Entrepreneurship in the Tourism Sector with the Perspective of Organizational Ecology: Evidence from Türkiye

Örgütsel Ekoloji Perspektifiyle Turizm Sektöründe Girişimcilik: Türkiye'den Bulgular

Miraç Savaş Turhan(*)
Yakup Arı(**)

Abstract

The present study tries to understand "the effect of socio-economic phenomena observed in a certain time interval on the organization-founding behaviors of entrepreneurs in an organization population in the tourism sector." In this framework, we focus on the tourism sector in Türkiye and use the data of the organizations under the title of "Accommodation and Food Service Activities" in the NACE-2 classification. To see the effects of economic, political, and social phenomena at the macro level, we use the number of tourists (TUR); Hotel, Cafe, and Restaurant Consumer Price Index (HCRCPI); Transportation Services Consumer Price Index (TSCPI); the weighted average of commercial loan rates applied by banks (CLI) and the CPI-based real effective exchange rate (REER) as data. In addition to these variables, we also include two dummy variables, DCov-19 and DTrvl, for the period of the coronavirus pandemic and the period of restricted domestic and international travel, respectively. We use the Autoregressive Distributed Lag (ARDL) approach designed by Pesaran and Shin (1999) and Pesaran et al. (2001) in data analysis. The results, which are expected to contribute to organizational theories and business economics, studies on the tourism sector, knowledge of the evaluation of socioeconomic effects of the COVID-19 pandemic, and future studies, were obtained in the study.

Keywords: Organizational ecology, entrepreneurship, Turkish tourism sector, COVID-19, ARDL bounds test

(*) Sorumlu yazar/Corresponding author, Alanya Alaaddin Keykubat Üniversitesi, İşletme Bölümü, Kestel, Alanya, Antalya, Türkiye, mirac.turhan@alanya.edu.tr ORCID: 0000-0002-9479-1215

(**) Alanya Alaaddin Keykubat Üniversitesi, İktisat Bölümü, Kestel, Alanya, Antalya, Türkiye, yakup.ari@alanya.edu.tr ORCID: 0000-0002-5666-5365

Turhan, M. S. & Arı, Y. (2022). Entrepreneurship in the tourism sector with the perspective of organizational ecology: Evidence from Türkiye. *Journal of Management and Organization Studies*, *7*(2), 27-46.
DOI: 10.15659/yoad.8.1.002

Makale Türü :	Araştırma Makalesi	**Article Type** :	Research Article
Başvuru Tarihi :	18.09.2022	**Received** :	18.09.2022
Kabul Tarihi :	28.10.2022	**Accepted** :	28.10.2022

Özet

Bu çalışma, "belirli bir zaman aralığında gözlemlenen sosyo-ekonomik olayların turizm sektöründeki bir örgüt popülasyonundaki girişimcilerin örgüt kurma davranışları üzerindeki etkisini" anlamaya çalışmaktadır. Bu çerçevede, Türkiye'deki turizm sektörüne odaklanılmış ve NACE-2 sınıflandırmasında "Konaklama ve Yemek Hizmeti Faaliyetleri" başlığı altındaki kuruluşların verileri kullanılmıştır. Makro düzeyde ekonomik, politik ve sosyal olayların etkilerini görmek için veri olarak, turist sayısı (TUR); Otel, Kafe ve Restoran Tüketici Fiyat Endeksi (HCRCPI); Ulaştırma Hizmetleri Tüketici Fiyat Endeksi (TSCPI); bankalarca uygulanan ticari kredi faiz oranlarının ağırlıklı ortalaması (CLI) ve TÜFE bazlı reel efektif döviz kuru (REER) alınmıştır. Bu değişkenlere ek olarak, sırasıyla koronavirüs pandemisi dönemi ve kısıtlanmış yurt içi ve yurt dışı seyahat dönemi için DCov-19 ve DTrvl olmak üzere iki kukla değişken de dahil edilmiştir. Verilerin analizinde, Pesaran ve Shin (1999) ve Pesaran vd. (2001) tarafından tasarlanan Otoregresif Dağıtılmış Gecikmeli (ARDL) Sınır Testi yaklaşımı kullanılmıştır. Çalışmada, organizasyon teorilerine ve işletme ekonomisine, turizm sektörü ile ilgili çalışmalara, COVID-19 pandemisinin sosyoekonomik etkilerinin değerlendirilmesine yönelik bilgi birikimine ve gelecekte yapılacak çalışmalara katkı sağlaması beklenen sonuçlar elde edilmiştir.

Anahtar kelimeler: Örgütsel ekoloji, girişimcilik, Türkiye'de turizm sektörü, COVID-19, ARDL sınır testi

Introduction

Organizational ecology theory (Hannan & Freeman, 1977) emerged in the process of diversification in organizational theories in the 1970s. It was one of the organizational theories of which foundations were laid by sociologists in this process. Organizational ecology theory formed the basis of many conceptual and empirical research in the following years, especially in North America (Üsdiken & Leblebici, 2001).

When organizational ecology theory emerged, it differed from other organizational theories in a few key points. First, organizational ecologists had an evolutionary perspective that prioritized selection and retention processes (Aldrich & Ruef, 2006; Amburgey & Rao, 1996; Baum, 1996; Baum & Amburgey, 2002; Baum & Shipilov, 2006). Consistent with this, they focused on organizational communities or populations rather than on individual organizations (Aldrich & Ruef, 2006; Baum, 1996; Baum & Amburgey, 2002; Baum & Shipilov, 2006; Hannan & Freeman, 1989). They drew particular attention to the number of founding (births) and disbanding (deaths) rates of organizations in these communities or populations (Aldrich & Ruef, 2006; Baum, 1996; Baum & Amburgey, 2002; Baum & Shipilov, 2006; Hannan & Freeman, 1987, 1988; Önder

& Üsdiken, 2007). They asserted that intra-population dynamics could affect the founding and disbanding rates, and they carried out many empirical studies to test this (Baum, 1996; Baum & Amburgey, 2002; Baum & Shipilov, 2006).

Organizational ecology theory has been the target of two main criticisms in the organizational theory literature for years. The first criticism was about organizational ecologists' ignoring of macro-level elements while focusing on intra-population processes. Accordingly, the effects of economic, political, and social phenomena on the founding and disbanding of organizations have not been adequately addressed in organizational ecology (Önder & Üsdiken, 2007: 189; Turhan & Arı, 2021b). Second, organizational ecology theory has not received enough attention outside of North America (Önder & Üsdiken, 2007: 191; Turhan & Arı, 2021b; Üsdiken, 1995).

Despite the great interest in the founding and disbanding rates of organizations, the impact of organizational ecology theory on the entrepreneurship literature has been quite limited. The scholars interested in entrepreneurship have been less concerned with inter-population or field level contexts and the macro-elements likely to influence them. Instead, the entrepreneurship literature has preferred to focus more on individual entrepreneurship (Al-Turk & Aldrich, 2019; Aldrich & Wiedenmayer, 1993).

A similar situation is also valid for studies dealing with the tourism sector. There are a limited number of studies based on organizational ecology theory in the tourism sector [e.g. Andersson, Getz & Mykletun (2013b); Andersson, Getz & Mykletun (2013a); Gallagher (2021); Hjalager (2000)]. In these studies, the effects of macro factors on entrepreneurial behavior are not sufficiently emphasized and these effects are not dealt with from the perspective of organizational ecology.

Therefore, it is obvious that a study focusing on entrepreneurship in the tourism sector with the perspective of organizational ecology while centering upon macro-level elements rather than intra-population processes and doing all these with data from outside of North America can contribute to the field. This is the motivation for this study.

The present study tries to understand "the effect of socio-economic phenomena observed in a certain time interval on the organization-founding behaviors of entrepreneurs in an organization population in the tourism sector." Organizational ecology focuses on well-defined groups of organizations, e.g., organizations in a particular industry or in a particular geography, and considers them as populations (Baum & Singh, 1994; Carroll, 1984; Hjalager, 2000). In this framework, we focus on the tourism sector in Türkiye and use the data of the organizations under the title of "Accommodation and Food Service Activities" in the NACE-2 classification. One of the reasons we chose the tourism sector is its importance for developing countries. In addition, the share of tourism's impact on Türkiye's economic structure encourages us to focus on this sector.

In order to see the effects of economic, political, and social phenomena at the macro level, we use the number of tourists (TUR); Hotel, Cafe, and Restaurant Consumer Price Index (HCRCPI); Transportation Services Consumer Price Index (TSCPI); the weighted average of commercial loan rates applied by banks (CLI) and the CPI-based real effective exchange rate (REER) as data. In addition to these variables, we also include two dummy variables, DCov-19 and DTrvl, for the period of the coronavirus pandemic and the period of restricted domestic and international travel, respectively. We use the Autoregressive Distributed Lag (ARDL) approach designed by Pesaran and Shin (1999) and Pesaran et al. (2001) in data analysis.

The remainder of the research runs as follows. The following section presents the data and research methodology. The third section analyzes the empirical findings obtained and provides discussions and implications of the results. The fourth section concludes the study.

Methodology

In order to set an example for the examination of the tourism sector in the context of Organizational Ecology, which is the subject of the study, we have revealed the relationship of the population of founding companies in the sector with external factors. In addition to revealing the relationship, we have applied empirical analysis to examine the effect of the travel restrictions and the Covid-19 pandemic, which affects today's world on a global scale, on the sector. The variables used in this study, the data set, the structure of the model applied and the findings are given in the following sections.

Data Set

We use the variables which are the total numbers of monthly Foundings (TFO) and Disbandings (TDI) of companies operating in the tourism sector, the number of the Tourists (TOUR), Consumer Price Index for Hotels, Cafes and Restaurants (HCRCPI), the Consumer Price Index for Transportation Services (TSCPI), the weighted average of the Commercial Loan Interests (CLI) applied by the banks and the CPI Based Real Effective Exchange Rate (REER). The precautionary and economic policies during the pandemic period followed by the states are determined in the political decision-making processes. These processes are formed according to the macro and micro economic, social, and political conditions of the countries and differ between states. The economic variables used in the model were preferred because they also are reflective of both the social and political structure of the country and the international institutional and economic context. In addition to these variables, we defined two dummy variables DCov-19 and DTrvl for the coronavirus pandemic period and the period when domestic and international travel was restricted, respectively. We scrutinized the effects of the COVID-19 pandemic. Because, it is a dramatic phenomenon that creates macro-level economic, political, and social effects all over the world. Furthermore, it provides a unique opportunity to understand the "selection and retention" processes that organizational ecology theory particularly emphasizes. (Aldrich & Ruef, 2006; Baum & Shipilov, 2006; Turhan & Arı, 2021a, 2021b).

TFO and TDI data has been obtained from the reports of the Union of Chambers and Commodity Exchanges of Türkiye (TOBB, 2021). Tourist is roughly defined as visitors whose reason for travel is recreational, vocational and other tourism subjects (internship, study, health, etc.). TOUR shows the monthly total number of visitors who visit Türkiye and stay in the country for at least 24 hours. CRCPI and TSCPI measure the changes in the prices of goods and services for the consumption of households in the mentioned sectors over time. The main purpose of the indices with the base year 2003 is to calculate the inflation rate by measuring the change in the prices of the goods and services that are subject to consumption in the market. For this purpose, all final monetary consumption expenditures of households, foreign visitors and corporate population in the country are taken into account. The CLI covers all commercial loans and is the weighted average interest rate calculated for each commercial loan. In the calculation of CLI, loans extended to residents by domestic and foreign branches of Turkish Banks (excluding loans extended by banks to banks) are utilized. REER indices are calculated by taking the weighted geometric average of the ratio of the price level in Türkiye to the price levels of the countries with which it has foreign trade. The increase in the real effective exchange rate indicates that the Turkish

Lira appreciated in real terms. In our study, we used the REER volatility obtained from the Exponential GARCH process. We have obtained TOUR, HCRCPI, TSCPI, CLI and REER data from the Central Bank of the Republic of Türkiye Electronic Data Distribution System (EVDS, 2021) and used monthly data for the period January 2010 and July 2021 in the analyses. We defined the Dcov-19 dummy variable describing the Covid-19 period for the period March 2020 - July 2021. We defined the Dcov-19 dummy variable describing the Covid-19 period for the period from March 2020 when the pandemic is declared by World Health Organization to July 2021 when the data set is ended. Since there were both domestic and international travel restrictions for the period March 2020 - May 2020, we defined DTrvl dummy variable(1).

Since the data are in different scale structures, we took the natural logarithms and included them in the analysis. The logarithmic time series plots of the data set are given in Figure 1, and the descriptive statistics values are given in Appendix A - Table A1.

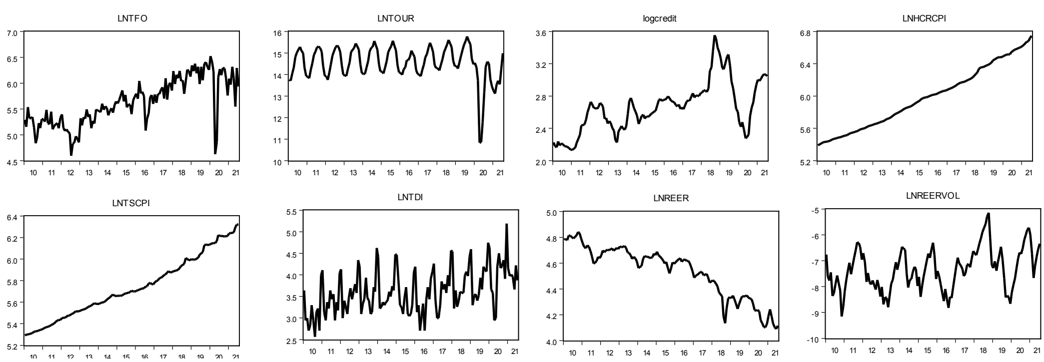

Figure 1. The Time Series Plot of The Data Set
Source: Own study

(1) On March 24, 2020, the Interior Ministry of Türkiye sent an additional circular order to the governorships regarding public transportation vehicles operating in and out of the city, within the scope of combating the new type of coronavirus pandemic (AA, 2020). According to research carried out by World Tourism Organization (UNWTO), as of 6th April 2020, 96% of all worldwide destinations have introduced travel restrictions in response to the pandemic. In addition, the report indicates that around 90 destinations had completely or partially closed their borders to tourists, while a further 44 are closed to certain tourists depending on the country of origin (UNWTO, 2020a). The research in June 2020 by the UNWTO showed that 22% of all destinations worldwide (48 destinations) had started to ease restrictions, with Europe leading the way. UNWTO's Global Review for Tourism showed that the sector was slowly restarting, though this restart was significantly more pronounced in some global regions (UNWTO, 2020b).

The Volatility of REER

Engle (1982) developed a new method for the volatility of a time series by modeling conditional variance. He revealed that the conditional variance is a function of the lagged values of the error term squares and modeled the change of the error term squares with respect to time using the ARCH process. Then, many conditional variance models are used to model volatility by the introduction of the GARCH model (Bollerslev, 1986) into the literature. Although the standard GARCH model captures various features of financial series such as excess kurtosis and volatility clustering, they are not successful to capture the leverage effect of financial time series. A negative correlation between current return and future return volatility is ignored by the standard GARCH models. Further, the constraints on parameters to ensure the stationarity of the GARCH process can make parameter estimation difficult. Lastly, another difficulty is to interpret whether shocks persist on the conditional variance in the standard GARCH model. An alternative model developed by Nelson (1991) is the EGARCH model that removes these defects in the standard GARCH modeling of the financial time series, prevents the model from giving symmetrical responses in cases of positive and negative shocks in volatility, and thus is more convenient for modeling conditional variance. In this model, the logarithmic conditional variance depends on both the size and the sign of the residuals (Bollerslev, Engle & Nelson, 1994; Nelson, 1991). EGARCH (p, q) is

$$\ln(\sigma_t^2) = \omega + \sum_{i=1}^{p}[\alpha_i z_{t-i} + (\gamma_i|z_{t-i}| - E[|z_{t-i}|])] + \sum_{i=1}^{q}\beta_i \ln(\sigma_{t-i}^2) \quad (1)$$

where $z_t = \varepsilon_t/\sigma_t$ and the coefficient α_i captures the sign effect and γ_i captures the size effect. So, EGARCH (1, 1) model can be expressed as follows

$$\ln(\sigma_t^2) = \omega + \alpha_1 z_{t-1} + (\gamma_1|z_{t-1}| - E[|z_{t-1}|]) + \beta_1 \ln(\sigma_{t-1}^2) \quad (2)$$

where γ_1 is also called asymmetry coefficient and β_1 indicates volatility persistence. It can be said that there is a leverage effect on conditional variance when γ_1 has a value other than 0.

We have given the output of the Exponential GARCH model, in which we obtained the volatility of the real exchange rate, in Table 1. The model coefficients are statistically significant, assuming that the innovations of the EGARCH model follow the student-t distribution. The negative asymmetry coefficient gamma1 indicates that bad news has a higher impact on real exchange rate volatility than good news. In the results where the volatility persistence is as high as 0.94, we see that the half-life of a shock experienced in volatility is 11.25 months. In this case, the fact that the effect of a shock in the markets on the exchange rate lasts for almost two years is an indication that exchange rate volatility is more important than the real exchange rate itself. Therefore, we included volatility data in the analysis of our study.

Table 1. The Output of the Volatility Model for REER

	std-EGARCH(1,1) Volatility Model for REER			
Param	**est**	**Std.Err**	**t-stat**	**sig**
omega	-0.49	0.00	-19869.7	0.00
alpha1	-0.31	0.00	-62780.5	0.00
beta1	0.94	0.00	20382.3	0.00
gamma1	-0.4	0.00	-28325.8	0.00
shape	11.91	0.00	9395.8	0.00
Information Criteria	**Akaike**	**Bayes**	**Hannan-Quinn**	**Shibata**
	-4.43	-4.33	-4.39	-4.43
Diagnostics	**stat**	**sig**		
$LB^2[5]$	5.53	0.12	Persistence	0.94
ARCH LM [5]	4.87	0.11	Half-life	11.25
Pearson GoF [20]	17.69	0.54		

Note: LB: Ljung-Box SR: Standardized Residuals. LM: Langrange Multiplier Test. GoF: Goodness-of-Fit. est: estimation of parameters. Std.Err: Standard Error. t-stat: t-statistics. sig: probability of significance

The diagnostic test results show that there is no ARCH effect in the residuals by Ljung-Box (LB) and ARCH Lagrange Multiplier (LM). Moreover, the goodness of fit (GoF) statistics indicate that the fit of the conditional distribution of the model is statistically significant.(2)

(2) We consider the significant discussions on the volatility of the small sample when modeling the low-frequency REER data. Considering the size of biases and convergence errors, Hwang & Valls Pereira (2006) propose at least 250 observations for ARCH(1) models and 500 observations for GARCH(1,1) models. Furthermore, the GARCH estimates from low-frequency data suffer from the temporal aggregation problem [see Drost & Nijman (1993)]. In addition, the Maximum Likelihood Estimates of the GARCH(1,1) model are significantly negatively biased in small samples, and in many cases estimates are not possible to converge with Bollerslev's non-negativity conditions. Therefore, the estimated model does not satisfy the diagnostics tests. Poon (2005) states that using absolute monthly values to represent macro volatility provides a proxy value for volatility. But, in our case, the estimation results meet the diagnostics conditions.

ARDL Bounds Test

In the context of Organizational Ecology, we apply the Autoregressive Distributed Lag (ARDL) BoundsTest or in another word PSS test approach, which was developed by Pesaran & Shin (1999) and Pesaran, Shin & Smith (2001), to reveal how the company population in the tourism sector is affected by external factors. We also follow the studies of Turhan & Arı (2021a, 2021b) in the implementation and interpretation of the methodology.

The ARDL Bounds test is an approach to examine the long and short-run effects between variables, and more importantly, to test whether there is cointegration between the variables. In this approach, the stationarity levels of the variables do not have to be the same. It is sufficient that some variables are stationary at the level, that is, integrated I(0), or that some are stationary at the first difference, that is, integrated I(1). However, this approach cannot be used for variables with integrated level I(2). Although the PSS makes it clear that the test is applied regardless of whether the dependent variable or regressors are I(0) or I(1), there seems to be a belief that the PSS test is valid only if the dependent variable is I(1). This appears to be due to confusion between testing for a long-run relationship, which may be between I (0) variables and cointegration testing between I(1) variables only. The test is for the long-run levels relationships, which is a more general category than a cointegrating relationship. While long-run level relationships can exist whether the variables are I(0) or I(1), cointegration relationships are valid only if the variables are I(1). If the variables are cointegrated, there is a long-run relationship, but if the variables are I (0), there can also be a long-run relationship without cointegration. For example, McNown, Sam & Goh (2018) in an article on testing for cointegration states: "Co-integration under the bounds test, defined by PSS, can be found together if and only if the two tests individually reject their respective null hypotheses, provided that the dependent variable is known to be I(1)". This is true but seems to be misinterpreted as it means that the PSS test only works when the dependent variable is I(1). The PSS test is not designed as a cointegration test that requires you to know that the variables are I(1). It is designed to test for the existence of a long-run relationship that does not require you to know the integration order of the variables. As a result, the condition for the dependent variable to be I(1) was determined by McNown et al. (2018) relaxed with the generalized ARDL bounds test approach. They calculated new t and F critical values for the degenerate dependent variable problem that occurs when the probability value corresponding to the t-statistic, which shows the significance of the dependent variable, is inconsistent with the t-distribution. Generalized Dickey-Fuller (ADF) and Philips-Perron (PP) stationarity test results for the variables used in this study are available in Appendix A - Table A2. According to these results, it is understood that no variable is I(2). The ARDL bounds test equation used to test the cointegration or long-run relationship between the variables is as follows.

$$\begin{aligned}\Delta\ln(TFO)_t = {} & \alpha_0 + \sum_{i=0}^{p}\alpha_{1i}\,\Delta\ln(TFO)_{t-i} + \sum_{i=0}^{q}\alpha_{2i}\Delta\ln(TOUR)_{t-i} \\ & + \sum_{i=0}^{q}\alpha_{3i}\Delta\ln(CLI)_{t-i} \\ & + \sum_{i=0}^{q}\alpha_{4i}\Delta\ln(HCRCPI)_{t-i} + \sum_{i=0}^{q}\alpha_{5i}\Delta\ln(SCPI)_{t-i} \\ & + \sum_{i=0}^{q}\alpha_{6i}\Delta\ln(REERVOL)_{t-i} + \sum_{i=0}^{q}\alpha_{6i}\Delta\ln(TDI)_{t-i} + \beta_1\ln(TFO)_{t-1} \\ & + \beta_2 ln(TOUR)_{t-1} + \beta_3\ln(CLI)_{t-1} + \beta_4\ln(HCRCPI)_{t-1} + \beta_5\ln(SCP)_{t-1} \\ & + \beta_6\ln(REERVOL)_{t-1} + \beta_7\ln(TDI)_{t-1} + \tau_1 Dcov_t + \tau_2 DTrvl_t + e_t\end{aligned} \quad (3)$$

where α_0 is a constant and e_t denotes error terms

The variables in Equation 3 can be listed as

TFO: the total number of monthly foundings of companies operating in the tourism sector.

TOUR: the number of Tourists.

HCRCPI: Consumer Price Index for Hotels, Cafes, and Restaurants

TSCPI: the Consumer Price Index for Transportation Services.

CLI: the weighted average of the Commercial Loan Interests applied by the banks.

REERVOL: the volatility of CPI Based Real Effective Exchange Rate.

TDI: the total number of monthly disbandings of companies operating in the tourism sector.

DCov: the dummy variable denotes Covid-19 period.

DTrvl: the dummy variable denotes the period when international and domestic travel was restricted.

The existence of a long-run relationship or cointegration between the variables is made by testing the hypothesis $H_0: \beta_i = 0\ for\ i: 1, \ldots, 7$. While testing this hypothesis, PSS used the critical values they calculated for I(0) and I(1) instead of Wald's test. If the calculated F-statistic value is greater than the critical value calculated for I(1) at 10%, 5%, and 1% confidence levels, it is accepted that there is a cointegration or long-run equilibrium relationship between the variables. The sample size for the critical values calculated by PSS is 1000 asymptotically. Narayan (2005), on the other hand, calculated new critical values for sample sizes where the sample size is between 30 and 80. We do not need to use Narayan's critical values in this study since the sample size was more than 80 observations.

Some researchers draw conclusions based solely on the first test in PSS, namely the common F-test on the lagged levels of all variables. They neglect to do the second test, which is the t-test on the lagged level coefficient of the dependent variable. In this case, the probability of making inaccurate inferences increases as the degenerate state is neglected when the F-statistics valid only for the whole model is compared with the critical values. In fact, the coefficient of the lagged level of the dependent variable may not be statistically different from zero. In this degenerate case, there is no cointegration between the series in the model. PSS argues that this degenerate state is dependent on the first-differentiated dependent variable of its lagged level in a conditional ECM. In this case, the dependent variable is actually stationary. Therefore, the degenerate situation can be ignored if the dependent variable is not stationary (McNown et al., 2018). In addition, the resampling (bootstrap) procedure of McNown et al (2018) was developed by Sam et al (2019) through the augmented ARDL bounds test. The most important advantage of this enhanced augmented ARDL bounds test is that an I(1) dependent variable assumption is not required. In conclusion, the three tests reach a clear conclusion about the cointegration condition: a general F test on lagged level variables, a t-test at the lagged level of the dependent variable, and an F test on lagged levels of the independent variable(s).

The important steps of the PSS test can be listed as follows; first, the variables I(2) are not stationary, secondly, there is no autocorrelation and heteroskedasticity problems in the residuals of the model, and finally, t-bounds test critical values are used. Although the model has many assumptions, the two most important assumptions are that there is no autocorrelation and no heteroskedasticity in the error terms. When these problems are encountered, increasing the lag number of the model or changing the parameter estimation method and using the White/Vac covariance matrix can be a solution. If these methods do not eliminate the problems, issues such as insufficient explanatory variables in the model or differences in variable scales should be considered. In summary, the t-Bounds test is a parameter significance test on the lagged value of the dependent variable.

Because the distribution of this test is non-standard, the t-value provided in the regression output on a conditional ECM is not consistent with this distribution, although the t-statistic is valid. Accordingly, any inferences must be made using the t-bounds test critical values provided. Therefore, we utilize the critical values of t-bounds test in this study to eliminate the degenerate dependent variable case. Last, we also use the F critical values developed by Sam *et al.* (2019) to test the case of the degenerate lagged independent variable(s).

Another issue in the ARDL Bounds Test approach is the use of dummy variables. In general, if dummy variables are included in the model, the non-zero components of the dummy variable should disappear asymptotically, otherwise, the critical values provided in the PSS article may be invalid. However, the forecast is still consistent and valid. The variation due to the presence of dummy variables should not exceed the variation of the cointegration relationship. In other words, the ratio of periods in which the dummy variables are not zero to the sample size should approach zero, otherwise, their critical values need to be changed. This point is clarified in footnote 17 of the PSS article. In this study, the ratio of the periods when the dummy variable is not zero to the sample size is 0.068. Therefore, we added $Dcov_t$ and $DTrvl_t$ to the model as a constant explanatory variable in order to see the short-run effect of the $Dcov_t$ and $DTrvl_t$ dummy variables.

We run the Error Correction Model (ECM) below to reveal the short-run relationship

$$\begin{aligned}\Delta ln\,(TFO)_t = \alpha_0 &+ \sum_{i=0}^{p} \alpha_{1i}\,\Delta ln\,(TFO)_{t-i} + \sum_{i=0}^{q} \alpha_{2i} \Delta l\,n(TOUR)_{t-i} \\ &+ \sum_{i=0}^{q} \alpha_{3i} \Delta\, ln(CLI)_{t-i} + \sum_{i=0}^{q} \alpha_{4i} \Delta ln\,(HCRCPI)_{t-i} \\ &+ \sum_{i=0}^{q} \alpha_{5i} \Delta \ln\,(SCPI)_{t-i} + \sum_{i=0}^{q} \alpha_{6i} \Delta \ln\,(REERVOL)_{t-i} \\ &+ \sum_{i=0}^{q} \alpha_{6i} \Delta \ln\,(TDI)_{t-i} + \tau_1 Dcov_t + \tau_2 DTrvl_t + \delta ECT_{t-1}\end{aligned} \tag{4}$$

In Equation 2, ECT_{t-1} is the error correction term, and δ is the correction coefficient showing how quickly the deviation from the long-term equilibrium between the variables recovers. At the same time, the δ coefficient expresses as a percentage how much of the deviation from the long-term equilibrium returns to the equilibrium after a period. $1/|\delta|$ value indicates the time to reach long-term equilibrium.

Findings of ARDL Bounds Test

The ARDL Bounds test results of total company foundings in the tourism sector are given in Table 2. The lag values of the ARDL model were determined according to the Akaike Information Criteria. We applied the Breusch-Pagan-Godfrey (BPG) test for heteroskedasticity, Breusch-Godfrey (BG) test for autocorrelation, and Jarque-Bera (JB) test for normality, respectively, on model residuals. Also, we used the Ramsey Reset (RR) test to check the stability of the model coefficients. Results are available in the table. According to the diagnostic test results, there is no variance and autocorrelation problem in the model residuals. Furthermore, the coefficients of the model are stable, and the JB test shows that residuals are normally distributed in the model. Last, the ARDL Bounds test results indicate that there is a long-run equilibrium relationship between dependent variable TFO and variables TOUR, CLI, HCRCPI, TSCPI, REERVOL, TDI. In other words, the hypothesis that the variables are cointegrated was realized according to the critical values of both the F-bounds tests and the t-bounds test at the 1% confidence level for the model.

When we examine the long-run coefficients of the model, we find that TDI has a positive effect on the foundings of firms in the tourism sector and that a 1% increase in firm disbandings causes an increase of 0.16% in TFO. However, the variable coefficient is not statistically significant. We see that TOUR and TSCPI have a statistically significant effect at a 10% confidence level. A 1% increase in the number of tourists causes an increase of 0.15% in the number of establishments. As expected, the increase in TSCPI turns out to have a negative impact on TFO. A 1% increase in TSCPI results in a 2.18% decrease in TFO. Other variables CLI, HCRCPI, and REERVOL are found to have a statistically significant effect on TFO at the 1% confidence level. A 1% increase in CLI, HCRCPI, and REERVOL leads to a 0.95% decrease and a 3.15% and 0.20% increase in TFO, respectively. The short-run results of the ECM show that the period of transportation restrictions and the Covid-19 pandemic affect TFO negatively. The results obtained are significant at the 1% confidence level. According to the results, the elasticity of TFO according to Trvl (transport restrictions) is -0.77%, while its elasticity is -0.35% compared to the Covid-19 pandemic period. Another interesting result is that the ECT coefficient is statistically significant and takes a value between -1 and 0 as expected. The ECT coefficient of -0.73 indicates that 73% of the deviation from the long-run equilibrium between TFO and variables adjusts in the following month. In other words, the rate of reaching the long-run equilibrium between the variables is high. In case of any deviation from the cointegration between the variables, it reaches equilibrium again in 1.37 months.

Table 2. ARDL Bounds Test Results

Long Run Coefficients - Dep. Var. LNTFO					**ECM - Short Run Coefficients - Dep. Var. ΔLNTFO**				
Variable	**Coef**	**Std. Error**	**t-Stat**	**Prob.**	**Variable**	**Coef**	**Std. Error**	**t-Stat**	**Prob.**
LNTOUR	0.15	0.08	1.79	0.08	C	0.41	0.06	6.67	0.00
LNCLI	-0.95	0.17	-5.57	0.00	$\Delta LNTOUR_{t}$	0.19	0.04	4.51	0.00
LNHCRCPI	3.15	0.78	4.02	0.00	$\Delta LNTOUR_{t-1}$	0.00	0.05	-0.01	0.99
LNTSCPI	-2.18	1.17	-1.87	0.06	$\Delta LNTOUR_{t-2}$	-0.33	0.05	-6.88	0.00
LNREERVOL	0.20	0.04	4.78	0.00	$\Delta LNTOUR_{t-3}$	0.07	0.05	1.45	0.15
LNTDI	0.16	0.10	1.58	0.12	$\Delta LNTOUR_{t-4}$	-0.09	0.05	-1.85	0.07
					$\Delta LNTOUR_{t-5}$	-0.13	0.05	-2.81	0.01
Model Diagnostics					$\Delta LNHCRCPI_{t}$	7.80	2.99	2.61	0.01
R^2	0.92				$\Delta LNHCRCPI_{t-1}$	-5.92	3.23	-1.83	0.07
Adj. R^2	0.89				$\Delta LNHCRCPI_{t-2}$	6.94	3.22	2.15	0.03
Model F-ist	39.47				$\Delta LNTSCPI_{t}$	-3.52	1.62	-2.17	0.03
	Prob. F-stat	Prob. Chi-Sq.			$\Delta LNTSCPI_{t-1}$	5.37	1.47	3.66	0.00
BPG	0.66	0.62			$\Delta LNTSCPI_{t-2}$	-3.63	1.46	-2.48	0.01
BG	0.72	0.65			$\Delta LNTSCPI_{t-3}$	-1.18	1.42	-0.83	0.41
RR	0.68				$\Delta LNTSCPI_{t-4}$	2.47	1.31	1.88	0.06
Normality	JB -stat	Prob. JB			$\Delta LNTSCPI_{t-5}$	3.20	1.32	2.43	0.02
	2.51	0.28			$\Delta LNREERVOL_{t}$	0.01	0.04	0.19	0.85
					$\Delta LNREERVOL_{t-1}$	-0.09	0.04	-2.29	0.02
	Statistic	Signif.	I(0)	I(1)	$\Delta LNREERVOL_{t-2}$	-0.06	0.04	-1.47	0.15
F-Bounds test[1]	13.7	0.01	3.15	4.43	$\Delta LNTDI_{t}$	0.13	0.03	4.05	0.00
t-Bounds test[2]	-9.01	0.01	-3.43	-4.99	$\Delta LNTDI_{t-1}$	-0.10	0.03	-3.19	0.00
F-Bounds test[3]	13.7	0.01	2.84	4.69	DCov-19	-0.35	0.05	-6.70	0.00
					DTrvl	-0.77	0.14	-5.32	0.00
					ECT_{t-1}	-0.73	0.07	-10.08	0.00

Note: [1]General F-test on lagged level variables. [2]t-test at the lagged level of dependent variable. [3]F-test on lagged levels of the independent variable(s). BPG: Breush-Pagan-Goldfrey test. BG: Breusch-Goldfrey auto-correlation test. Normality Jarque-Bera JB test. RR: Ramsey Reset tets. Coef: Coefficients. Std.Err: Standard Error. t-stat: t-statistics. Prob: probability. sig: probability of significance.

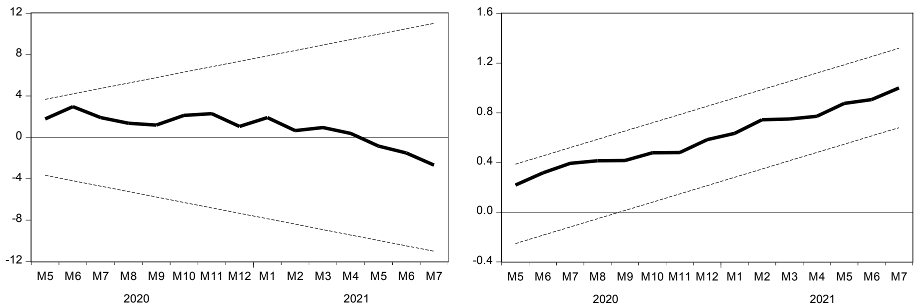

Figure 2. CUSUM and CUSUMSQ Plots at 5% significance

Discussion and Conclusion

In this study, within the framework of organizational ecology theory, a theoretical perspective that has not received enough attention in Europe and Türkiye, we try to understand "the effect of socio-economic phenomena observed in a certain time interval on the organization-founding behaviors of entrepreneurs in an organization population in the tourism sector." To do so, we focus on the tourism sector in Türkiye and use "Accommodation and Food Service Activities" data in the NACE-2 classification.

To see the effects of economic, political, and social phenomena at the macro level on the organization-founding behaviors of entrepreneurs in an organization population in the tourism sector, we use the number of tourists (TUR); Hotel, Cafe, and Restaurant Consumer Price Index (HCRCPI); Transportation Services Consumer Price Index (TSCPI); the weighted average of commercial loan rates applied by banks (CLI) and the CPI-based real effective exchange rate (REER) as data. And we also use two dummy variables for the period of the coronavirus pandemic (DCov-19) and the period of restricted domestic and international travel (DTrvl).

We apply the ARDL bounds tests to reveal how the company population in the tourism sector is affected by external factors. Thus we examine the long and short-run effects between variables, and more importantly, test whether there is cointegration between the variables. In the study, we model the volatility with the EGARCH model to figure out the effect of real exchange rate volatility on the number of openings in the tourism sector. The output of the EGARCH model shows that exchange rate volatility is more important than the real exchange rate itself since the effect of a shock in the markets on the exchange rate lasts for almost two years. The main analysis, the ARDL bounds test, indicates that the variables are cointegrated according to the critical values of both the F-bounds tests and the t-bounds test at the 1% confidence level for the model. In other words, there is a long-run equilibrium relationship between the dependent variable TFO and variables TOUR, CLI, HCRCPI, TSCPI, REERVOL, and TDI. It turns out that while increases in transportation prices (TSCPI) negatively affect company foundings, increases in the prices of hotels, cafes, and restaurants (HCRCPI) positively affect entry and foundings in the sector. The reason for this is that the rise in HCRCPI increases the income of the companies. We can understand this increase is significant in real terms from the fact that exchange rate volatility also positively affects the number of company establishments. In other words, since the REERVOL in Türkiye exists in the upward trend of the exchange rate, it is understood that it is a situation that increases income and increases returns. It should be noted that exchange rate volatility is also directly related to price indices. In summary, these effects are seen on TFO as TSCPI has a revenue-reducing effect and HCRCPI and REERVOL have a revenue-enhancing effect. Moreover, we find that TOUR and CLI have a statistically significant effect on TFO. CLI has a negative effect since the interest rates on loans have a strong influence on the financial cost of capital. The results of the short-run analysis via ECM show that the period of transportation restrictions and the Covid-19 pandemic affect TFO negatively. Last, ECM indicates that the adjustment rate of the deviation from the long-run equilibrium between TFO and variables is 73%.

The results of the present study are expected to contribute to organizational theories, the population ecology of organizations, business economics, studies on entrepreneurship and the tourism sector, knowledge of the evaluation of socio-economic effects of the COVID-19 pandemic, and future studies.

Appendix A

Table A1. Descriptive Statistics of Variables

Statistics	LNTFO	LNTOUR	LNCLI	LNHCRCPI	LNTSCPI	LNREER	LNREERVOL	LNTDI
Mean	5.64	14.54	2.66	5.98	5.74	4.53	-7.33	3.61
Median	5.60	14.55	2.66	5.98	5.70	4.61	-7.35	3.58
Maximum	6.52	15.76	3.55	6.74	6.32	4.84	-5.14	5.19
Minimum	4.60	10.83	2.13	5.39	5.29	4.09	-9.16	2.56
Std. Dev.	0.45	0.78	0.31	0.39	0.29	0.20	0.80	0.50
Skewness	-0.02	-1.81	0.49	0.22	0.31	-0.66	0.23	0.42
Kurtosis	2.13	9.22	3.10	1.84	2.04	2.31	2.66	2.77

Table A2. Philips-Perron (PP) and Augmented Dickey-Fuller (ADF) Unit Root Tests with constant and trend

Level		LNTFO	LNTOUR	LNCLI	LNHCRCPI	LNTSCPI	LNREER	LNREERVOL	LNTDI
PP	t-Stat	-6.56	-3.36	-2.65	-0.24	-0.90	-2.48	-3.36	-7.19
	Prob.	0.00	0.06	0.26	0.99	0.95	0.34	0.06	0.00
ADF	t-Stat	-6.57	-6.52	-3.12	-0.50	-0.53	-2.54	-3.90	-1.58
	Prob.	0.00	0.00	0.11	0.98	0.98	0.31	0.01	0.80
First Diff		**ΔLNTFO**	**ΔLNTOUR**	**ΔLNCLI**	**ΔLNHCRCPI**	**ΔLNTSCPI**	**ΔLNREER**	**ΔLNREERVOL**	**ΔLNTDI**
PP	t-Stat	-39.45	-5.83	-6.92	-8.01	-11.07	-8.12	-9.83	-40.51
	Prob.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADF	t-Stat	-9.61	-7.87	-6.93	-7.99	-2.63	-9.26	-9.93	-11.83
	Prob.	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00

Note: PP: Phillips-Perron Unit Root Test. ADF: Augmented Dickey-Fuller Unit Root Test

References / Kaynakça

AA. 2020. Marketlere ve toplu taşıma araçlarına yönelik koronavirüs tedbirleri artırıldı. ***Anadolu Agency (Anadolu Ajansı)***. Access date: 05.11.2022. https://www.aa.com.tr/tr/koronavirus/marketlere-ve-toplu-tasima-araclarina-yonelik-koronavirus-tedbirleri-artirildi/1776781

Al-Turk, A. & Aldrich, H. E. 2019. Revisiting "traits to rates" after 25 years: Organizational ecology's limited impact on entrepreneurship research. J. A. Katz & A. C. Corbet (Ed.), ***Seminal ideas for the next twenty-five years of advances (Advances in entrepreneurship, firm emergence and growth)*** (Vol. 21, p. 99-114). UK: Emerald Publishing Limited.

Aldrich, H. E. & Ruef, M. 2006. ***Organizations evolving*** (Second ed.). London: SAGE.

Aldrich, H. E. & Wiedenmayer, G. 1993. From traits to rates: An ecological perspective on organizational foundings. J. A. Katz & R. H. Brockhaus (Ed.), ***Advances in entrepreneurship, firm emergence and growth*** (Vol. 1, p. 145-196). Greenwich, CT: JAI Press.

Amburgey, T. L. & Rao, H. 1996. Organizational ecology: Past, present, and future directions. ***Academy of Management Journal**, 39*(5), 1265-1286.

Andersson, T. D., Getz, D. & Mykletun, R. J. 2013a. The "festival size pyramid" in three Norwegian festival populations. ***Journal of Convention & Event Tourism**, 14*(2), 81-103. doi:10.1080/15470148.2013.782258

Andersson, T. D., Getz, D. & Mykletun, R. J. 2013b. Sustainable festival populations: An application of organizational ecology. ***Tourism Analysis**, 18*(6), 621-634.

Baum, J. A. 1996. Organizational ecology. S. R. Clegg, C. Hardy, & W. Nord (Ed.), ***The SAGE handbook of organization studies.*** (p. 77-114). UK: SAGE.

Baum, J. A. & Amburgey, T. L. 2002. Organizational ecology. J. A. Baum (Ed.), ***The Blackwell companion to organizations*** (p. 304-326). Oxford: Blackwell.

Baum, J. A. & Shipilov, A. V. 2006. Ecological approaches to organizations. S. R. Clegg, C. Hardy, & T. B. Lawrence (Ed.), ***The SAGE handbook of organization studies.*** (p. 55-110). UK: SAGE.

Baum, J. A. & Singh, J. V. 1994. ***Evolutionary dynamics of organizations***. New York: Oxford University Press.

Bollerslev, T. 1986. Generalized autoregressive conditional heteroskedasticity. ***Journal of Econometrics**, 31*(3), 307-327. doi:https://doi.org/10.1016/0304-4076(86)90063-1

Bollerslev, T., Engle, R. F. & Nelson, D. B. 1994. Arch models. ***Handbook of econometrics**, 4*, 2959-3038. doi:https://doi.org/10.1016/S1573-4412(05)80018-2

Carroll, G. R. 1984. Organizational ecology. ***Annual Review of Sociology.**, 10*(1), 71-93.

Drost, F. C. & Nijman, T. E. 1993. Temporal aggregation of GARCH processes. ***Econometrica**, 61*(4), 909-927. doi:10.2307/2951767

Engle, R. F. 1982. Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. ***Econometrica**, 50*(4), 987-1007. doi:10.2307/1912773

Gallagher, B. K. 2021. Death and life: The promise and problems of the arts in rural communities. ***International Journal of Arts Management**, 23*(2), 30-42.

Hannan, M. T. & Freeman, J. 1977. The population ecology of organizations. ***American Journal of Sociology**, 82*(5), 929-964.

Hannan, M. T. & Freeman, J. 1987. The ecology of organizational founding: American labor unions, 1836-1985. ***American Journal of Sociology**, 92*(4), 910-943.

Hannan, M. T. & Freeman, J. 1988. The ecology of organizational mortality: American labor unions, 1836-1985. ***American Journal of Sociology**, 94*(1), 25-52.

Hannan, M. T. & Freeman, J. 1989. ***Organizational ecology***. Cambridge, MA: Harvard University Press.

Hjalager, A.-M. 2000. Organisational ecology in the Danish restaurant sector. ***Tourism Management**, 21*(3), 271-280. doi:https://doi.org/10.1016/S0261-5177(99)00058-8

Hwang, S. & Valls Pereira, P. L. 2006. Small sample properties of GARCH estimates and persistence. ***The European Journal of Finance**, 12*(6-7), 473-494. doi:10.1080/13518470500039436

McNown, R., Sam, C. Y. & Goh, S. K. 2018. Bootstrapping the autoregressive distributed lag test for cointegration. ***Applied Economics**, 50*(13), 1509-1521. doi:10.1080/00036846.2017.1366643

Narayan, P. K. 2005. The saving and investment nexus for China: Evidence from cointegration tests. ***Applied Economics**, 37*(17), 1979-1990. doi:10.1080/00036840500278103

Nelson, D. B. 1991. Conditional heteroskedasticity in asset returns: A new approach. ***Econometrica**, 59*(2), 347-370. doi:10.2307/2938260

Önder, Ç. & Üsdiken, B. 2007. Örgütsel ekoloji: Örgüt toplulukları ve çevresel ayıklama. A. S. Sargut & Ş. Özen (Ed.), ***Örgüt kuramları*** (p. 133-191). Ankara: İmge Kitabevi Yayınları.

Pesaran, M. H. & Shin, Y. 1999. An autoregressive distributed-lag modelling approach to cointegration analysis. S. Strom (Ed.), ***Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium***. Cambridge: Cambridge Univ. Press.

Pesaran, M. H., Shin, Y. & Smith, R. J. 2001. Bounds testing approaches to the analysis of level relationships. ***Journal of Applied Econometrics**, 16*(3), 289-326.

Poon, S.-H. 2005. ***A practical guide for forecasting financial market volatility***. Chichester, United Kingdom: John Wiley & Sons.

Sam, C. Y., McNown, R. & Goh, S. K. 2019. An augmented autoregressive distributed lag bounds test for cointegration. ***Economic Modelling**, 80*, 130-141. doi:https://doi.org/10.1016/j.econmod.2018.11.001

Turhan, M. S. & Arı, Y. 2021a. Organizational ecology and cooperative organizations: An analysis on agriculture, forestry and fisheries sector in Turkey. ***Third Sector Social Economic Review**, 56*(3), 1436-1454. doi:10.15659/3.sektor-sosyal-ekonomi.21.08.1609

Turhan, M. S. & Arı, Y. 2021b. Organizational foundings, disbandings, and Covid-19 pandemic: Evidence from the Turkish construction sector. ***Ekonomski vjesnik/Econviews**, 34*(2), 337-350. doi:10.51680/ev.34.2.7

UNWTO. 2020a. Covid-19 Response: 96% of Global Destinations Impose Travel Restrictions. ***UNWTO Reports***. Access date: 05.11.2022. https://webunwto.s3.pdf

UNWTO. 2020b. Restrictions on Travel Easing as Europe Leads Cautious Restart of Tourism. ***UNWTO Reports***. Access date: 05.11.2022. https://webunwto.s3.Travel-Restrictions-EN.pdf

Üsdiken, B. 1995. Örgüt kuramında yeni yol ayrımları: Kuzey Amerika, Avrupa ve Türkiye, ***Kamu Yönetimi Disiplini Sempozyumu Bildirileri*** (p. 97-110). Ankara: TODAİE.

Üsdiken, B. & Leblebici, H. 2001. Organization theory. N. Anderson, D. S. Öneş, H. Kepir Sinangil, & C. Viswesvaran (Ed.), ***Handbook of industrial, work and organizational psychology*** (p. 377-397). London: SAGE.