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Dynamic Relationship Between Tourism and Non-Tourism Employment: Evidence from ARDL Bounds Testing[1]

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Abstract *Tourism activity interacts with 21 different sectors both directly and indirectly. Our aim is to measure the employment creation effect of tourism and to show its effect on non-tourism labour force. In addition, it is also aimed to reveal whether the increase in employment is sectoral or due to the general growth of the economy. In our study, long and short-run effects on non-tourism employment, tourism employment, tourism incomes and gross domestic product are estimated by ARDL bounds test method with monthly data for the period 2014-2020. The findings indicate the existence of cointegrated relationship in both the short and long run. In the long run, a 1% increase in tourism employment and gross domestic product increases non-tourism employment by 0.29% and 0.46%, respectively, while decreasing tourism incomes by 0.03%. In the short run, 0.26% of the negative shocks arising from tourism employment and gross domestic product can be eliminated within the same period. The results suggest that increasing the number of potential tourism destinations and diversifying tourist activities are effective in reducing seasonal dependence. In addition, adjustments to be made in wages, working hours and other social rights may be effective in keeping more qualified labour in the sector.*

Keywords: *Employment, Tourism Employment, Tourism Sector, ARDL, Cointegration Test*

INTRODUCTION

From a conceptual point of view, tourism is a very difficult activity to define. The fact that its subject is human causes it to be handled by many disciplines and leads to the characteristic differentiation of tourism (Bahar & Kozak, 2010). From an economic point of view, tourism is seen as an important sector that increases national income, ensures the balance of payments through foreign exchange income, creates new employment areas thanks to its connection with vertical and horizontal sectors, encourages direct investment and accelerates the development race of countries.

Tourism mobility in the world gained momentum mostly after World War II. The economic, social, cultural, environmental and psychological changes of societies in the peaceful environment established after the war led to changes in their existing habits (İçöz et al., 2007). This change has also brought about a change in individuals' concepts such as time, location and distance with the developments in transport technology. In addition, the increase in mechanisation in production has had a significant reducing effect on working hours and enabled the individual to use his/her free time for his/her own benefit. On the other hand, the phenomenon of globalisation, which has been intensely expressed since the beginning of the 80s, has helped countries to become closer in their financial, commercial, social and cultural relations with each other. Thanks to this rapprochement, the business partnerships established between European, American and Asian countries required the removal of both political and legal barriers. Thus, it has become inevitable for countries to develop together with the resulting interaction.

Tourism is seen as an important sub-branch of the services sector. The services sector is recognised as the third main sector in the economy after the industrial and agricultural sectors (Şahin et al., 2018). According to UNWTO data, tourism incomes and the number of tourists worldwide increased by 4% in 2019 compared to the previous year.

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Moreover, it states that the growth rate in the tourism industry increased more than the growth rate of world trade between 2011 and 2015 (UNWTO, 2021). In sum, the data show that the tourism sector is on an upward trend in the world economy. However, the coronavirus outbreak in China in the last quarter of 2019 led to a significant decrease in tourism activities in 2020 and 2021 and brought about an economic contraction. According to the UNWTO's International Tourism and COVID-19 Report, tourism incomes suffered a 63% loss in 2020 compared to the previous year (UNWTO, 2021). Nevertheless, tourism has continued to be an important sector in terms of creating employment all over the world in terms of production share. Looking at the OECD's tourism statistics, it is seen that the sector provides employment ranging between 7% and 10% in the labour force surveys conducted on the average of 100 people in European Union countries (Yiğitgüden, 2005).

Tourism has a direct impact on foreign exchange mobility. In this sense, tourism helps to increase the business capacity in the economy and revitalise other sectors that provide input to the sector (İçöz et al., 1998). Assuming that the most important macroeconomic goal of developing countries is growth and development, creating new employment areas for labour capacity and thus reducing idle labour force supports the employment of the tourism sector.

The labour factor is considered to be the oldest and most important of all production resources (Vanhove, 1981). Labour is not a storable factor of production and therefore, its unemployment leads to a deterioration in optimal factor utilisation. From this point of view, tourism is considered to be a very important sector especially for developing countries. The supply shocks that emerged in traditional industrial production in the 80s were effective in the contraction of employment (Roche, 1992). In order to reduce the high unemployment rates resulting from the contraction of employment, the tourism sector played a saviour role in this period (Hudson & Townsend, 1992). In our country, employment contractions coinciding with the same period have been effective in eliminating production losses due to contraction with the acceleration of the tourism sector.

The aim of our study is to analyse the indirect effect of employment increases or decreases in the tourism sector on other sector employees in Türkiye with monthly data between 2014 and 2021. On the other hand, it is thought that the period under investigation will be important in order to draw attention to the problems that have recently emerged in both regional and global health, economic, political, etc. fields.

RELATIONSHIP BETWEEN TOURISM AND EMPLOYMENT

Tourism plays a key role in reducing unemployment and positively affects the increase in labour employment. This is because the tourism sector is one of the most labour-intensive sectors. In other words, the limited level of technology and automation in tourism requires the intensive use of labour in service production. In addition, factors such as different levels of labour wages, temporary and part-time working opportunities, intensive and seasonal characteristics of the sector, etc. also reveal the employment-increasing effect of the tourism sector (Ünlüönen & Şahin, 2011).

Tourism sector is a combination or intersection of many sectors (Bahar & Kozak, 2010). In this sense, tourism expenditures affect employment in three different ways: direct, indirect and induced. Direct contribution to employment includes the activities of accommodation, travel, food and beverage enterprises as well as the activities of institutions and organisations that provide services in the public sphere such as tourism information bureaus etc. Indirect tourism activities include other enterprises that provide services in tourism activities, that is, other enterprises that support the enterprises listed in direct employment. Agriculture, construction, transport are examples of such sectors. Finally, stimulated employment refers to other sectoral elements that bring the earnings they obtain in the tourism sector back to the regional and national economy with the multiplier effect and develop economically.

Table 1: Employment Indicators of Türkiye Tourism (Billion)

Year	Direct Employment	Indirect Employment	Tourism Total Employment	Total Employment	Share in Total Employment
2014	1.337	2.006	3.343	28.786	12%
2015	1.435	2.153	3.588	29.678	12%
2016	1.453	2.180	3.633	30.535	12%
2017	1.505	2.258	3.763	31.643	12%
2018	1.611	2.417	4.028	32.274	12%
2019	1.682	2.523	4.205	32.549	13%
2020	1.360	2.040	3.400	30.873	11%

Source**:** TURKSTAT & CBRT EDDS.

Table 1 shows some data on tourism employment in Türkiye. The indirect employment data in the table is based on the coefficient value accepted by international organisations (coefficient value 1.5) multiplied by direct employment (Yıldız, 2011). Accordingly, the contribution of the sector to employment has been recorded as an average increase of 5% each year until 2020. In 2020 and afterwards, the decline reflected in the table expresses the sectoral contraction caused by the pandemic. This is also clearly seen in the last column, where the share of tourism employment in total tourism employment is shown.

A FEW INDICATORS OF TÜRKIYE TOURISM

Tourism sector is one of the most important sectors for Türkiye as well as the whole world (Karataş & Babür, 2013). This importance stems from the fact that the sector brings nations closer to each other and causes different cultures to live together in peace and tranquility. In addition, the sector is recognised as one of the indispensable cornerstones of the Turkish economy thanks to its positive impact on some macroeconomic indicators such as contributing to the national economy, eliminating inflation and unemployment, balancing the balance of payments, providing foreign exchange inflow, etc. (Çımat & Bahar, 2003).

The tourism sector in Türkiye has made great progress since the early 1980s and has been effective in overcoming the foreign exchange bottleneck, eliminating external deficits, employing idle labour force and improving the balance of payments. In this sense, the Tourism Incentive Law No. 2634 enacted in 1982 played a decisive role in the development of the tourism sector (Çımat & Bahar, 2003).

In assessing the impact of the tourism sector on the Turkish economy, both regional and global developments should be taken into account. Accordingly, the plane crisis with Russia in November 2015, the coup attempt in our country in July 2016, and the coronavirus outbreak, which started in China in December 2019 and affected the whole world in a short time, are considered as some important events that caused the tourism sector to be negatively affected both in the world and in our country (Özkeşkek et al., 2022; Demir, 2015).

Table 2: Economic Indicators of Tourism in Türkiye

Year	T. Visitors	Tourism Income	Avr. P.P Expenditure	Service Sector in GDP	Tourism Income in Service Sector
2014	35,850.286	$2,462.67	$756	$150,467.291	2%
2015	35,592.160	$2,218.00	$677	$128,952.128	2%
2016	25,265.406	$1,561.92	$615	$117,019.856	1%
2017	32,079.527	$1,873.17	$590	$107,596.192	2%
2018	38,951.902	$2,101.67	$575	$85,871.535	2%
2019	44,712.970	$2,485.75	$600	$73,720.631	3%
2020	12,939.344	$1,022.00	$643	$56,309.614	2%

Source: TURKSTAT & CBRT EDDS.

Some economic indicators of the tourism sector between 2014-2020 are shown in Table 2. Accordingly, it is seen that the number of visitors and tourism incomes move together. However, national and global problems arising from the Russian aircraft crisis and the coronavirus pandemic in 2016 and 2020, respectively, caused tourism activity to be relatively lower in these years. On the other hand, it is observed that per capita expenditure was not adversely affected. In the formation of this paradox, it is thought that the tourism sector, which operates between January-March and July-September 2020, may have considered the elasticity of demand in the short term and made rational pricing. Finally, when the share of tourism in the services sector is analysed, it is seen that it was at a constant percentage until 2019. In 2019, it is observed that it has the best share among the years considered with an increase of 1%. This is thought to indicate the recovery in the sector after the financial crisis in 2018.

LITERATURE REVIEW

It is observed that studies on tourism economics have increased significantly in both national and international literature. However, it is noticed that the studies mostly focus on tourism incomes and growth, whereas there are relatively fewer studies on the relationship between tourism employment and growth. Moreover, the fact that the economic relationship between tourism employment and growth has been investigated only in terms of the employment problems of the sector has caused the mathematical relationship to be ignored.

There is no definite consensus in the literature on the relationship between employment and growth due to the different results obtained in the studies (Wei et al., 2009). This is because researchers use different analysis methods for different countries or take different period intervals as a basis, which leads to different results. It is seen that cointegration tests and causality analyses are the most commonly used analysis methods in the studies (Rifka & Nufile, 2022; Abduhmanova et al., 2022; Çakmak et al., 2011; Güngören & Özcan, 2019; Pavlic et al., 2013; Ganeshamoorthy, 2019; Wei et al., 2009; Sergo et al., 2009; Paksoy et al., 2018). In addition, studies obtained by survey method and SWOT analysis are also included in the literature (Tutar et al., 2013; Yanardağ & Avcı, 2012).

Table 3 presents the findings obtained from empirical studies in the literature. Accordingly, in cointegration analyses, the existence of a long-run relationship between economic growth and tourism employment is mostly noteworthy (Rifka & Nufile, 2022; Güngören & Özcan, 2019; Pavlic et al., 2013). However, there are also studies that reveal the existence of both short- and long-term relationship (Abduhmanova et al., 2022) and studies where there is no relationship (Çakmak, 2011; Sergo et al., 2009; Ganeshamoorthy, 2019). On the other hand, some studies include different types of analyses such as VAR analysis, Granger Causality, Vector Error Correction Model (VECM), Multiple Regression Model and Seemingly Unrelated Model (SUR) in addition to cointegration analyses. The findings mostly reveal a unidirectional causality relationship from tourism incomes to employment growth (Ganeshamoorthy, 2019; Pavlic et al., 2013; Fauzel, 2016; Sergo et al., 2009; Paksoy et al., 2018).

In addition to the studies that directly investigate the relationship between growth and employment, there are studies that investigate the link between technology used in tourism and tourism employment. Underlining that technological developments are very important in the sector, Wei et al. (2009) argued in their study that the transition to automation in tourism will reduce employment over time.

In summary, many studies in the literature show that growth and employment in the tourism sector have a close and positive relationship. However, there are also studies in which the relationship is not found and negative results are obtained due to the preferred analysis methods or the different periods taken as the basis.

Table 3: Literature Review

Author(s)	Period/Sample	Samples	Method	Results
Rifka & Nufile, 2022	1977-2019	Sri Lanka	*ARDL*	+
Umurzakov et al., 2022	2000-2018	BRI Countries	*GMM*	+
Abdurakhmanova et al., 2021	1991-2020	Uzbekistan	*ARDL*	*TUR → Y & +*
McCatty & Serju, 2006	1996:Q1-2006:Q2	Caribbean	*SUR*	*%1↑Y -%0,3↑L*
Pavlic et al., 2013	2000-2012	Croatia	Granger Causality & Johansen Cointegration	TUR→L & +
Ganeshamoorthy, 2019	1977-2017	Sri Lanka	Granger Causality & VAR & Johannsen Cointegration	TUR→L & -
Fauzel, 2016	1988-2014	Mauritius	VECM	TUR→L & +
Wei et al., 2009	1988-2004	China	VAR	TEK↑ - L↓
Sergo et al., 2009	1952-2004	Croatia	Johannsen Cointegration & VAR & Granger Causality	-&+&TUR↔L
Paksoy et al., 2018	2012-2017	Türkiye	VAR	+
Deniz & Koç, 2019	2005:Q3- 2017:Q2	Türkiye	Multiple Regression Model	+
Tutar et al., 2013	-	Türkiye	SWOT Analyses	-
Yanardağ & Avcı, 2012	-	Türkiye	Survey Method	-
Çakmak et al., 2011	1974-2008	Türkiye	ARDL	-
Ünlüönen & Şahin, 2011	-	Türkiye	Literature Review	+ → -
Güngören & Özcan, 2019	1983-2017	Türkiye	ARDL	+

MODEL AND DATASET

Model

The aim of the study is to analyse the relationship between non-tourism employment, tourism employment, tourism income and economic growth in Türkiye. The equation of the model estimated for this purpose is shown as follows:

$$LNOTHERLABOR = \beta_0 + \beta_1 LNTURLABOR + \beta_2 LNINCOME + \beta_3 LNGDP + \mu_t \quad (1)$$

The parameters in the equation are respectively defined as follows: 'LNOTHERLABOR' refers to all employees outside the tourism sector, "LNTURLABOR" refers to tourism sector employees, "LNINCOME" refers to tourism incomes and "LNGDP" is an indicator of economic growth. $\beta_0, \beta_1, \beta_2$ and β_3 denote the parameter values to be estimated and the error term with zero mean and constant variance. In order to reduce the skewness in the dataset and to narrow the sample scale, all data are transformed into logarithmic expression. Thus, it is aimed to interpret the coefficient values of the estimated variables in the form of elasticity.

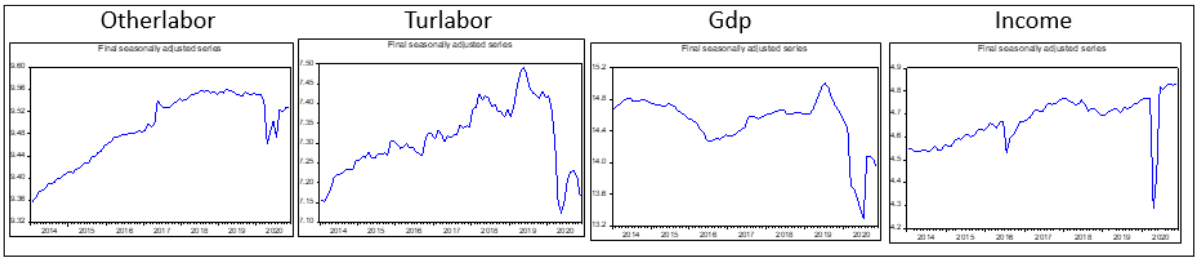
In recent years, there has been a series of political, economic and humanitarian factors in Türkiye and the world that have led to cyclical fluctuations in the tourism sector. While the negative demand shocks experienced in the sector had a negative impact on all markets, they especially affected the labour market deeply. For this purpose, the period between 2014M4-2020M11 was preferred in order to effectively reveal the results of this effect. The variables in the model are shown in Table 4.

Table 4: Variables

Type	Variable	Variable	Source
Dependent	*LNOTHERLABOR*	Non-Tourism Sector Employment	TURKSTAT
Independent	*LNTURLABOR*	Tourism Sector Employment	TURKSTAT
Independent	*LNINCOME*	Tourism Incomes	CBRT EDDS
Independent	*LNGDP*	Manufacturing Industry Production Index	CBRT EDDS

Source: TURKSTAT (Turkish Statistical Institute) CBRT EDDS (Central Bank of the Republic of Türkiye Electronic Data Distribution System).

LNGDP is obtained from manufacturing industry production index data as an indicator of economic growth since the estimation period includes monthly frequency series. Tourism employment data restricted the model as it is based only on accommodation and food and beverage sector employees. However, the fact that the employees are from primary enterprises operating in the sector is considered sufficient for the result to be significant.



Source**:** Eviews-10.

Fig. 1: Time Graph of Variables

Descriptive Statistics

Descriptive statistics of the variables in the model are shown in Table 5. Due to the transformation of the series into logarithmic form, there is no need to interpret the mean, maximum and minimum values.

Table 5: Descriptive Statistics

	LNOTHERLABOR	LNTURLABOR	LNINCOME	LNGDP
Mean	9.490	7.310	1.452	4.669
Median	9.497	7.305	1.461	4.696
Maximum	9.561	7.491	1.500	4.833
Minimum	9.357	7.123	1.328	4.285

	LNOTHERLABOR	LNTURLABOR	LNINCOME	LNGDP
S. Deviation	0.061	0.086	0.328	0.099
Skewness	-0.542	-0.016	-1.831	-0.819
Kurtosis	1.994	2.339	6.627	4.246

Source: Author's own calculations.

It is understood that skewness values take negative values in all series and their distributions are left-tailed. When the kurtosis values are analysed, it is seen that LNOTHERLABOR and LNTURLABOR series are flat, while LNINCOME and LNGDP series are curved. Theoretically, the kurtosis value is accepted as 3 (Tunay, 2010). Accordingly, it is stated that if the kurtosis value of a series is above 3, it is bulging; if it is below 3, it is flattened. Finally, when the standard error values of the series are examined, it is observed that they oscillate around their averages.

METHODOLOGY

Unit Root Tests

In ARDL cointegration analysis, it is important to test the stationarity of the series. Because if the series are not stationary, the estimated result is likely to be biased (Granger & Newbold, 1974). In this context, the unit root tests of the series in the model are shown in Table 6. In the study, Augmented-Dickey Fuller (ADF) unit root test, which is one of the most preferred methods in the literature, was preferred. However, Perron (1989) stated that the ADF test may give inconsistent results in time series with structural breaks (Perron, 1989). Therefore, in addition to the ADF test, Phillips-Perron unit root test is also used in this study.

The results obtained from the unit root tests are close to each other. Accordingly, in both tests, it was concluded that all variables except the LNGDP variable were non-stationary at level values. However, when the first differences of the variables are taken, it is concluded that all variables are stationary with a probability value of 1%. Stationarity results do not pose any problem in terms of ARDL.

Diagnostik Tests

Table 7 shows the compatibility and descriptive test results

Table 6: ADF ve PP Unit Root Tests Conclusion

Variables	ADF (Level)		ADF (1.Difference)		Integration Level
	Constant	Trend	Constant	Trend	
LNOTHERLABOR	-2.165 (0.22)	-1.738 (0.72)	**-11.133 (0.00)******	**-11.422 (0.00)*****	**I (1)**
LNTURLABOR	**-2.191 (0.21)**	**-0.249 (0.99)**	**-6.111 (0.00)*****	**-6.607 (0.00)*****	I (1)
LNINCOME	**-1.906 (0.32)**	**-2.443 (0.35)**	**-3.453 (0.01)*****	**-3.564 (0.03)*****	I (1)
LNGDP	**-3.488 (0.01)*****	**-5.507 (0.00)*****			I (0)
Variables	**PP (Level)**		**PP (1.Difference)**		
	Constant	**Trend**	**Constant**	**Trend**	
LNOTHERLABOR	**-2.281 (0.18)**	**-1.45 (0.83)**	**-11.186 (0.00)*****	**-11.570 (0.00)*****	I (1)
LNTURLABOR	**-1.177 (0.39)**	**-1.072 (0.92)**	**-5.180 (0.00)*****	**-5.323 (0.00)*****	I (1)
LNINCOME	**-1.183 (0.43)**	**-2.161 (0.50)**	**-7.998 (0.00)*****	**-7.976 (0.00)*****	I (1)
LNGDP	**-3.271 (0.01)*****	**-4.930 (0.00)*****			I (0)

Note: ***, **, * indicate 1%, 5% and 10% significance levels, respectively. Schwarz Information Criterion (SIC) is used in unit root tests.
Source: Author's own calculations.

of the ARDL model. Accordingly, it is observed that there is no problem in the variance and autocorrelation tests of the model. The fact that there is no functional form identification error in the model in the Ramsey Reset test and the probability value of the Jargue-Berra Normality test result is greater than 0.05 indicates that the error terms are normally distributed.

Table 7: Diagnostic Tests Results

Breusch-Godfrey Serial Correlation LM Probability	0.708 (0.49)
Breusch-Pagan-Godfrey Variance Test	1.551 (0.11)
Ramsey Reset Test	0.158 (0.87)
Jargue-Berra Normality	0.133 (0.93)

Source: Author's own calculations.

Cointegration: ARDL Bounds Test

Cointegration analyses help to determine the existence of a long-run relationship between the variables in the model. In this context, ARDL model is one of the most frequently used cointegration methods recently. At the same time, when the studies in the field of tourism economics are analysed, it is seen that ARDL is the method used by many authors. The ARDL method has different advantages from other cointegration methods in the literature (Engle-Granger (1987), Johansen (1988) and Vector Auto Regressive (VAR)). Firstly, the fact that the variables in the model are stationary at level or first difference does not pose a problem for the application of the ARDL bounds test. In other cointegration methods, the two variables used in the model must be stationary at the same level. Since this leads to major limitations in practice, Peseran et al. (2003) developed the ARDL test, which allows the relationship between variables integrated at different degrees to be obtained. Secondly, since it uses an unconstrained error correction model, it can provide more statistically reliable results than classical cointegration tests. In addition, another distinctive feature of the model is that it can provide information about the long and short term conditions between the series (Akel & Gazel, 2014). This study investigates the relationship between non-tourism employment and tourism employment, tourism incomes and economic growth in Türkiye. In this sense, the estimated ARDL model is defined as follows:

$$\Delta LNOTHERLABOR_t=\alpha+\sum_{i=1}^{q}\emptyset_{it}\Delta LNOTHERLABOR_{i,t-i}+\sum_{i=0}^{n}\beta_{it}\Delta LNTURLABOR_{i,t-i}+\sum_{i=0}^{p}\emptyset_{it}\Delta LNINCOME_{i,t-i}+\delta_{1t}LNTURLABOR_{t-i}+\delta_{2t}LNINCOME_{t-i}+\mu_{it} \quad (2)$$

The bounds test for the defined model is performed with the F-Statistic. The main and alternative hypotheses indicating whether there is a cointegration relationship between the variables in the model are expressed as follows:

$H_0:\delta_1 = \delta_2 = 0$

$H_1:\delta_1 \neq \delta_2 \neq 0$

Accordingly, if the calculated F-statistic value is greater than the upper bound F-statistic, the null hypothesis stating that there is no cointegration relationship is rejected. Thus, the existence of a long-run cointegration relationship between variables is accepted. If the calculated F-statistic value is less than the lower bound critical F-statistic value, the null hypothesis is accepted. Finally, if the calculated F-statistic value remains between the upper and lower bound critical values, the existence of cointegration relationship is undecided. In the case of the existence of cointegration relationship between the variables in the model (when the alternative hypothesis is valid), the long-run model estimation is expressed by equation 3 as follows:

$$LNOTHERLABOR = \beta_0 + \sum_{i=1}^{n}\beta_1 LNTURLABOR_{t-i} + \sum_{i=1}^{p}\beta_1 LNINCOME_{t-i} + \sum_{i=1}^{q}\beta_1 LNGDPt{-}i+\mu_t \quad (3)$$

Following the determination of the long-run relationship between the variables, the short-run relationship should be investigated by estimating the error correction model (ECM). The Error Correction Model (ECM) is expressed by equation 4 as follows:

$$\Delta LNOTHERLABOR=\alpha_0+\sum_{i=1}^{q}\emptyset_{it}LNOTHERLABOR_{i,t-i}+\sum_{i=0}^{n}\alpha_1\Delta LNTURLABOR_{t-i}+\sum_{i=1}^{n}\alpha_2\Delta LNINCOME_{t-i}+\sum_{i=1}^{n}\alpha_3\Delta LNGDP_{t-i}+\alpha_3 ECM_{t-1}+\varepsilon_t \quad (4)$$

In equation 4, the variable ECM_{t-1} stands for the error correction term. The error correction term represents the one-period lagged value of the residuals of the model in which the long-run relationship between the variables is obtained. The coefficient of the term indicates how much of a shock occurring in the short run will be eliminated in the same period (Peseran et al., 2001).

EMPIRICAL FINDINGS

In order to select the appropriate ARDL model, the lag length should be determined at the first stage. It is repeated $(p+1)^k$ times for estimation, so that the optimal model is reached through information criteria. Here k is the number of variables and p is the optimal lag length.

When the maximum lag length is preferred as 9 in Table 7, the optimum lag length is determined as 8.

Table 7: Optimum Lag Length Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	3.662	NA	8,181	-9.573	-9.199	-9.424
1	6.596	5.312	4,541	-17.070	-16.198	-16.722
2	7.106	8.691	1,771	-18.017	-16.647	-17.471
3	**7.590**	**7.711**	**7,501**	**-18.892**	**-17.024***	**-18.147**
4	7.876	4.251	5,471	-19.232	-16.866	-18.288
5	**8.125**	**3.440**	**4,461**	**-19.475**	**-16.610**	**-18.332***
6	8.241	1.476	5,311	-19.356	-15.994	-18.015
7	8.493	3.926	4,481	-19.604	-15.744	-18.064
8	**8.752**	**2.725***	**3,821***	**-19.871***	-15.512	-18.132
9	8.891	1.311	4,681	-19.813	-14.956	-17.876

Note: It refers to the optimum lag where the values of all information criteria are relatively minimum and there is no autocorrelation problem. This table was created by the author.

Table 8: F-Statistic Boundary Test

	ARDL Lag Length	F-Statistic Boundary Test
lnotherlabor=f(lnturlabor, lnincome, lngdp)	(2 3 1 3)	**14,495*** **
Significance Level	**Lower Limit**	**Upper Limit**
1%	3,65	4,66
5%	2,79	3,67
10%	2,37	3,20

Note: *** denotes 1% significance level. Best results are highlighted in bold.

Source: Author's own calculations.

In Table 8, the F-statistic value is expressed as 14,495. When this value is compared with the critical values, it is considered significant since it is greater than the upper boundary value of 1% significance level. The obtained result showed the existence of a long-run relationship between non-tourism employment and independent variables in Türkiye.

The test results for the existence of a long-run relationship are shown in Table 10. The long-run results of the defined model are as follows:

Table 9: Long Run ARDL Results

Variables	Coefficients	Standard Dev.	T-Statistics	P-Probability
LNTURLABOR	0.289	0.053	5.460	**0.000*** **
LNINCOME	-0.034	0.011	-3.041	**0.003*** **
LNGDP	0.457	0.044	10.186	**0.000*** **
C	5.755	0.209	27.496	**0.000*** **

Note: ***, **, * indicate significance levels of 1%, 5% and 10%, respectively.

Source: Author's own calculations.

According to the long-run estimation results, a 1% increase in tourism employment in Türkiye incereases non-tourism employment by 0,28%. On the other hand, a 1% increase in tourism income decreases non-tourism employment by 0,03%. Finally, a 1% increase in gross domestic product increases non-tourism employment by 0,45%.

Table 10 shows the short-run ARDL test results for tourism employment and tourism income. Short-run analysis is important in order to show how much of the effect of the deviation from the equilibrium situation will be eliminated in the same period.

Table 10: Short Run ARDL Results

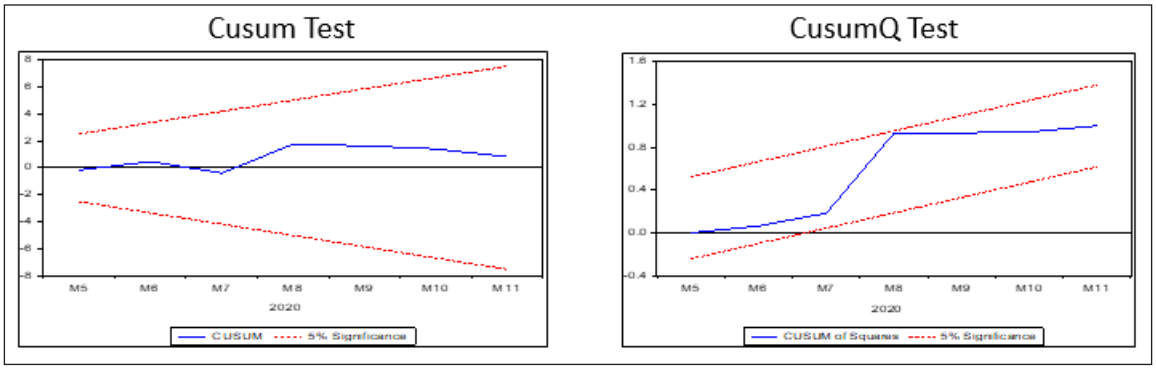
Variables	Coefficients	Standard Dev.	T-Statistics	P-Probability
ΔLNTURLABOR	0.036	0.027	1.329	0.188
ΔLNINCOME	0.025	0.005	5.124	0.000
ΔLNGDP	0.068	0.014	4.863	0.000
ECM (-1)	-0.261	0.029	-8.771	0.000***

Note: ***, **, * indicate significance levels of 1%, 5% and 10%, respectively.

Source: Author's own calculations.

In order to interpret the short-run results of the model, the result obtained should be negative and significant. The findings indicate that the error correction term (ECM) works. Accordingly, it is understood that 0.26 per cent of a shock arising from tourism employment, tourism incomes and gross domestic product can be eliminated within the same period.

The CUSUM test refers to the statistical results that examine the stability of the coefficients for the 5% significance level by taking the sums of the error terms obtained from repeated forecasts using the first n observations. In order for the total number of observations obtained by continuously increasing the number of observations starting from the smallest, the line starting from zero and continuing in a wavy manner must remain within the band in order for the graph to express the 5% significance level. Thus, it can be accepted that the coefficients are stable.



Source: Eviews-10.

Fig. 2: Cusum and CusumQ Tests Results

CUSUM and CUSUMQ test results are shown above, respectively. Accordingly, the coefficients are within the 5% significance level. The estimated coefficient values that remain within the band in both ways indicate that the model appears to be stable over time.

CONCLUSIONS AND POLICY RECOMMENDATIONS

The ever-increasing population worldwide puts intense pressure on unemployment, which is one of the main economic problems of countries. In this context, the creation of new employment opportunities is of vital importance. The fact that industrial investments cannot provide sufficient employment opportunities for the labour factor with the development of technology makes it necessary to create new job opportunities. Tourism, which has a dynamic outlook with its rapid development, plays a key role in the employment of idle labour force thanks to its labour-intensive structure. In addition, the need for qualified labour force due to limited automation is a positive distinguishing feature of the tourism sector.

In addition to the positive employment-enhancing effect of tourism, the seasonal nature of the sector and the unfavourable market conditions such as low wage policy cause high labour turnover. However, flexible working hours, long and tiring seasonal intensity facilitate the transition of qualified and educated labour force to different business areas. In terms of sustainability, the decline in the quality of service production is effective in the loss of income in the tourism sector where demand is flexible. The findings obtained from the study also support our opinion in this direction.

The development of tourism is beneficial for development and growth as it is a socio-economic activity. Moreover, the fact that tourism provides direct income to the national economy helps to increase the level of welfare, improve

the balance of payments with foreign exchange earnings and reduce the current account deficit. On the other hand, the increase in tourism activity supports the construction of infrastructure and superstructure investments in different sectors (such as construction, agriculture, transport, insurance, banking activities), thereby increasing employment opportunities. Considering all these, tourism employment and non-tourism employment actually complement each other. In fact, the findings obtained from the estimated model reveal a positive relationship in the direction that the increase in non-tourism employment increases tourism employment.

The results of the study basically show that good tourism planning is important for stability. Increasing the number of potential tourism destinations and diversifying touristic activities may help to reduce the seasonal dependency of the sector. On the other hand, regulatory and remedial steps to be taken in wages, working hours and other social rights may be effective in reducing the mobility of qualified labour.

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REFERENCES

Abdurakhmanova, G. Q., Jeong, J. Y., & Oqmullayev, R. R. (2021). The ımpact of tourism on employment and economic growth in Uzbekistan: An ARDL bounds testing approach. *ICFNDS '21: Proceedings of the 5th International Conference on Future Networks and Distributed Systems*, pp. 431-439. doi:https://doi.org/10.1145/3508072.3508158

Akel, V., & Gazel, S. (2014). The cointegratıon linkages between exchange rates and BIST ındustrial ındex: An ARDL bound testing approach. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *44*(2), 23-41. doi:https://doi.org/10.18070/euiibfd.57171

Bahar, O., & Metin, K. (2010). Tourism and economic growth relationship in developing countries: Dynamic panel data analysis. *Anatolia: Turizm Araştırmaları Dergisi*, *21*(2), 255-265.

Bozkurt, E., Çakmak, E., Aksu, H., & Emsen, Ö. S. (2011). *Service trade and economic growth relationship in Türkiye, 16*(2), 22-40.

Çımat, A., & Bahar, O. (2003). An assessment of tourism sector and ıts significance in the Turkish economy. *Akdeniz Üniversitesi İktisadi ve İdari Bilimler Fakültesi*, *6*(3), 1-18.

Demir, E. (2015). *Possible effects of Russia's sanctions on Turkish economy.* Retrieved December 15, 2015, *from* https://ekonomi.isbank.com.tr/ContentManagement/Documents/ar_15_2015.pdf.

Barometer, UNWTO. (2021). *World tourism barometer and statistical annex.* Madrid

Fauzel, S. (2016). Tourism and employment spillovers in a small ısland developing state: A dynamic ınvestigation. *Theoretical Economics Letters*, *6,* 138-144. doi:https://doi.org/10.4236/tel.2016.62016

Ganeshamoorthy, K. (2019). The employment effect of tourism: A dynamic analysis. *American Journal of Humanities and Social Sciences Research*, *3*(10), 119-126. e-ISSN: 2378-703X

Granger, C. W., & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics, 2,* 111-120. doi:https://doi.org/10.1016/0304-4076(74)90034-7

Güngören, F., & Özcan, C. C. (2019). An empirical analysis of tourism and employment relations: The case of Türkiye. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi*, *24*(4), 767-781.

Hjalager, A. M., & Andersen, S. (2001). Tourism employment: Contingent work or professional career? *Employee Relations*, *23*(2), 115-129. doi:https://doi.org/10.1108/01425450110384165

Hudson, R., & Townsend, A. (1992). Tourism employment and policy choices for local government. *Perspectives on Tourism Policy, 31,* 49-68. ISBN (Hardback): 0-7201-2121-3

İçöz, O., Günlü, E., Yılmaz, B. S., Aktaş, G., Özdoğan, O. N., Öter, Z., & Şahin, N. (2007). *Genel Turizm: Turizmde Temel Kavramlar ve İlkeler* inside of (p. 2). Ankara: Turhan Kitabevi.

İçöz, O., Kozak, M., & Var, T. (1998). Tourism demand in Türkiye. *Annals of Tourism Research*, *25*(1), 236-240. doi:https://doi.org/10.1016/S0160-7383(97)00070-4

Karataş, M., & Babür, S. (2013). The location of the tourism sector in the developing world. *KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi*, *6*(3), 15-24.

Koç, S., & Deniz, G. (2010). The relationship between economic growth and some macro variables in Turkey: Multiple linear regression model analysis. *İşletme Araştırmaları Dergisi*, *11*(1), 101-113. doi:https://doi.org/10.20491/isarder.2019.585

McCatty, M., & Serju, P. (2006, September). *Tourism, economic growth & employment* (pp. 1-25). Research

and Economic Programming Division Bank of Jamaica, Research Services Department.

Özkeşkek, M., Emir, O., & Aksöz, O. E. (2022). How crises are reflected in tourism ındustry: The case of Türkiye. *Journal of Tourism and Gastronomy Studies, 10*(4), 3077-3096. doi:https://doi.org/10.21325/jotags.2022.1131

Paksoy, S., Yenipazarlı, A., & Bulut, E. (2018). Effects on tourism ın employment: VAR analysis. *Sosyal ve Beşeri Bilimler Araştırmaları Dergisi*, *10*(3), 25-50. e-ISSN: 2378-703X

Pavlic, I., Tolic, M. S., & Svilokos, T. (2013). Impact of tourism on the employment ın Croatia. *Recent Advances in Business Management and Marketing*, 219-224. ISBN: 978-960-474-306-3

Pesaran, H., Richard, S., & Yongcheol, S. (2001). Bound testing approaches to the analysis of level reletionships. *Journal of Applied Econometrics*, *16*(3), 289-326. doi:https://doi.org/10.1002/jae.616

Phillips, P. (1989). The great crash the oil price shock, and the unit root hypothesis. *Econometrica: Journal of the Econometric Society*, *57*(6), 1361-1401. doi:https://doi.org/10.2307/1913712

Rifka, M. F., & Nufile, M. A. (2022). *The relationship between economic growth and direct tourism employment: A study based on Sri Lanka.* Retrieved from http://ir.lib.seu.ac.lk/handle/123456789/6084

Roche, M. (1992). Mega-events and micro-modernization: On the sociology of the new Urban tourism. *British Journal of Sociology*, *43*(4), 563-600. doi:https://doi.org/10.2307/591340

Sarı, D., & Uçar, Z. (2010, November). *The tourism sector at creating employment and the effects of 2008 global crisis on turkey's tourism employment.* International Conference on Eurasian Economies, No:216, pp. 338-343. doi:https://doi.org/10.36880/C01.00216

Sergo, Z., Grzinic, Z., & Poropat, A. (2009, May). *Links between tourism, employment, unemployment and productivity: Case of Croatia*. 8th International Conference Challenges of Europe: Financial Crisis and Climate Change: Proceedings, no. 8, pp. 533-547, e-ISSN: 1849-2541.

Şahin, M. T., Yılmaz, M., & Varol, Ç. (2018). Suggestion for ıdentification and classification of economic activity branch: Knowledge ıntensive business service activities (KIBS). *Coğrafi Bilimler Dergisi*, *16*(2), 239-258. doi:https://doi.org/10.2139/ssrn.3400367

Tunay, B. K. (2010). *50. Yılında Phillips Eğrisi: Makro Ekonomik İstikrar ve Maliyetleri.* İstanbul: Marmara Üniversitesi Yayınları.

Tuncer, M., & Taşkın, G. A. (2020). YouTube video analysis of the ıslamic social complex of Somuncu Baba in context with religious tourism. *Türk Turizm Araştırmaları Dergisi*, 4(3), 2055-2070. doi:https://doi.org/10.26677/TR1010.2020.466

Tutar, F., Alparslan, C., Tutar, E., & Erkan, Ç. (2013). The ınfluence of tourism sector on employment. *Küresel İktisat ve İşletme Çalışmaları Dergisi*, *3*(5), 14-27.

Umurzakov, U., Shakhnoza, T., & Raufhon, S. (2022). Tourism and sustainable economic development: Evidence from belt and road countries. *Journal of the Knowledge Economy, 14,* 503-516. doi:https://doi.org/10.1007/s13132-021-00872-0

Ünlüönen, K., & Şahin, S. Z. (2011). Employment in tourism sector. *Elektronik Sosyal Bilimler Dergisi*, *10*(37), 1-25.

Vanhove, N. (1981). Tourism and employment. *International Journal of Tourism Management*, *2*(3), 162-175. doi:https://doi.org/10.1016/0143-2516(81)90003-7

Wei, X., Hailin, Q., & Jintao, E. M. (2009). *Modeling tourism employment growth - An application in China.* International CHRIE Conference-Refereed Track, pp. 1-8, ICHRIE Conference.

Yanardağ, M. Ö., & Avcı, M. (2012). Problems in tourism sector employment: An empirical evaluation on Marmaris, Fethiye, Bodrum. *Ege Stratejik Araştırmalar Dergisi*, *3*(2), 39-62.

Yiğitgüden, B. (2005). *Tourism and development.* Retrieved March 22, 2023, from https://www.mfa.gov.tr/turizm-ve-kalkinma.tr.mfa

Yıldız, Z. (2011). Development of tourism sector and ıts effects on employment. *Süleyman Demirel Vizyoner Dergisi*, *3*(5), 54-71.