the Canary Islands", *Journal of Sustainable Tourism*, Vol. 15, No. 6, pp. 615-627. https://www.tandfonline.com/doi/abs/10.2167/jost698.0

Chao, C.-C., Hazari, B. R., Laffargue, J.-P., Sgro, P. M. and Yu, E. S. H. (2006), "Tourism, Dutch Disease and Welfare in an Open Dynamic Economy", *The Japanese Economic Review*, Vol. 57, No. 4, pp. 501-515. https://doi.org/10.1111/j.1468-5876.2006.00400.x

Choi, I. (2009), "Improving empirical size of the KPSS Test of stationary", *Journal of Economic Theory and Econometrics*, Viewed 20 April 2018. Vol. 20, No. 1, March 2009, pp. 1-14. http://es.re.kr/jetem/view.php?vol_idx=&article_idx=65

Copeland, B. R. (1991), "Tourism, Welfare and De-industrialization in a Small Open Economy", *Economica*, Vol. 58, pp. 515-529. https://doi.org/10.2307/2554696

Corden, W. M. and Neary, J. P. (1982), "Booming Sector and De-Industrialisation in a Small Open Economy", *The Economic Journal*, Vol. 92, pp. 825-848. https://doi.org/10.2307/2232670

Deng, T. and Ma, M. (2016), "Booming Tourism İndustry and Urban Economic Growth: Blessing or Curse for China's Major Tourist Cities?", *Tourism Economics*, Vol. 22, No. 5, pp. 1161-1168. https://doi.org/10.5367/te.2015.0475

Deng, T., Ma, M. and Cao, J. (2014), "Tourism Resource Development and Longterm Economic Growth: A Resource Curse Hypothesis Approach", *Tourism Economics*, Vol. 20, No. 5, pp. 923-938. https://journals.sagepub.com/doi/10.5367/te.2013.0325

Dwyer, L., Pham, T., Jago, L., Bailey, G. and Marshall, J. (2014), "Modeling the Impact of Australia's Mining Boom on Tourism: A Classic Case of Dutch Disease", *Journal of Travel Research*, pp.1-13. https://journals.sagepub.com/doi/abs/10.1177/0047287514541007

Eberhardt, M. and Bond, S. (2009), "Cross-section Dependence in Nonstationary Panel Models: A Novel Estimator", *MPRA Paper*, Vol. 17870, pp. 1-26.

Eberhardt, M. and Teal, F. (2011), "Econometrics for Grunblers: A New Look at the Literature on Cross-Country Growth Empirics", *Journal of Economic Surveys*, Vol. 25, No. 1, pp. 109-155. https://doi.org/10.1111/j.1467-6419.2010.00624.x

Eberhardt, M. (2012), "Estimating panel time-series models with heterogeneous slopes", *The Stata Journal*, Vol. 12, No. 1, pp. 61-71. https://doi.org/10.1177/1536867x1201200105

Figini, P. and Vici, L. (2009), "Tourism and Growth in a Cross-Section of Countries (Working Paper Series 01_09) Rimini, Italy: The Rimini Centre for Economic Analysis", Republished in *Tourism Economics*, Vol. 16, pp. 789-805. https://doi.org/10.5367/te.2010.0009

Ghalia, T. and Fidrmuc, J. (2015), "The Curse of Tourism?", *Journal of Hospitality & Tourism Research*, pp. 1-18. https://journals.sagepub.com/doi/abs/10.1177/1096348015619414

Gurbanov, S. (2012), "*Hollanda Hastalığı Teori ve Ülke Örnekleri*", Akis Kitap, İstanbul.

Hadri, K. and E. Kurozumi (2012), "A Simple Panel Stationarity Test in the Presence of Serial Correlation and a Common Factor", *Economics Letter*, Vol. 115, pp. 31-34. https://doi.org/10.1016/j.econlet.2011.11.036

Holzner, M. (2005), "*Fear of Croatian disease: Is there a danger of a Dutch disease effect with respect to a boom in the tourism sector in Croatia in the long run—"The Croatian disease*", Doctoral thesis, WU Vienna University of Economics and Business, Wien, Austria.

Holzner, M. (2011), "Tourism And Economic Development: The Beach Disease?", *Tourism Management*, Vol. 32, No. 4, pp. 922-933. https://doi.org/10.1016/j.tourman.2010.08.007

Inchausti-Sintes, F. (2015), "Tourism: Economic Growth, Employment and Dutch Disease", *Annals of Tourism Research*, Vol. 54, pp. 172-189. https://doi.org/10.1016/j.annals.2015.07.007

Jalil, A., Mahmood, T. and Idrees, M. (2013), "Tourism–growth nexus in Pakistan: Evidence from ARDL bounds tests", *Economic Modelling*, Vol. 35, pp. 185-191. https://doi.org/10.1016/j.econmod.2013.06.034

Kadir, N. and Jusoff, K. (2010), "The cointegration and causality tests for tourism and trade in Malaysia", *International Research Journal of Finance and Economics*, Vol. 2, No. 1, pp. 138-143. https://doi.org/10.5539/ijef.v2n1p138

Kareem, O. A. (2013), "A reassessment of tourism-exports led growth hypothesis in Africa", *American Journal of Tourism Research*, Vol. 2, No. 1, pp. 130-140. https://doi.org/10.11634/216837861302359

Katircıoğlu, S. T. (2009), "Tourism, trade and growth: The case of Cyprus", *Applied Economics*, Vol. 41, No. 21, pp. 2741-2750. https://doi.org/10.1080/00036840701335512

Katircıoğlu, S. T. (2010), "Testing the tourism-led growth hypothesis for Singapore-An empirical investigation from bounds test to cointegration and Granger causality tests", *Tourism Economics*, Vol. 16 No. 4, pp. 1095-1101. https://doi.org/10.5367/te.2010.0012

Katircıoğlu, S. T. (2011), "Tourism and growth in Singapore. New extension from bounds test to level relationship and conditional Granger causality tests", *Singapore Economic Review*, Vol. 56, No. 3, pp. 441-453. https://doi.org/10.1142/S0217590811004365

Khalil, S., Mehmood, K. K. and Waliullah, K. (2007), "Role of tourism in economic growth: Empirical evidence from Pakistan economy", *The Pakistan Development Review*, Vol. 46, No. 4, pp. 985-995. https://doi.org/10.30541/v46i4IIpp.985-995

Lean, H. H. and Tang, C. F. (2010), "Is the tourism-led growth hypothesis stable for Malaysia? A note", *International Journal of Tourism Research*, Vol. 12, No. 4, pp. 375-378. https://doi.org/10.1002/jtr.759

Lee, C. C. and Chang, C. P. (2008), "Tourism development and economic growth: Closer look to panels", *Tourism Management*, Vol. 29, No. 1, pp. 180-192. https://doi.org/10.1016/j.tourman.2007.02.013

Lee, J. W. and Brahmasrene, T. (2013), "Investigating the influence of tourism on economic growth and carbon emissions: Evidence from panel analysis of the European Union", *Tourism Management*, Vol. 38, pp. 69-76. https://doi.org/10.1016/j.tourman.2013.02.016

Lee, J. W. and Kwag, M. (2013), Green growth and sustainability: The role of tourism, travel and hospitality service industry in Korea, *Journal of Distribution Science*, Vol. 11, No. 7, pp. 15-22. https://dbpia.co.kr/journal/articleDetail?nodeId=NODE09038486#

Li, C. C., Mahmood, R., Abdullah, H. and Chuan, O. S. (2013), "Economic growth, tourism and selected macroeconomic variables: A triangular causal relationship in Malaysia", *Margin: The Journal of Applied Economic Research*, Vol. 7, No. 2, pp. 85-120. https://doi.org/10.1177/0973801013483503

Macdonald, R. (2007), "Not Dutch Disease, It's China Syndrome", *Insights on the Canadian Economy*, pp. 1-15. https://doi.org/10.2139/ssrn.1407715

Magud, N. and Sosa, S. (2015), "Ulusal Paranın Değerlenmesi Bir Endişe Kaynağı mıdır? Hollanda Hastalığı ve Büyüme Arasındaki Eksik Halka", Bal H. and Akca E.E. (Ed.), *Çukurova University Journal of Economics and Administrative Sciences* , Vol. 19, No. 1, pp. 1-26.

McCoskey, S. and Kao C. (1998), "A residual-based test of the null of cointegration in panel data", *Ekonometric Reviews*, Vol. 17, pp. 57-84. https://doi.org/10.1080/07474939808800403

Mieiro, S., Ramos, P. N. and Alves J. (2012), "Gaming Tourism Boom, Foreign Currency Inflows, and Dutch Disease Effects: an Empirical Model for Macau", *International Journal of Trade, Economics and Finance*, Vol. 3, No. 6, pp. 421-427. https://doi.org/10.7763/IJTEF.2012.V3.238

Nazlioglu, S. (2010), "*Makro İktisat Politikalarının Tarım Sektörü Üzerindeki Etkileri: Gelişmiş ve Gelişmekte Olan Ülkeler için Bir Karşılaştırması*", Erciyes University Institute of Social Sciences, Unpublished Doctoral Thesis, Kayseri.

Nazlioglu, S., Lebe, F. and Kayhan, S. (2011), "Nuclear Energy Consumption and Economic Growth in OECD Countries: Cross-Sectionally Dependent Heterogeneous Panel Causality Analysis", *Energy Policy*, Vol. 39, No. 10, pp. 6615-6621. https://doi.org/10.1016/j.enpol.2011.08.007

Nowak, J. J. and Sahli, M. (2007), "Coastal Tourism and 'Dutch Disease' in a Small İsland Economy", *Tourism Economics*, Vol. 13, No. 1, pp. 49-65. https://doi.org/10.5367/000000007779784452

Othman, R., Salleh, N. H. M. and Sarmidi, T. (2012), "Analysis of causal relationship between tourism development, economic growth and foreign direct investment: An ARDL approach", *Journal of Applied Sciences*, Vol. 12, No. 12, pp. 1245-1254. https://doi.org/10.3923/jas.2012.1245.1254

Pavlic, I., Svilokos, T. and Tolic, M. S. (2015), "Tourism, real effective exchange rate and economic growth: Empirical evidence for Croatia", *International Journal of Tourism Research*, Vol. 17, No. 3, pp. 282-291. https://doi.org/10.1002/jtr.1986

Pesaran, M. H. (2004), "General Diagnostic Tests for Cross Section Dependence in Panels",*Cambridge Working Papers in Economics*, Vol. 435, pp. 1-39.

Pesaran, M. H. (2006), "Estimation and Inference in Large Heterogeneous Panels With a Multifactor Error Structure", *Econometrica*, Vol. 74, No. 4, pp. 967-1012. https://doi.org/10.1111/j.1468-0262.2006.00692.x

Pesaran, M. H. (2007), A simple panel unit root test in the presence of cross-section dependence, *Journal of applied Econometrics*, Vol. 22, No. 2, pp. 265-312. https://doi.org/10.1002/jae.951

Pesaran, M. H., Ullah, A. and Yamagata, T. (2008), "A Bias-adjusted Lm Test of Error Cross-Section Independence", *Econometrics Journal,* Vol. 11, pp. 105-127. https://doi.org/10.1111/j.1368-423x.2007.00227.x

Pesaran, M. H. and Yamagata, T. (2008), "Testing Slope Homogeneity in Large Panels", *Journal of Econometrics*, Vol. 142, pp. 50-93. https://doi.org/10.1016/j.jeconom.2007.05.010.x

Pham, T. D., Nghiem, S. and Dwyer, L. (2017), "The Economic Impacts of a Changing Visa Fee for Chinese Tourists to Australia", *Tourism Economics*, pp. 1-18. https://doi.org/10.1177/1354816617726204

Pham, T. D., Jago, L., Spurr, R. and Marshall, J. (2015), "The Dutch Disease effects on tourism–The case of Australia", *Tourism Management*, Vol. 46, pp. 610-622. https://doi.org/10.1016/j.tourman.2014.08.014

Romao, J., Guerreiro, J. and Rodrigues, P. M. (2016), "Tourism Growth and Regional Resilience: The 'Beach Disease' and the Consequences of the Global Crisis of 2007", *Tourism Economics*, Vol. 4, No. 22, pp. 699-714. https://doi.org/10.1177/1354816616654243

Sahin, L. and Sahin, D. K. (2015), "Hollanda Hastalığının Etkileri: Rusya Örneği", *Hitit University, Journal of Institute of Social Sciences* , Vol. 8, No. 2, pp. 599-610. https://doi.org/10.17218/husbed.89132

Sheng, L. and Tsui, Y. (2009), "A General Equilibrium Approach to Tourism and Welfare: The case of Macao", *Habitat International*, pp. 419-424. https://doi.org/10.1016/j.Habitatint.2009.01.002

Sul, D., Phillips, P.C.B. and Choi, C.Y. (2005), Prewhitening Bias in HAC Estimation, *Oxf. Bull. Econ. Stat.* Vol. 67, No 4, pp. 517–546. https://doi.org/10.1111/j.1468-0084.2005.00130.x

Tang, C. F. (2011), "Is the tourism-led growth hypothesis valid for Malaysia? A view from disaggregated tourism markets" *International Journal of Tourism Research*, Vol. 13, No. 1, pp. 97-101. https://doi.org/10.1002/jtr.807

Tang, C. F. and Tan, E. C. (2013), How stable is the tourism-led growth hypothesis in Malaysia? Evidence from disaggregated tourism markets. *Tourism Management*, Vol. 37, pp. 52-57. https://doi.org/10.1016/j.tourman.2012.12.014

Toda, H. Y. and Yamamoto, T. (1995), Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics*, Vol. 66, No. 1-2, pp. 225-250. https://doi.org/10.1016/0304-4076(94)01616-8

Trang, N. H. M.; Duc, N. H. C. and Dung, N. T. (2014), "Research note: Empirical assessment of the tourism-led growth hypothesis—the case of Vietnam", *Tourism Economics*, Vol. 20, No. 4, pp. 885-892. https://doi.org/10.5367/te.2013.0307

Tugcu, C. T. (2014), "Tourism and economic growth nexus revisited: A panel causality analysis for the case of the Mediterranean region", *Tourism Management*, Vol. 42, pp. 207-212. https://doi.org/10.1016/j.tourman.2013.12.007

Van Wijnbergen, S. (1984), "The 'Dutch Disease': A Disease After all?", *Economic Journal,* Vol. 94, No. 373, pp. 41-55. https://doi.org/10.2307/2232214

Wang, B. and Xia, M. (2013), "A study on the relationship between tourism industry and regional economic growth—A case study of Jiangsu Gaochun district", *Modern Economy,* Vol. 4, pp. 482-488. https://doi.org/10.4236/me.2013.47052

Westerlund, J. and D. Edgerton (2007), "A Panel Bootstrap Cointegration Test", *Economics Letters,* Vol. 97, No. 3, pp. 185-190. https://doi.org/10.1016/j.econlet.2007.03.003

World Bank (2017), World Development Indicators, viewed 17 March 2018, http://data.worldbank.org/data-catalog/world-development-indicators

Wu, T. P. and Wu, H. C. (2019), "Tourism and economic growth in Asia: A bootstrap multivariate panel Granger causality", *Int. J. Tourism Res*, Vol. 21, pp. 87-96. https://doi.org/10.1002/jtr.2243

Wu, T. P., Wu, H. C., Liu, S. B. and Hsueh, S. J. (2018), "The relationship between international tourism activities and economic growth: Evidence from China's economy", *Tourism Planning and Development*, Vol. 15, No. 4, pp. 365-381. https://doi.org/10.1080/21568316.2017.1324809

Zhang, H. and Yang, Y. (2018), "Prescribing for the Tourism-induced Dutch Disease: A DSGE Analysis of Subsidy Policies", *Tourism Economics,* Vol. 20, No. 10, pp. 1-22. https://doi.org/10.1177/1354816618813046

Nesrin Tuncay, PhD Student (Corresponding Author)
Necmettin Erbakan University
Faculty of Tourism,
Department of Tourism Management
Address: Demeç Sk. No: 12, 42090 Meram / Konya, Turkey
Phone: +90-0531-3612392,
E-mail: nevriztuncay@hotmail.com

Ceyhun Can Özcan, PhD, Associate Professor
Necmettin Erbakan University
Faculty of Tourism
Department of Tourism Management
Address: Demeç Sk. No:12, 42090 Meram/Konya, Turkey
Phone: +90-0545-2089158,
E-mail: ceyhuncan5@hotmail.com

Please cite this article as:
Tuncay, N., Özcan, C.C. (2020), The Effect of Dutch Disease in the Tourism Sector: The Case of Mediterranean Countries, Vol. 26, No. 1, pp. 97-114, https://doi.org/10.20867/thm.26.1.6