

## The effects of tourism demand on regional sectoral employment in Turkey \*

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This study aims to examine the effects of total, foreign and domestic tourism demand on sectoral employment in regions, based on the level 2 of the Nomenclature of Territorial Units for Statistics (NUTS2) classification determined by the Turkish Statistics Institute (TurkSTAT). For this purpose, we study the impact of tourism demand on overall and sectoral employment in the regions of Turkey between 2004 and 2013, using the Random Coefficients Regression model developed by Swamy. The main results of the study indicate that the contribution of tourism demand, both foreign and domestic to employment, differs across the regions and sectors. Also, the results show that tourism's employment contribution to the industrial sector is the highest. Moreover, the employment contribution of tourism demand is negative for some regions. The employment contribution of domestic tourists' stays is greater than that of foreigners. Based on the results of this study, we can conclude that tourism demand can be used as an effective tool to reduce differences in regional developmental level and increase the contribution to both regional and sectoral employment. There is an urgent need to either develop new tourism policies or revise existing ones so that the county and regions can benefit from investing in the tourism sector.

### **Keywords:**

tourism demand,  
sectoral employment,  
Random Coefficient Regression,  
panel unit root tests,  
cross-sectional dependence

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## Introduction

Tourism is often recognised as a significant factor in a country's long-term economic growth. The contribution of tourism to economic growth can be realised by investment in new infrastructure. It also creates indirect effects on local economies and increases employment (Solnet et al. 2014). According to Pérez-Rodríguez et al. (2015), there are various channels through which inbound tourism can increase economic growth. First, countries use tourism receipts to cover foreign exchange needs and thus enjoy improvements in the balance of payments accounts. Second, countries can use these receipts to invest in machinery, tools, equipment and factories. Third, by creating direct, indirect and induced effects, it can boost other economic sectors such as industrial and agricultural production, international and domestic trade and the development of service-related industries like transportation, telecommunications, banking, travel agencies, among others. Finally, it contributes to generating employment. Therefore, the expansion of the tourism industry positively impacts foreign exchange earnings through tourism receipts, economic growth, and job creation (Castillo et al. 2017).

As mentioned by Sinclair (1998), the primary reason for the key role of the tourism industry in developing countries is that it generates both formal and informal employment. There are three types of employment created by expanding the tourism industry: direct, indirect, and induced (Alrwajfah et al. 2020). According to Sharpley and Telfer (2015), tourism is a diverse and labour-intensive industry. Therefore, it can create a wide range of employment opportunities. Moreover, tourism generally employs more women, young people, and people with low educational attainment than most industries, fostering an environment of inclusiveness and empowerment for vulnerable groups (Castillo et al. 2017). Besides, given its low barriers to entry, the industry provides investment opportunities for entrepreneurs to start small-scale firms and hire workers.

Although the expansion of the tourism industry creates new employment opportunities, critics argue that jobs in the industry are primarily low-paying, low-skilled, monotonous, highly-pressurised, involve poor working conditions, are part-time and seasonal, not family-friendly and have poor management and career structures (Janta et al. 2012). Thus, individuals employed in tourism are considered as 'uneducated, unmotivated, untrained, unskilled and unproductive' (Riley et al. 2002). In other words, the tourism industry is highly labour-intensive with a wide range of roles that are part-time, casual or require limited formal education or on-the-job training; allowing quick entry into the workforce (Hutchings et al. 2020).

As one of the world's leading industries (World Travel and Tourism Council (WTTC) 2019), tourism industry generates 10.3% of the world's gross domestic product (GDP) (direct, indirect, and induced impact) and provides one out of every ten jobs (directly and indirectly) worldwide. Besides, according to Garsous et al.

(2017), one direct job in the tourism sector generates an additional 1.5 indirect jobs in the host economy. However, tourism attracts workers who normally have less access to the labour market, such as the young workforce, women, migrants, and the rural population (Garsous et al. 2017). Also, job opportunities in the tourism sector are mostly of lower quality than in other sectors (Alrwajfah et al. 2020).

Tourism is a very important industry for Turkey's economy, and it is one of the country's most dynamic and fastest-growing industries. According to the report by Organisation for Economic Co-operation and Development (OECD) (2020), in 2018, the industry directly accounted for 7.7% of total employment by employing 2.2 million people. The total income generated by the tourism industry was 3.8% of the GDP. The proportion of travel exports in total service exports was 51.9%. The number of inbound international tourist arrivals was 45.8 million international tourists in 2018, which was a 21.7% increase compared to 2017 and generated TRY 142.4 billion in tourism revenues, a 12% increase compared to the previous year. Border statistics of 2018 show the top inbound markets and their total international arrivals included Russia (13.0%), Germany (9.8%), Bulgaria (5.2%), United Kingdom (4.9%) and Georgia (4.5%). There is also an increasing trend in domestic tourism in Turkey, with a total of 126.4 million trips recorded in 2018, an increase of 4.6% compared to 2017. Of these trips, 78.5 million were overnight visitors (62.1%), and 47.9 million were same-day visitors (37.9%).

In addition to direct and indirect income and employment generating effects, it is widely believed that tourism creates spillovers or externalities to other industries of economy, such as agriculture, manufacturing and services, thus boosting local economies (Kadiyali-Kosová 2013). Such spillovers occur because the visitors staying in the area increase demand for various local goods and services, either by direct spending or indirectly via multiplier effects. Also, according to Carrascal Incera and Fernández (2015), international and regional experiences reveal that tourism can cause significant positive direct and indirect effects at the local level by increasing production and generating employment as well as increasing wages and capital revenues. Despite its important economic impact, empirical evidence on how much tourism contributes to the local economy is sporadic, especially in terms of employment. In other words, little research has examined the effects of tourism on sectoral employment in regions yet. Therefore, to fill this gap in the literature, we analyse the impact of tourism demand on regional employment. Besides this, we contribute to the literature by using the Random Coefficients Regression model developed by Swamy (1970) instead of using computable general equilibrium models, Input-Output multipliers analysis or time series unit-root and co-integration models. Our goal is to examine the importance of the tourism industry in Turkey for its contribution to sectoral employment in regions. To examine regions' sectoral employment effects of tourism, we study those regions categorised as level 2 of the Nomenclature of Territorial Units for Statistics (NUTS2) classification determined

by the Turkish Statistics Institute (TurkSTAT). Besides, we focus not only on international inbound tourism but also on domestic and the total tourism demand. In addition to examining the impact of tourism demand on each sector's overall employment, we also analyse their contributions to regional employment of different sectors such as agriculture, services, and industry. Thus, these additional regional analyses should also be considered as one of the main contributions of the study, along with its first attempt to analyse these relationships for Turkey.

The rest of the paper is organised as follows. After reviewing the literature, we continue to summarise the methodology and data used in the study and present the empirical results. Finally, we discuss the empirical results and draw the conclusions.

## Literature review

We review the related literature by establishing two groups. In the first group, we review papers explaining the relationships between tourism and employment and tourism's sectoral linkages. In the second group, we review the empirical results of papers examining the relationship between the tourism industry and employment and spillover effects of the tourism industry to other sectors.

### Tourism and employment

According to the Three Sectors theory (Clark 1957)<sup>1</sup>, as countries develop, the labour force tends to leave the agricultural sector and first joins the industrial sector and then, the services sector, which also includes tourism. As highlighted by Vellas and Bécherel (1995, p. 319), the tourism sector is key to decrease unemployment, especially in less developed countries. Moreover, tourism can employ both skilled and unskilled workers. According to studies by Page (2009), Cook et al. (2010), Capó and Valle (2008), Salish and Rodrigues (2011), Polo and Valle (2008) and Vanhove (2005), in a region of a country, an increase in tourism demand, increases employment.

As per the study by Dredge et al. (2011), with the increase in international travel and tourism activities after the 1960s, many countries adopted policies that aim to design the tourism sector so that the sector can contribute more to employment and export. Aguiló-Pérez and Rosselló-Nadal (2011) explained that the development of the tourism sector encourages new investments, correspondingly creating new employment opportunities.

According to Vellas and Bécherel (1995), there are three different ways in which tourism contributes to employment. These are direct employment, indirect employment, and induced employment. Even though Vellas and Becherel (1995)

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<sup>1</sup> Colin Clark first mentioned his three sectors theory in the year 1940, within his book titled "The conditions of economic progress".

identifies three different employment effects of the tourism sector, Riley et al. (2002) argue that it is extremely difficult to identify the indirect effect of this sector on employment. This is because data can only be obtained related to direct employment concerning the tourism sector in businesses such as hotels, food-beverage, and other businesses. Besides, according to Riley et al. (2002), when people refer to tourism-related employment, they usually consider employment in hotel businesses. However, there are many reasons why people travel, including business, use of products from service sectors and their products at the destination. For these reasons, it is difficult to define tourism employment. However, Lickorish and Jenkins (2006) and Coltman (1989) identify the employment effects of the tourism sector as a direct and indirect employment effect.

Direct employment is the employment created as a result of travellers visiting a region or country including business like travel and transport, food and beverages, hotel among others. Indirect employment is the employment created to support and enhance business directly involved in servicing travellers, for example infrastructure development and agriculture, among others. However, according to Coltman (1989), the capability of tourism activities for creating such employment impacts depends on whether the tourism sector is in close relation with the other economic sectors. Thus, we conclude that the higher the number of tourist arrivals is, the higher the employment is in tourism as well as in sectors such as services, industry, and agriculture.

By examining the theories on the interaction and strategies of co-existence between economic sectors, Moyle et al. (2018) suggest efficient policies and strategies for co-existence of tourism and resource sectors.

Finally, the study by Baum and Thi Thanh Hai (2019) offers new perspectives to tourism employment, especially by applying sustainable employment principles in the tourism industry. There is a growing concern over the tourism employment, especially the sustainability debate within international tourism; this paper provides new thoughts about whether the ethical and practical challenges often presented in tourism employment worldwide could be improved by adopting a human rights perspective.

### **Empirical studies on tourism and employment**

The study by Vanhove (1981) is one of the first studies examining the relationship between employment and tourism demand. The study presents the primary, direct effects of tourism on employment, and the secondary effects, composed of both indirect and induced employment. Hughes (1982) examined the relationship between tourism and employment in the UK and indicated the role of tourism in providing supplementary employment and income. Brown and Connelly (1986) studied the relationship between tourism and employment in Adirondack Park of northern New York State and found the relative importance of tourism within the

Adirondack Park in comparison to the rest of northern New York. Al-Rfou and Aliqah (2010) examined the impact of the tourism sector on the economy in Jordan between 1990 and 2008 using descriptive statistics method. In the conclusion of this study, the authors indicated that the tourism sector grew by contributing 12.3% to 14.6% to the GDP, and an improvement in employment rate resting at 2.5%. Pavlič et al. (2013) examined the relationships between tourism and employment in Croatia during the 1990–2012 period using the VAR method. They found that tourism had a positive impact on employment in the long term. Gallo and Montanari (2017) studied the effects of crises on tourism companies focusing on the employment system in Northern Latium. They showed that the adverse effects of crises on employment were worse than those indicated by official figures.

Using data from hotels in Spain, France, Germany, and Europe as a whole, Melián-González and Bulchand-Gidumal (2020) investigate the impact of modern information and communication technologies (ICTs) on employment. They demonstrated that in the past decade, there had been a decrease in the intensity of human labour required. This trend is occurring particularly in high-end hotels and indicates a reduction in human labour in the hotel industry (Melián-González and Bulchand-Gidumal 2020). By using a dynamic vector error correction model, Fauzel (2016) attempts to address the question of whether tourism development has enhanced employment in Mauritius between 1988 and 2014. The results show that tourism expansion has contributed to boosting direct, indirect and induced employment in both the long- and short-term. Dogru et al. (2020) examine the effects of Airbnb supply on employment in the hospitality, tourism, and leisure industries in 12 major metropolitan statistical areas in the United States for the period between July-2008 and February-2018. The results showed that Airbnb supply positively affected employment in all sectors of the hospitality, tourism, and leisure industries. Akkemik (2012) investigated the impact of international tourism expenditure on domestic production, GDP and employment in Turkey using the social accounts matrix (SAM) between 1996 and 2002. According to the results of the study, the international tourism expenditures positively affected domestic production, GDP and employment. Moreover, the study found that the contribution to the economy by domestic tourism activities was more significant than that of international tourism. Szivas and Riley (1999) examined the tourism employment during the economic transition and concluded that ‘employment in this industry emerges as being attractive and accessible for people with various human capital’. Tutar et al. (2013) studied the impact of the tourism sector on employment in Turkey through a SWOT analysis. Trying to reveal the strengths, weaknesses, opportunities and threats between tourism and employment through this analysis, the authors indicated that tourism sector had strengths towards creating employment as it is a services-dominated sector and provides foreign currency

influx, while it also had weaknesses as the labour in the sector had foreign language issues and displayed a seasonal structure, particularly in Turkey.

Focusing on the social (employment) dimension of sustainable development, Fortanier and van Wijk (2010) analysed how foreign firms in the hotel industry influenced the quantity and quality (skills) of local employment (number of jobs). Using interview data with managers of 123 foreign and locally owned hotels in Mozambique, Tanzania and Ethiopia, the findings of the study indicate that the simple scale effects of foreign hotels in the least developed countries are positive. However, their contribution to local human capital via training is very limited. By using a unique multi-method natural experiment to measure the economic, social, and environmental impact of cruise tourism on a local community, MacNeill and Wozniak (2018) found gains in employment, income, and related measures. The results of the study showed that in low taxation and regulation environments with an absence of community development and involvement initiatives, large cruise tourism projects could fail to provide benefits for local populations. Examining Gambia's employment creation possibilities from tourism investments, Farver (1984) argued that the contribution of tourism is very limited and provides little benefit to the local population. Also, the study concluded that the tourism industry had not employed many Gambians, nor had it provided wages to allow them to increase their well-being. Examining the relationship between tourism and other sectors, employment and tax revenues for Tanzania by using an Input-Output analysis, Kweka et al. (2001) suggest the presence of potential for tourism to provide employment opportunities. However, they also concluded that the prospects for tourism to be a reliable employment generator are poor.

Choi and Sirakaya (2005) analysed the attitudes of the local populace living in Texas towards sustainable tourism. They applied a questionnaire consisting of 51 questions that also incorporated economic variables to a total of 800 households. The result of the analyses revealed that the tourism sector provided strong contributions to the economy, increased other sector incomes, diversified the local economy, increased tax revenues and created new income opportunities (employment). Witt et al. (2004) investigated the impact of the tourism sector on employment between 1969 and 1999 in Denmark by using the input-output method. The study concluded that the revenues gained especially from foreign tourists would increase the employment of the educated, as another conclusion of the study confirmed that tourism had an impact on employment in other sectors. By using data from 43 U.S. metropolitan statistical areas during 1987–2006, a dynamic labour demand model with inter-industry spillover effects, and various estimators including GMM-based dynamic panel methods, Kadiyali and Kosová (2013) investigated the impact of tourism inflows on employment in 22 non-hotel industries and found statistically and economically significant effects. The results of the study indicated that construction, retail, health care, professional and technical

services were among the largest beneficiaries of these spillovers. Yildiz (2011) compared the employment contribution of industrial and tourism sectors. The study concluded that the tourism sector had a significant impact on decreasing unemployment in Turkey.

A review of the literature revealed that some empirical studies on tourism had analysed its impact on local community development and other industries. However, such studies are uncommon, and they do not examine the industry's effects on sectoral employment by region. Thus, this review of literature reinforces the fact that our study can contribute to the existing literature in tourism research.

## Methodology

To examine the sectoral employment effects of tourism across the regions of Turkey, we use the panel data method of "Random Coefficients Regression" developed by Swamy (1970). Before estimating the random coefficients regression, we should consider possible cross-sectional dependence across regions. Thus, we first test the existence of cross-sectional dependence among the regions and then determine the degree of integration of variables by using second-generation unit root tests developed by Pesaran (2007). Next, we estimate the region-specific effects by using Random Coefficients Regression. Finally, we present the employment effects of tourism demand using Turkey's map.

### Cross-sectional dependence and unit root tests

We carried out tests to determine cross-sectional dependence among Turkey's regions applying the Lagrange multiplier (LM) test of Breusch and Pagan (1980) ( $BP_{LM}$ ) and cross-sectional dependence LM ( $CD_{LM}$ ) test developed by Pesaran (2004), a modified version of the LM test by Pesaran et al. (2008) ( $LM_{adj}$ ) and LM test of Baltagi et al. (2012) ( $LM_{BC}$ ). All the cross-sectional dependence tests examine the following hypotheses:

$H_0$ :  $cov(u_{it}, u_{jt}) = 0$  or  $\sigma_{ij} = 0$  ve  $i \neq j$ . (There is no cross-section dependence)

$H_1$ :  $cov(u_{it}, u_{jt}) \neq 0$  or  $\sigma_{ij} \neq 0$  (There is cross-section dependence)

After determining the existence of cross-sectional dependence among the regions of Turkey, we specify the degree of integration of each variable. We use the second-generation panel unit root tests developed by Pesaran (2007). This panel unit root test takes account of cross-sectional dependence. This test is the version of the conventional Augmented Dickey-Fuller (ADF) unit root test adapted to panel data. To determine the degree of the integration of variables, we test the following hypotheses:

$H_0$ :  $b_i = 0$  for all "i". (Variable has a unit root, i.e. not stationary.)

$H_1$ :  $b_i < 0$  for at least 1 "i". (Variable does not have a unit root, i.e. stationary.)



### Random Coefficients Regression (Swamy 1970)

To obtain the impact of tourism demand on sectoral employment across the regions, one has to adopt a method which allows the estimation of different coefficients for each region. Thus, in this study, we use the Random Coefficients Regression developed by Swamy (1970). The regression equation can be written as follows:

$$y_{it} = X_{it}\beta_i + u_{it} \quad (1)$$

where  $y_i$  is the dependent variable, which represents for this study the overall employment, services sector employment, agriculture sector employment, industry sector employment, and consumer price index variables;  $X_i$  represents the independent variable, which means for this study the total overnight stays, foreign overnight stays, domestic overnight stays variables;  $u_i$  is the model's error term. "i" represents the NUTS2 region classification defined by TurkSTAT in the form  $i=1, 2, \dots, N$ ; in our example  $N=26$ .

$\beta_i$  included in Equation (1) represents the coefficients vector at  $k \times 1$  dimension for each cross-section.

$$\beta_i = \beta + \delta_i \quad E(\delta_i) = 0 \quad \text{and} \quad E(\delta_i \delta_i') = \Sigma = \begin{cases} \Delta, & \text{if } i = j \\ 0, & \text{if } i \neq j \end{cases} \quad (2)$$

Based on the information provided under Equation (2), the equation is written as follows;

$$y_i = X_{it}(\beta_i + \delta_i) + u_i = X_{it}\beta + (X_{it}\delta_i + u_i) = X_{it}\hat{\beta} + \theta_i' \quad (3)$$

Since the variance of the error term  $q_i$  in the Equation (3) is dependent on both  $u_{it}$  and  $X_{it}\delta_i$ , it is not stationary and is indicated as follows:

$$E(\theta_i \theta_i') = E\{(X_{it}\delta_i + u_i)(X_{it}\delta_i + u_i)'\} = E(u_i u_i') + X_i E(\delta_i \delta_i') X_i' = \sigma_i^2 I + X_i \Sigma X_i' \quad (4)$$

Next, the variance for each cross-section is calculated as follows;

$$\hat{\sigma}_{ii}^2 = \frac{(y_i - X_i \hat{b}_i)'(y_i - X_i \hat{b}_i)}{T_i - k} \quad (5)$$

where "T" represents the time dimension, and "k" represents the number of variables.  $\hat{b}_i$  values are obtained for each cross-section by using the OLS estimator, in the form;  $\hat{b}_i = (X_i' X_i)^{-1} (X_i' y_i)$ .

Although the method of estimation of model coefficients is important, it is necessary to determine whether the coefficients vary between cross-sections, which means 'region to region' in the context of this study. The following expression gives the test statistic developed by the study by Swamy (1970, p. 319) to test the parameter constancy:

$$H_\beta = \sum_{i=1}^N \frac{(b_i - \hat{\beta})' X_i' X_i (b_i - \hat{\beta})}{\hat{\sigma}_{ii}^2} \quad (6)$$

$H_\beta$  is the test statistic which has asymptotic  $\chi^2$  distribution with  $k(N-1)$  degree of freedom. The following hypotheses are tested to determine whether the regions have a single common coefficient.

$H_0: \beta_1 = \beta_2 = \dots \beta_N = \hat{\beta}$  (All regions have a single common coefficient)

$H_1: \beta_1 \neq \beta_2 \neq \dots \beta_N \neq \hat{\beta}$  (Every region has a different coefficient)

When the calculated  $H_\beta$  statistic is larger than the table value of  $\chi^2$ , the null hypothesis is rejected, and it is deemed that each region has a different coefficient.<sup>2</sup>

### Mapping of Random Coefficients Regression results

The employment elasticities (impacts) concerning the overnight stay of total tourists, foreign tourists, and domestic tourists across the employment in the service sector, industrial sector, agriculture sector and overall were mapped by using the choropleth mapping method<sup>3</sup>. During the establishment of spacing, median values were obtained by taking into consideration the averages of coefficients and their standard errors. The values over and below standard errors were divided into two equal parts, and the quinary spacing values were calculated. The impact of the number of overnight stays by the overall tourists is displayed with brown tones on the choropleth maps. While darker tones represented the highest coefficients of elasticity (impact), lighter tones represented the lowest coefficients of elasticity. The impacts of the number of overnight stays by the foreign tourists were displayed with a transition from red to dark blue (bipolar colouring methodology), where red represented the highest coefficients of elasticity and blue represented the lowest coefficients of elasticity. The impact of the number of foreign tourists' overnight stays was mapped by the shading method, where thick textures represented the highest coefficients of elasticity and sparse textures represented the lowest coefficients of elasticity.

The impact of domestic and foreign tourists on sector-based employment was displayed using column chart maps, where red columns represented the impact of foreign tourists and green columns represented the impact of domestic tourists on the relevant type of employment.

After intersection of the maps drawn through choropleth method and those drawn through column chart method, the impact of total tourist overnight stays, foreign tourist overnight stays, and domestic tourist overnight stays on the employment variables may be observed as a whole.

<sup>2</sup> Detailed information on the method may be obtained from the study by Swamy (1970).

<sup>3</sup> For the mapping process, MapInfo software (version 12.5) was used.

## Data

To estimate the effects of the total number of overnight stays by tourists (LNTOTTOUR), the number of overnight stays by foreign tourists (LNFORTOUR), and number of overnight stays by domestic tourists (LNDOMTOUR) on overall employment (LNTOTEMP) and regional sectoral employment of services (LNSERVICE), industry (LNINDUSTRY) and agriculture sector (LNAGRICULTURE), we use data obtained from the TurkSTAT. The study employs a panel data throughout 2004–2013 based on for NUTS2<sup>4</sup> regional classification of TurkSTAT. Table 1 presents 26 regional classifications belonging to NUTS2 level.

Table 1

### NUTS2 Regional classification in Turkey

Groups	Group Code	Group Name	Groups	Group Code	Group Name
1	TR10	İstanbul	14	TR71	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir
2	TR21	Tekirdağ, Edirne, Kırklareli	15	TR72	Kayseri, Sivas, Yozgat
3	TR22	Balıkesir, Çanakkale	16	TR81	Zonguldak, Karabük, Bartın
4	TR31	İzmir	17	TR82	Kastamonu, Çankırı, Sinop
5	TR32	Aydın, Denizli, Muğla	18	TR83	Samsun, Tokat, Çorum, Amasya
6	TR33	Manisa, Afyon, Kütahya, Uşak	19	TR90	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane
7	TR41	Bursa, Eskişehir, Bilecik	20	TRA1	Erzurum, Erzincan, Bayburt
8	TR42	Kocaeli, Sakarya, Düzce, Bolu, Yalova	21	TRA2	Ağrı, Kars, Iğdır, Ardahan
9	TR51	Ankara	22	TRB1	Malatya, Elazığ, Bingöl, Tunceli
10	TR52	Konya, Karaman	23	TRB2	Van, Muş, Bitlis, Hakkari
11	TR61	Antalya, Isparta, Burdur	24	TRC1	Gaziantep, Adıyaman, Kilis
12	TR62	Adana, Mersin	25	TRC2	Şanlıurfa, Diyarbakır
13	TR63	Hatay, Kahramanmaraş, Osmaniye	26	TRC3	Mardin, Batman, Şırnak, Siirt

<sup>4</sup> It is very common to use this classification of TurkSTAT in scientific researches. For example, studies of Türkan and Ozel (2019) use the same classification to examine the determinants of electricity consumption.

## Empirical results

This section summarises the results of the tests and estimates and discusses the differences in the estimates across regions.

### The results of Cross-section dependence tests and Unit Root tests

Table 2 presents the results of cross-section dependence tests.

Table 2

#### Cross-Section Dependence Test Results in Turkey

Name of Variable	LNTOTEMP			LNTOTTOUR		
Test	Statistic Value	df	Prob.	Statistic Value	df	Prob.
Breusch-Pagan LM	1879.595	325	0.000	2396.018	325	0.000
Pesaran CD-LM	59.95643		0.000	80.21221		0.000
Bias-corrected scaled LM	58.51198		0.000	78.76777		0.000
Pesaran CD	27.79215		0.000	48.53056		0.000
Name of Variable	LNDOMTOUR			LNFORTOUR		
Test	Statistic Value	df	Prob.	Statistic Value	df	Prob.
Breusch-Pagan LM	2135.731	325	0.000	1872.815	325	0.000
Pesaran CD-LM	70.00291		0.000	59.69051		0.000
Bias-corrected scaled LM	68.55847		0.000	58.24606		0.000
Pesaran CD	45.06126		0.000	41.32592		0.000
Name of Variable	LNSERVICE			LNINDUSTRY		
Test	Statistic Value	df	Prob.	Statistic Value	df	Prob.
Breusch-Pagan LM	1554.638	325	0.000	1639.176	325	0.000
Pesaran CD-LM	47.21057		0.000	50.52641		0.000
Bias-corrected scaled LM	45.76613		0.000	49.08196		0.000
Pesaran CD	35.29356		0.000	38.23172		0.000
Name of Variable	LNAGRICULTURE					
Test	Statistic Value	df	Prob.			
Breusch-Pagan LM	819.0366	325	0.000			
Pesaran CD-LM	18.35791		0.000			
Bias-corrected scaled LM	16.91346		0.000			
Pesaran CD	6.857554		0.000			

According to results in Table 2, there is cross-sectional dependence among the regions, as all tests are statistically significant. Thus, we can use second-generation

unit root tests developed by Pesaran (2007) to examine the degree of integration of variables. Table 3 represents the results of these tests.

Table 3

### CIPS Unit Root Test Results in Turkey

Name of Variable	Model			Result
	At CM <sup>a</sup> -Level	CM-First Difference	At CTM <sup>b</sup> -Level	
LNTOTEMP	-2.227***	–	-4.012*	I(0)
LNTOTTOUR	-1.68	-5.284*	-5.935*	I(0)
LNFORTOUR	-2.037	-8.188*	-10.025*	I(0)
LNDOMTOUR	-1.932	-5.279*	-4.882*	I(0)
LNSERVICE	-3.691*	–	-7.998*	I(0)
LNINDUSTRY	-2.552*	–	6.298*	I(0)
LNAGRICULTURE	-2.409*	–	-19.245*	I(0)

\*, \*\*, \*\*\* represents, respectively significance at 1%, 5% and 10% statistical significance.

a) Constant Model. Critical Values: -2.51, -2.25, -2.12.

b) Constant-Trend Model. Critical Values: -3.30, -2.94, -2.76.

Critical values were taken from Pesaran (2007) page 280 for CM, and from page 281 for CTM.

Unit root test results in Table 3 show that based on the constant and trend model, all variables are integrated at I(0) degree, that is, stationary in levels implying that we should use the levels of variables in our estimations.

### The results of Random Coefficients Regressions

In this part, we first present the effects of tourism demand on overall employment and regional employment by sectors by using tables and then show the results in regional differences by using Turkey's map.

#### *Impact of tourism demand on overall employment in Turkey*

Table 4 presents the effects of the total number of overnight stays (LNTOTTOUR), the number of overnight stays by foreigners (LNFORTOUR), and the number of overnight stays by domestic tourists (LNDOMTOUR) on overall employment (LNTOTEMP) in Turkey.

Table 4

**Impact of tourism demand on overall employment in Turkey***Results of Random Coefficients Regression between LNTOTEMP and LNTOTTOUR*

LNTOTEMP	Coefficient	Standard Error	z statistic	Prob.
LNTOTTOUR	0.3842*	0.0505	7.61	0.001
constant	1.2691***	0.7087	1.79	0.073

Test of Parameter Constancy (Chi-square): 36671.53 Probability: 0.0000  
Wald Chi-square = 57.84 Probability: 0.0000

*Results of Random Coefficients Regression between LNTOTEMP and LNFORTOUR*

LNTOTEMP	Coefficient	Standard Error	z statistic	Prob.
LNFORTOUR	0.2445*	0.039	6.27	0.001
constant	3.5129*	0.5405	6.5	0.001

Test of Parameter Constancy (Chi-square): 30105.75 Probability: 0.0000  
Wald Chi-square = 39.27 Probability: 0.0000

*Results of Random Coefficients Regression between LNTOTEMP and LNDOMTOUR*

LNTOTEMP	Coefficient	Standard Error	z statistic	Prob.
LNDOMTOUR	0.3969*	0.0534	7.43	0.001
constant	1.2812***	0.708	1.81	0.07

Test of Parameter Constancy (Chi-square): 15995.33 Probability: 0.0000  
Wald Chi-square = 55.24 Probability: 0.0000

\* Indicates statistical significance for 1% and \*\*\* indicates statistical significance for 10%.

According to results in Table 4, each type of tourist arrival has a statistically positive effect on total employment. The results also indicate that the employment effects of domestic tourists are greater than those of the total and foreign tourists. Moreover, the results indicate that there are regional changes in effects (see parameter stationary test). We also examined the impact of tourism demand on regional employment presented in Figure 1. Table 5 summarises the results presented in Figure 1.



Table 5

**Number of tourists' overnight stays and overall employment in Turkey**

<i>Panel (a): Effects of the total number of tourists' overnight stays on overall employment</i>			
Regions showing a positive relationship between the total number of tourist overnight stays and overall employment			Regions showing a negative relationship between the total number of tourists' overnight stays and overall employment
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR31, TR32, TR42, TR51, TR72, TRB1, TR10, TR21, TR41, TR52, TR62, TRC1 and TRB2	TR61, TR63, TR81, TR82, TRA2 and TRC2	TR22, TR33, TR71 and TRC3	TR83 and TR90
<i>Panel (b): Effects of number of foreign tourists overnight stays on overall employment</i>			
Regions showing a positive relationship between the number of foreign tourist overnight stays and overall employment			Regions showing a negative relationship between the number of foreign tourist overnight stays and overall employment
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR32, TR42, TR51, TR10, TR31, TR41, TR52, TR61, TR62 and TR72	TR21, TR63, TR71, TRA2, TRB1, TRB2, TRC1 and TRC2	TR22, TR33, TR81, TR82, TRA1, TRC3	TR83 and TR90
<i>Panel (c): Effects of number of domestic tourists overnight stays on overall employment</i>			
Regions showing the positive relationship between the number of domestic tourist overnight stays and overall employment			Regions showing the negative relationship between the number of domestic tourist overnight stays and overall employment
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR10, TR31, TR41, TR42, TR51, TR72, TRB1, TRC1, TR21, TR32, TR52, TR62, TR82, and TRB2	TR63, TR81, TRC2 and TRA2	TR61, TR22, TR33, TR71, TRA1, TRC3	TR83 and TR90
<i>Panel (d):</i> Comparison of impacts of total, foreign and domestic number of tourist overnight stays on overall employment: The effect of the total number of tourist overnight stays on overall employment is highest followed by the number of domestic overnight stays.			



### *Sectoral employment effects of tourism demand*

In this section, we summarise the employment effects of tourism demand on the service, industry, and agriculture sectors.

*Employment effects of tourism on service sector:* Table 6 presents the effects of tourism demand on the service sector employment (**LNSERVICE**).

Table 6

#### **Impact of tourism demand on services sector employment in Turkey**

##### *Results of Random Coefficients Regression between LNSERVICE and LNTOTTOUR*

LNSERVICE	Coefficient	Standard Error	z statistic	Prob.
LNTOTTOUR	0.3845*	0.0532	7.22	0.001
constant	0.4634	0.7084	0.65	0.513

Test of Parameter Constancy (Chi-square):21669.70 Probability: 0.0000

Wald Chi-square = 52.06 Probability: 0.0000

##### *Results of Random Coefficients Regression between LNSERVICE and LNFORTOUR*

LNSERVICE	Coefficient	Standard Error	z statistic	Prob.
LNFORTOUR	0.2308*	0.0395	5.83	0.001
constant	2.8630*	0.4746	6.03	0.001

Test for Parameter Constancy (Chi-square):19167.63 Probability: 0.0000

Wald Chi-square =34.02 Probability: 0.0000

##### *Results of Random Coefficients Regression between LNSERVICE and LNDOMTOUR*

LNSERVICE	Coefficient	Standard Error	z statistic	Prob.
LNDOMTOUR	0.4098*	0.0552	7.42	0.001
Constant	0.2809	0.7226	0.39	0.697

Test for Parameter Constancy (Chi-square):9283.81 Probability: 0.0000

Wald Chi-square =55.00 Probability: 0.0000

\* Indicates statistical significance for 1% and \*\*\* indicates statistical significance for 10%.

The results in Table 6 indicate that there are significant differences among the effects of tourism demand on the service sector employment, supported by the results of significant parameter constancy test. In other words, the results show that the estimated coefficients vary from region to region. Also, the results indicate that the total number of overnight tourist stays has a different impact on employment in the service sector for all regions defined within the NUTS2 classification. Overall, a 1% increase in the total number of overnight tourist stays raises employment in the service sector by approximately 0.38%. Moreover, a 1% increase in the number of foreign tourists' overnight stays enhances employment in the service sector by approximately 0.23% and a 1% increase in the number of domestic tourists' overnight stays increases employment in the service sector by approximately 0.41%. We also examined the impact of tourism demand on regional service sector employment presented in Figure 2 and summarise the results in Table 7.

Figure 2

The relationship between total number of tourists' overnight stays and services sector employment in Turkey

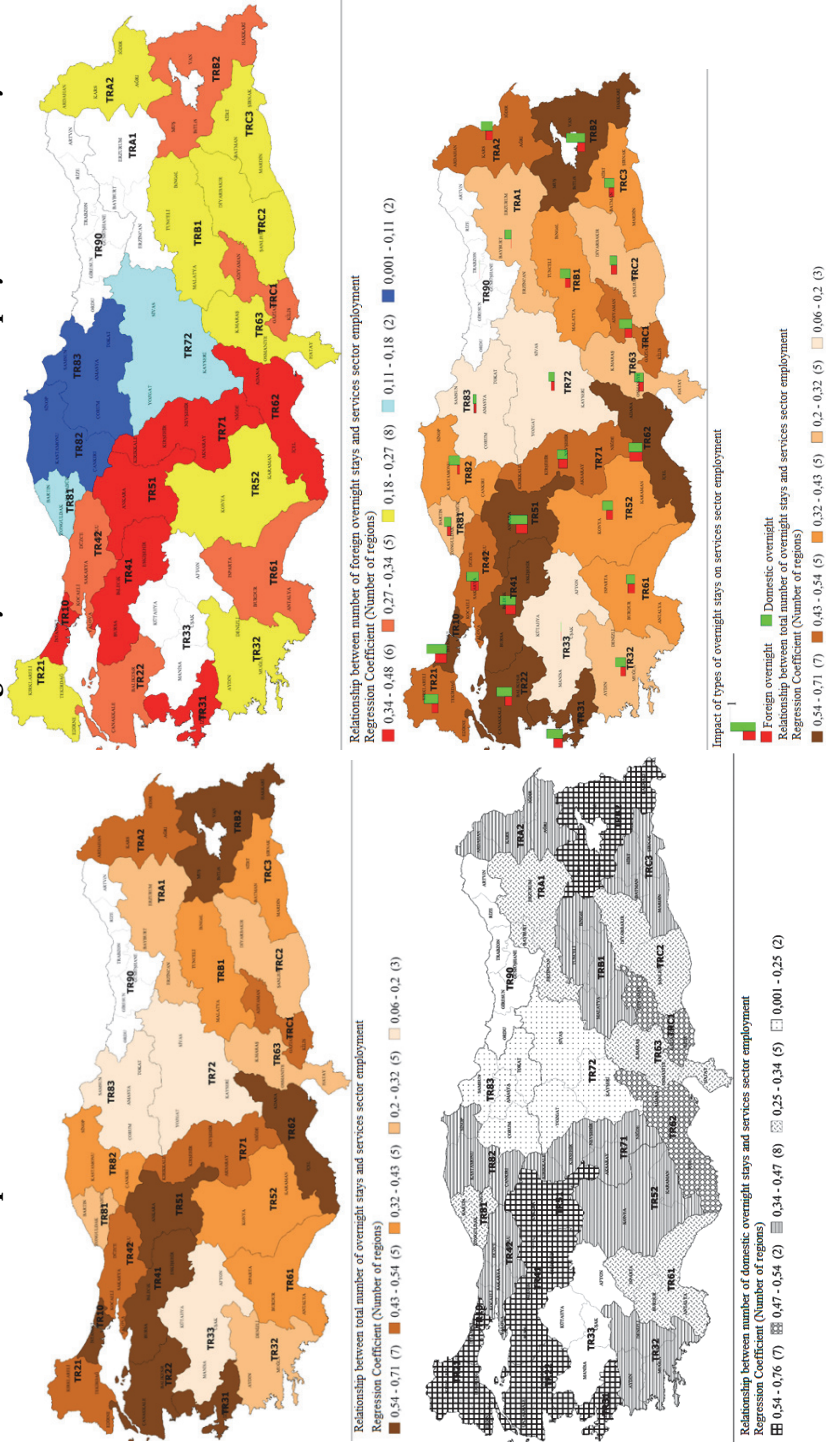


Table 7

**Number of tourists' overnight stays and employment  
in services sector in Turkey**

***Panel (a): Effects of the total number of tourists' overnight stays on employment in the services sector***

Regions showing a positive relationship between the total number of tourists' overnight stays and employment in the services sector			Regions showing no significant relationship between the total number of tourists' overnight stays and employment in the services sector
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR10, TR22, TR31, TR41, TR51, TR62, TRB2, TR21, TR42, TR71, TRC1, and TRA2	TR52, TR61, TR82, TRB1 and TRC3	TR32, TR81, TR63, TRA1, TRC2, TR33, TR72 and TR83	TR90

***Panel (b): Effects of number of foreign tourists' overnight stays on the employment of services sector***

Regions showing a positive relationship between foreign tourist's overnight stays and services sector employment			Regions showing no significant relationship between foreign tourists' overnight stays and employment of services sector
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR10, TR31, TR41, TR51, TR62, TR71 TR22, TR42, TR61, TRB2 and TRC1.	TR21, TR32, TR52, TR63, TRA2, TRB1, TRC2, TRC3.	TR72, TR81 TR82 and TR83	TR33, TR90 and TRA1

***Panel (c): Effects of number of domestic tourists' overnight stays on employment in the services sector***

Regions showing a positive relationship between the number of domestic tourists' overnight stays and employment in the services sector			Regions showing no significant relationship between domestic tourists' overnight stays and employment in the services sector
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR10, TR21, TR22, TR31, TR41, TR51, TRB2, TR62 and TRC1	TR32, TR42, TR52, TR71, TR82, TRA2, TRB1 and TRC3.	TR61, TR63, TR81, TRA1, TRC2, TR72 and TR83	TR33 and TR90

***Panel (d):*** Comparison of impacts of total, foreign and domestic number of tourists' overnight stays on employment in the services sector:

The employment contribution of the number of domestic tourists' overnight stays is higher than that of the number of overnight stays by foreign tourists.

*Employment effects of tourism on industry:* Table 8 represents the estimates of coefficients showing the effects of the total number of overnight stays by tourists (LNTOTTOUR), number of overnight stays by foreign tourists (LNFORTOUR) and number of overnight stays by domestic tourists (LNDOMTOUR) on industry sector employment (LNINDUSTRY) in Turkey.

Table 8

### Impact of tourism demand on industry sector employment in Turkey

<i>Results of Random Coefficients Regression between LNINDUSTRY and LNTOTTOUR</i>				
LNINDUSTRY	Coefficient	Standard Error	z statistic	Prob.
LNTOTTOUR	0.5695*	0.0959	5.93	0.001
Constant	-2.5236**	1.2476	-2.02	0.043
Test of Parameter Constancy (Chi-square):29570.44 Probability: 0.0000 Wald Chi-square =35.21 Probability: 0.0000				
<i>Results of Random Coefficients Regression between LNINDUSTRY and LNFORTOUR</i>				
LNINDUSTRY	Coefficient	Standard Error	z statistic	Prob.
LNFORTOUR	0.3277*	0.0792	4.13	0.001
Constant	1.2156	0.8725	1.39	0.164
Test of Parameter Constancy (Chi-square):26037.17 Probability: 0.0000 Wald Chi-square =17.09 Probability: 0.0000				
<i>Results of Random Coefficients Regression between LNINDUSTRY and LNDOMTOUR</i>				
LNINDUSTRY	Coefficient	Standard Error	z statistic	Prob.
LNDOMTOUR	0.6000*	0.093	6.45	0.001
Constant	-2.7896**	1.2081	-2.31	0.021
Test of Parameter Constancy (Chi-square):21684.85 Probability: 0.0000 Wald Chi-square =41.62 Probability: 0.0000				

\* Indicates statistical significance for 1% and \*\*\* indicates statistical significance for 10%.

According to the results in Table 8, there are significant differences among the effects of tourism demand on the industrial sector employment, supported by the results from the significant parameter constancy test. In other words, the results show that estimated coefficients are not constant across the regions. Also, the results indicate that the total number of overnight tourist stays has different impacts on employment in the industry sector for all regions defined within the NUTS2 classification. The results indicate that a 1% increase in the total number of overnight stays by raises employment in the industry sector by approximately 0.57%. Moreover, a 1% increase in the number of overnight stays by foreign tourists enhances employment in industry sector by approximately 0.32%, and a 1% increase in the number of overnight stays by domestic tourists increases employment in industry sector by approximately 0.60%. We also examined the impact of tourism demand on the regional industry sector employment presented in Figure 3, and the information in them is summarised in Table 9.

Figure 3

The relationship between overnight stays and industry sector employment in Turkey

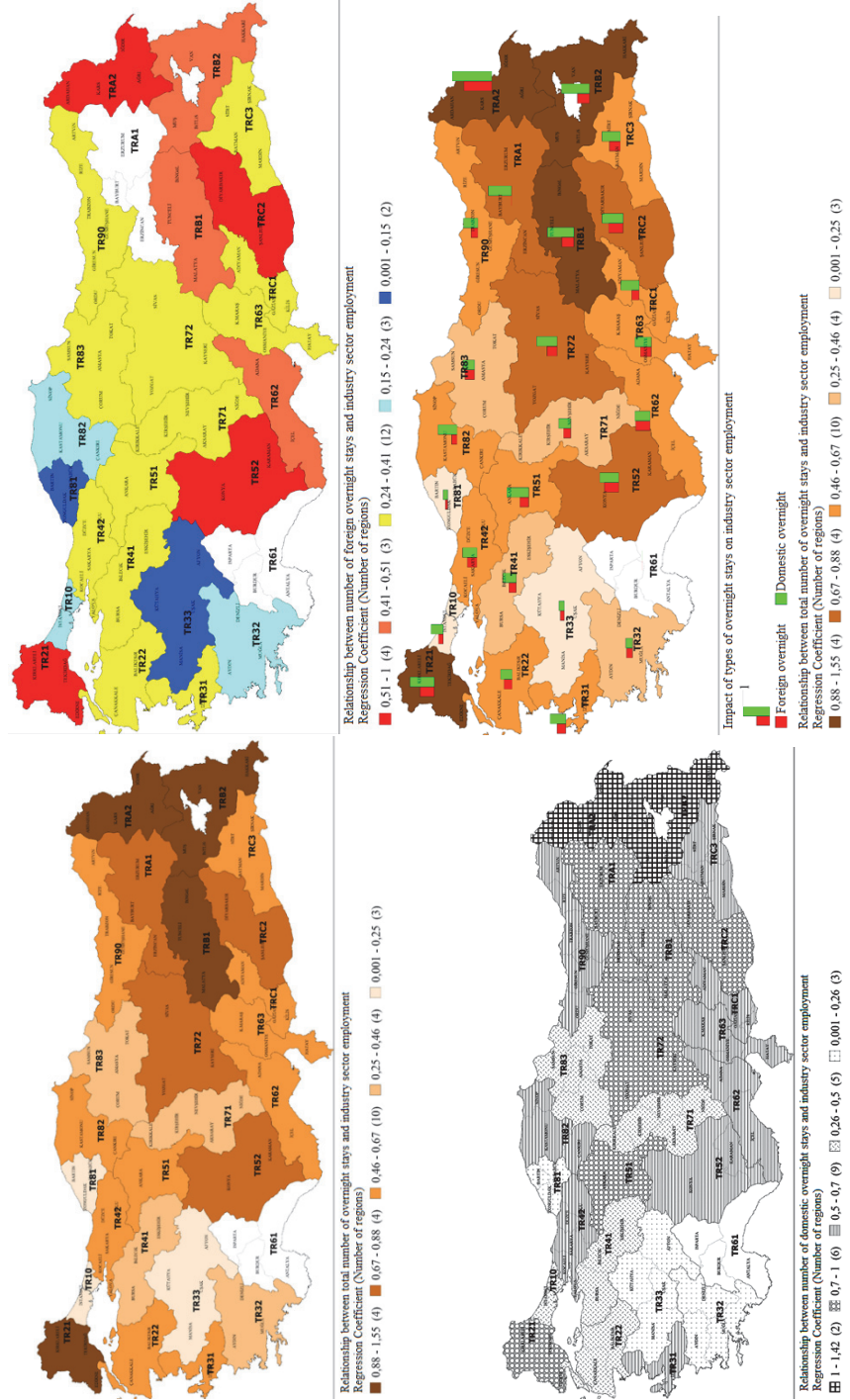




Table 9

**Number of tourists' overnight stays and industry sector employment in Turkey****Panel (a): Effects of the total number of tourists' overnight stays on industry sector employment**

Regions showing the positive relationship between the total number of tourists' overnight stays and industry sector employment			Regions showing no significant relationship between the total number of tourists' overnight stays and industry sector employment
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR21, TRA2, TRB1 and TRB2, TR52, TR72, TRA1 and TRC2.	TR22, TR31, TR42, TR51, TR62, TR63, TR82, TR90, TRC1, and TRC3.	TR32, TR41, TR71, TR83, TR10, TR33 and TR81	TR61

**Panel (b): Effects of number of foreign tourists' overnight stays on industry sector employment**

Regions showing a positive relationship between foreign tourists' overnight stays and industry sector employment			Regions showing no significant relationship between foreign tourists' overnight stays and industry sector employment
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TR52, TRA2, TRC2, TR62, TRB1 and TRB2.	TR22, TR31, TR41, TR51, TR63, TR83, TR42, TR71, TR72, TR90, TRC1, and TRC3.	TR10, TR32, TR82, TR33 and TR81	TR61 and TRA1

**Panel (c): Effects of number of domestic tourists' overnight stays on industry sector employment**

Regions showing a positive relationship between the number of domestic tourists' overnight stays and industry sector employment			Regions showing no significant relationship between domestic tourists' overnight stays and industry sector employment
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average	
TRA2, TRB2, TR21, TR51, TR72, TRA1, TRB1, and TRC2.	TR31, TR42, TR52, TR62, TR63, TR82, TR90, TRC1, and TRC3.	TR10, TR22, TR41, TR71, TR83, TR32, TR33 and TR81.	TR61.

**Panel (d):** Comparison of impacts of total, foreign and domestic number of tourists' overnight stays on industry sector employment:

The employment contribution of the number of domestic tourists' overnight stays is highest for all regions.

*Employment Effects of Tourism on Agriculture:* Table 10 presents the estimates of coefficients showing the effects of the total number of overnight stays (LNTOTTOTOUR), number of overnight stays by foreign tourists (LNFORTOUR) and number of overnight stays by domestic tourists (LNDOMTOUR) on agriculture sector employment (LNAGRICULTURE) in Turkey.

Table 10

**Impacts of tourism demand on agriculture sector employment in Turkey***Results of Random Coefficients Regression between LNAGRICULTURE and LNTOTTOUR*

LNAGRICULTURE	Coefficient	Standard Error	z statistic	Prob.
LNTOTTOUR	0.3570*	0.1365	2.61	0.009
Constant	0.0146	2.0367	0.01	0.994

Test of Parameter Constancy (Chi-square):6016.14 Probability: 0.0000  
Wald Chi-square =6.83 Probability: 0.0000

*Results of Random Coefficients Regression between LNAGRICULTURE and LNFORTOUR*

LNAGRICULTURE	Coefficient	Standard Error	z statistic	Prob.
LNFORTOUR	0.2503*	0.0976	2.56	0.010
Constant	1.8963	1.4368	1.24	0.214

Test of Parameter Constancy (Chi-square):4968.25 Probability: 0.0000  
Wald Chi-square =6.58 Probability: 0.0103

*Results of Random Coefficients Regression between LNAGRICULTURE and LNDOMTOUR*

LNAGRICULTURE	Coefficient	Standard Error	z statistic	Prob.
LNDOMTOUR	0.3119**	0.1402	2.23	0.026
Constant	0.9262	2.0012	0.46	0.643

Test of Parameter Constancy (Chi-square):4625.16 Probability: 0.0000  
Wald Chi-square =4.95 Probability: 0.0261

\* Indicates statistical significance for 1% and \*\*\* indicates statistical significance for 10%.

The results in Table 10 indicate that there are significant differences among the effects of tourism demand on the agricultural sector employment, supported by results from the significant parameter constancy test. In other words, the estimated coefficients vary from region to region. Moreover, the results indicate that the total number of overnight stays by tourists has a different impact on employment in the agricultural sector for all the regions defined within the NUTS2 classification. The results indicate that a 1% increase in the total number of overnight stays by overnight tourists raises employment in the agricultural sector by approximately 0.36%. Moreover, a 1% increase in the number of overnight stays by foreign tourists enhances employment in the agriculture sector by approximately 0.25%, and a 1% increase in the number of overnight stays by domestic tourists increases employment in the agriculture sector by approximately 0.31%. We also examined the impact of tourism demand on regional employment in the agriculture sector, presented in Figure 4, and the information is summarised in Table 11.

Figure 4

The relationship between overnight stays and agricultural sector employment in Turkey

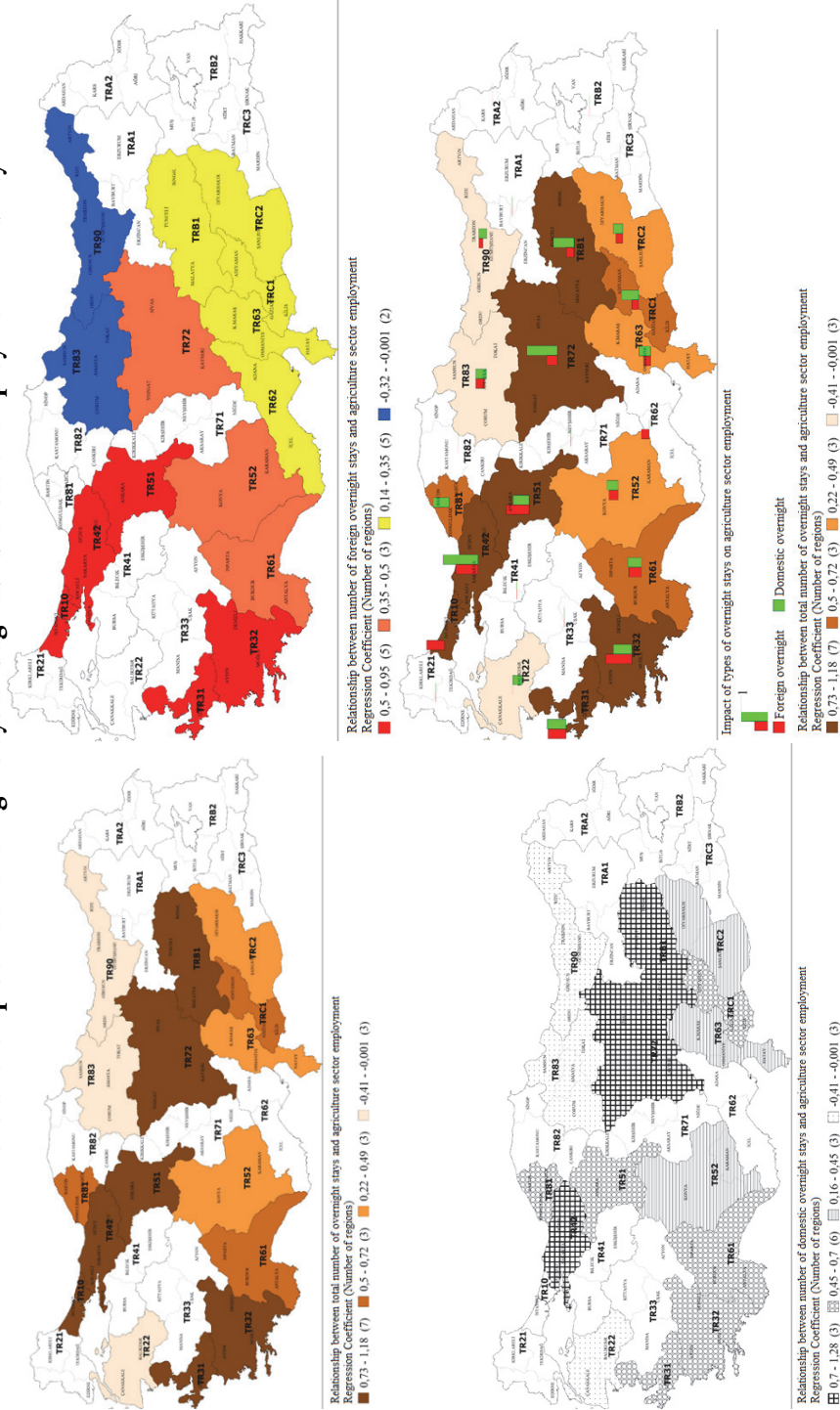




Table 11

**Number of tourists' overnight stays and employment  
in agriculture sector in Turkey**

***Panel (a): Effects of the total number of tourists' overnight stays on employment in the agriculture sector***

Regions showing a positive relationship between the total number of tourist overnight stays and employment in the agriculture sector			Regions showing a negative relationship between the total number of tourists' overnight stays and employment in the agriculture sector	Regions showing no significant relationship between the total number of tourists' overnight stays and employment in the agriculture sector
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average		
TR10, TR31, TR32, TR42, TR51, TR72, TRB1, TR61, TR81 and TRC1.	TR52, TR63 and TRC2.	–	TR22, TR83 and TR90	TR21, TR33, TR41, TR62, TR71, TR82, TRA1, TRA2, TRB2, TRC3

***Panel (b): Effects of number of foreign tourists' overnight stays on employment in the agriculture sector***

Regions showing a positive relationship between foreign tourists' overnight stays and employment in the agriculture sector			Regions showing a negative relationship between foreign tourists' overnight stays and employment in the agriculture sector	Regions showing no significant relationship between foreign tourists' overnight stays and employment in the agriculture sector
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average		
TR10, TR31, TR32, TR42, TR51, TR52, TR61, and TR72.	TR62, TR63, TRB1 and TRC2.	–	TR83 and TR90	TR21, TR22, TR33, TR41, TR71, TR81, TR82, TRA1, TRA2, TRB2, TRC1, TRC3

***Panel (c): Effects of number of domestic tourists' overnight stays on employment in the agriculture sector***

Regions showing a positive relationship between the number of overnight stays by domestic tourists and employment in the agriculture sector			Regions showing a negative relationship between domestic tourists' overnight stays and employment in the agriculture sector	Regions showing no significant relationship between domestic tourists' overnight stays and employment in the agriculture sector
Regions above Turkey's average	Regions close to Turkey's average	Regions below Turkey's average		
TR42, TR72, TRB1 TR31, TR32, TR61, TR51, TR81 and TRC1.	TR52, TR63 and TRC2.	–	TR22, TR83 and TR90.	TR10, TR21, TR33, TR41, TR62, TR71, TR82, TRA1, TRA2, TRB2, and TRC3

***Panel (d):*** Comparison of impacts of total, foreign and domestic number of tourists' overnight stays on employment in agriculture sector: The employment contribution of the number of domestic tourists' overnight stays is higher than that of the number of foreign tourists' overnight stays in regions of TR42, TR72, TRB1, TR52, TRC1 and TRC2. However, for the regions of TR10, TR32 and TR51, the contribution of the number of foreign tourists' overnight stays to employment is higher than that of the number of domestic tourists' overnight stays for TR61 region, they almost have the same effect. Finally, for TR83 and TR90 regions, inverse effects of the number of domestic tourists' overnight stays on agriculture employment is greater the number of foreign tourists' overnight stays.

## Discussion and conclusion

First, as the estimated coefficients vary across the regions, provided by parameter constancy tests, we analyse the different employment effects of tourism demand and its components of foreign and domestic tourism across the regions. Based on the results, we conclude that generally, the employment contribution of domestic tourists is greater than that of foreigners in Turkey.

Upon examination of the regional employment effects of different types of tourists, except TR32 (Aydın, Denizli, Muğla) region, for all other regions, the employment contribution of domestic tourist is greater than that of foreign. More importantly, the employment contribution of domestic tourists is greater even in the regions attracting more foreign tourists, such as TR61 (Antalya, Isparta, Burdur). Therefore, the results show that the impact of the number of overnight stays by domestic tourists is higher even in regions deemed as tourism sites. However, the impact of the overall number of overnight stays, and the number of foreign and domestic tourists' overnight stays on employment was observed to be negative in TR83 (Samsun, Tokat, Çorum, Amasya) and TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane) regions. The employment level declines in these regions when the relevant graphs, illustrating the evolution of overall employment, are examined.

This result indicates that the development of the tourism sector does not necessarily positively impact employment in every region. However, it is observed from the overnight stay change graphs that the number of tourists' overnight stays are on the rise in all regions. Moreover, one of the important findings of the study is that the impact of the number of both overall and domestic tourists' overnight stays on overall employment is insignificant. In contrast, that of the foreign tourists' overnight stays is significant in TRA1 (Erzurum, Erzincan, Bayburt) region. However, this impact is not very high.

Second, we investigate the employment contributions by sector. The first important finding is that the increase in the total number of overnight stays has the biggest impact on the industry sector in Turkey. This high level of impact on the industry sector is due to the interrelation between the tourism sector and the sub-sectors of the industrial sector. The increasing investments in developing tourism in less developed regions contributes to the rise in demand for products from the industrial sector. Also, when the graph illustrating the change in the industrial sector's employment between 2003 and 2014 is examined, it is seen that the industrial sector employment increased more than that of both services and agriculture sectors employment in 14 out of 26 regions.

The impact of variables indicative of tourism demand on services sector employment is observed to be significant and positive in all regions except TR33 (Manisa, Afyon, Kütahya, Uşak) and TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane) regions. It is observed through the results herein that the impact of the

number of overnight stays by domestic tourists is higher than that of the number of overnight stays by foreign tourists even in regions where services sector employment is affected most by the number of overall overnight stays. However, the impact from the increase of the number of overnight stays on services sector employment is lower in TR61 (Antalya, Isparta, Burdur) and TR32 (Aydın, Denizli, Muğla) regions where the numbers of overnight stays are at the highest level, as seen from the results. The possible reason is that tourist demand in these regions did not show much change, especially during the 2004-2013 study period and that these regions receive mostly foreign tourists. When the impact of overnight stays by domestic tourists and overnight stays by foreign tourists on services sector employment was examined, it was observed that a 1% increase in the number of domestic overnight stays causes a 0.40% increase in services sector employment countrywide, while that of foreign overnight stays only results in a 0.23% increase. This indicates that the impact of domestic overnight stays is almost twice that of foreign overnight stays. These results also suggest the importance of domestic tourism demand for services sector employment.

It is observed that the impact of the variables indicative of tourism demand on industry sector is significant and positive in all regions except TR61 (Antalya, Isparta, Burdur) region. The underlying reason why the impact on industry sector is low despite the highest number of tourist overnight stays in TR61 (Antalya, Isparta, Burdur) region may be the very low share of industry sector employment within overall employment in the region. There was no significant increase in the industry sector employment in this region during the study period. However, the regions where industry sector employment enjoyed considerable increases also occur to be regions where the number of overall overnight stays has the highest impact on the industry sector. It is also observed that the impact of domestic overnight stays has a higher impact in regions where overall overnight stays have the highest impact on the industry sector employment. The impact of domestic overnight staying on the industrial sector's employment in these regions is higher than any of the other regions. It is true that the increase in the number of overnight staying also means that persons visiting for investment purposes utilise tourism establishments and that the tourism sector increases industry employment in regions being developed for tourism because a newly developing tourist region creates new demand for infrastructure.

The variables indicative of tourism demand may not have a significant and positive impact on agriculture employment for almost all regions, as was the case with services sector and industry sector employment. An increase in the number of overall overnight stays increases agriculture sector employment only in 13 regions, while it decreases in 2 regions. In TR83 (Samsun, Tokat, Çorum, Amasya) and TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane) regions, overall, domestic and foreign tourist overnight stays increase both agriculture sector employment and

overall employment. This result shows that the agriculture sector is of importance for such regions and that the tourism sector's development affects both agriculture sector employment and overall employment adversely. Likewise, an increase of only domestic overnight stays has a negative impact on the regional agriculture sector employment in the TR22 (Balıkesir, Çanakkale).

It is observed that the impact of domestic overnight stays is more than foreign overnight stays in all but TR21 (Tekirdağ, Edirne, Kırklareli), TR32 (Aydın, Denizli, Muğla), and TR62 (Adana, Mersin) regions. In the TR31 (İzmir) and TR32 (Aydın, Denizli, Muğla) regions, the impact of domestic overnight stays and foreign overnight stays is very similar. Based on these findings, we concluded that the increase in tourism demand does not have a significant impact on the agriculture sector in several regions. One of the possible reasons was that tourism was not developed enough in such regions. Additionally, the impact of domestic overnight stays was higher than foreign overnight stays in most of the regions where it did. Moreover, it is an important finding as agricultural lands, and product diversities are few in regions such as TR83 (Samsun, Tokat, Çorum, Amasya) and TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane). At the same time, people earned their livelihoods from a limited number of products, and an increase in tourism demand had a negative impact on the agriculture sector and corresponding overall employment.

Based on the results of the study, we can reach the following conclusions. First, it is important to take into account the impact of tourism demand on employment when either forming the regional tourism policies or revising existing policies. Second, policymakers should understand the meaning of regional tourism development, as the impact of tourism on employment is not limited to job creation. Creating more jobs does have a potential to bring greater socio-economic benefits by lowering unemployment, increasing property value, wages, income and profits for local businesses and tax revenues for the state (Dogru and Sirakaya-Turk 2017). Third, to use tourism to decrease disparities in the developmental level of regions within the country and to contribute to the development of peripheral or economically disadvantaged regions and for tourism to be an effective tool for regional development, Turkish tourism authorities should consider varying employment contributions of tourism demand and focus on especially regional and sectoral differences. They need to examine the strength, composition, and performance of their local tourism economy. Based on this information, along with the findings of the study, they might introduce new tourism activities, or expand the existing tourism base of a region. Finally, it should be remembered that some of the beneficial impacts of tourism might affect people and factors of production outside the region. Significance of this spillover will heavily depend on the structure of the economy (whether the country is import-dependent or not), and on the type of products demanded by tourists. Also, empirical evidence indicates that for most developing countries, tourism is developed without considering the poor (Carrascal

Incera and Fernández 2015). Thus, tourism policymakers should be able to identify appropriate policies for tourism development which takes into account the structure of Turkey's economy and regional differences in the impact of tourism. We know that our work is far from being perfect and needs to be developed in some directions. The future research can be extended considering socio-economic differences among the regions.

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