

STATISTICAL TECHNIQUES FOR ANALYZING THE IMPACT OF THE MACROECONOMIC DETERMINANTS OF FOREIGN TOURISM DEMANDS IN ROMANIA

Calcedonia Enache¹, Sonia Budz², Mirela-Octavia Sîrbu³ and Daniel Zgură⁴

^{1) 2) 3) 4)} The Bucharest University of Economic Studies, Romania

E-mail: calcedoniaenache@yahoo.com; E-mail: sonia.budz@yahoo.com;

E-mail: sirbu.mirela@com.ase.ro; E-mail: daniel.zgura@gmail.com

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Abstract

Nowadays, technology is the prime element worldwide, used on a daily basis to ease and improve companies and individuals' lives. The evolution of technology conducted to the apparition of new economic branches and business models, such as the sharing economy. These models led to the progress of the online infrastructure, which stimulates a better interaction between providers and consumers, improving the level of quality with regards to services and products. One of the pioneers in this domain is the giant Airbnb which activates in the tourism field on a global level, being implicated in the economic transition.

The scope of this paper is to analyze the impact of the macroeconomic determinants of the foreign tourism demands in Romania, using the linear panel regression model. The analysis was performed on annual panel data corresponding to a number of 23 EU member states. According to the obtained results, during the interval 2012-2018, an increase of 1% in relative costs of living of tourists lead to a subsequent decrease of 1.45% in nights spent by foreign tourists in holiday and other short-stay accommodation units.

This study is useful for all legal entities, entrepreneurs and individuals involved in the tourism field for their business strategies with regards to the quality of services that generates economical growth.

Keywords

International tourism demand, Sharing Economy, Airbnb, technology, economic growth, Panel data, tourism intensity

JEL Classification

C51, M21, O33, Z32

Introduction

The World Tourism Organization, says "tourism covers the activities of a person who travels outside her/ his ordinary environment for less than a specified period of time and whose purpose is other than exert of a paid activity at the place of visit." (Neguț et al., 2006). Simultaneously, the importance of the tourism activity and the need for its sustainable development are underlined by the latest statistical data provided by the World Tourism Organization. Thus, in 2017, one in ten jobs belonged to the tourist sector and 10% of the gross global product was created in the field of tourism. As well, tourism was accounted for 7% of the global exports and 30% of the global services' exports, in the same year.

For many economies, the tourism industry bears a particular significance, not only through the income generated, but also as a supplier of jobs, currency flows, entrepreneurial dynamism, and contributor to regional development (Țigu, 2012, cited in Bădulescu et. al, 2018).

A significant image on the importance of this sector of activity in Romania is reflected by the evolution in the period of 2012-2018, with regards to the number of bed places offered by the holiday and other short stay accommodation units, the number of nights spent in these units, the number of overnight stays of Romanian tourists in these units and the total overnight stays, in terms of the degree of urbanization.

Thereby, in Romania, during the interval of 2012-2018, the number of holiday and other short stay accommodation units grew gradually from 2,861 to 4,661. In fact, in 2018, the number of bed places offered by the holiday and other short stay accommodation units amounted to 110,405. In comparison with other EU member countries, this indicator has recorded a lower level than the one reached in Poland (399,996), in the Czech Republic (175,552) and in Hungary (145,346), but higher than the one obtained in Lithuania (55,551), Bulgaria (48,704) or Estonia (27,001).

In addition, between 2012 and 2018, the number of nights spent in holiday and other short-stay accommodation recorded an average annual dynamics of 13.14 %, reaching 4,883,220. It should be noted that, along with Romania, only four countries of the EU-27 group reported an average annual growth rates of the above-mentioned indicator over 10%, namely Portugal (47.1 %, up to 8,866,275), Malta (12.26%, up to la 311,778), Greece (11.75%, up to 31,517,741) and Latvia (10.5 %, up to la 993,379). In the case of holiday and other short stay accommodation units, the number of overnight stays of Romanian tourists increased from 2,107,931 in 2012 to 4,457,104 in 2018. In contrast, the number of overnight stays of foreign tourists increased from 220,478 in 2012 to 441,696 in 2017, then down to 426,116 in 2018. Moreover, around 71 % of nights spent by non-residents in 2018 were by tourists coming from Hungary (25.45 %), Germany (16.67 %), Italy (7.19 %), France (4.92 %), Poland (4.2 %), United Kingdom (3.43%), Spain (2.85 %), Austria (2.51%), Netherlands (2.21 %) and Czechia (1.66 %). On the other hand, during the interval 2012-2018, in terms of the degree of urbanization, 49.21 % of the total overnight stays in holiday and other short stay accommodation were registered in rural areas, 27.58 % in towns and suburbs and 23.21 % in cities. In 2018, most trips registered in holiday and other short stay accommodation structures were between 4 and 7 nights (43.99 %, up 5.04 percentage points than in 2012), followed by those between 1 and 3 nights (33.75 %, up 6.22 percentage points) and those between 8 and 14 nights (13.89 %, down 3.6 percentage points). Concerning the tourism intensity, in 2017, according to data from UNWTO, Romania reported an average of 3.16 arrivals per inhabitant. Compared to the EU-10 countries, the level was higher than the one recorded in Hungary (3.1 arrivals per inhabitant), Slovenia (2.6 arrivals per inhabitant), Latvia (2.51 arrivals per inhabitant), Bulgaria (1.92 arrivals per inhabitant), Lithuania (1.75 arrivals per inhabitant) and Poland (1.68 arrivals per inhabitant). In the last decades, the connection between tourism

and the economic growth is noticeable and has generated a significant number of studies and articles. In this circumstances, the present study aims to investigate the impact of the macroeconomic determinants of foreign tourism demand in Romania, during the interval 2012-2018.

Material and method

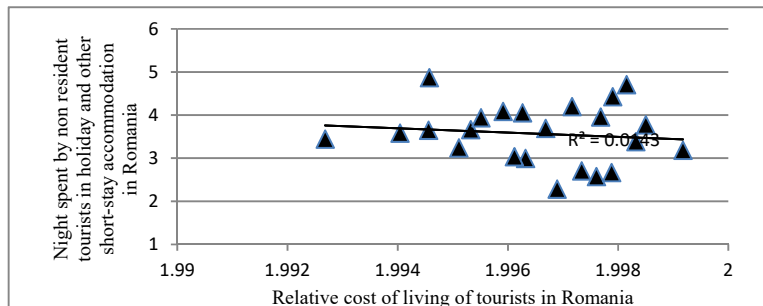
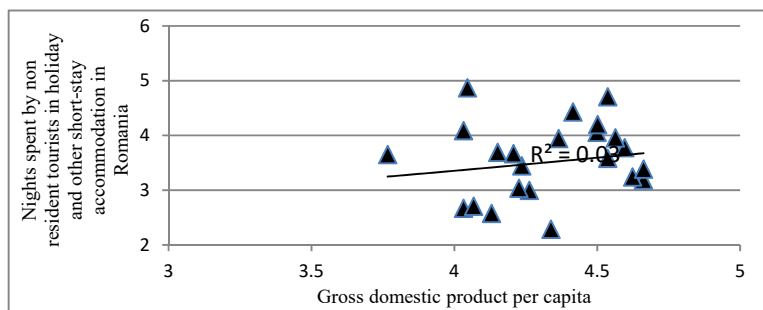
”The literature regarding the relation between tourism and economic growth is relatively recent, due to most classical theories (either neoclassical or endogenous growth theories) lacking references to tourism and its role in the economic growth” (Bădulescu et. al, 2018). In this context, the present study analyses the relationship between the tourism demand, economic growth, tourism price and information technology, using the linear panel regression model, similar to the one described by Baltagi (2005) and Greene (2008).

The variables considered are the following:

- Nights spent by tourists in holiday and other short-stay accommodation from origin country *i* to Romania at time *t*. Source: EUROSTAT
- Gross domestic product per capita of sending country *i* at time *t*, average prices of 2010. Source: EUROSTAT
- Relative cost of living of tourists in Romania at time *t*, calculated as ratio of the consumer price index of Romania at time *t* and the consumer price index of origin country *i* at time *t*. Source: Own calculations based on EUROSTAT data
- Purchases travel and holiday accommodation over the Internet in each of the origin country *i* at time *t* (percentage of individuals). Source: EUROSTAT

The series of data have an annual frequency and cover the period 2012-2018. All series were expressed in natural logarithms (Enache, 2015), being denoted by NST, GDPP, RLCT, and PHTA.

First, we selected EU-15 countries. We also considered the 10 countries that joined the EU in 2004, plus Bulgaria. Following the analyses, respectively estimating the model for the whole group of countries, we noticed that the results are sensitive to the inclusion of Malta, Finland and Luxembourg in the sample. For this reason, the respective countries were eliminated. Next, we determined the cross-country relationships taking into account the average values recorded at the level of each country included in the analysis.



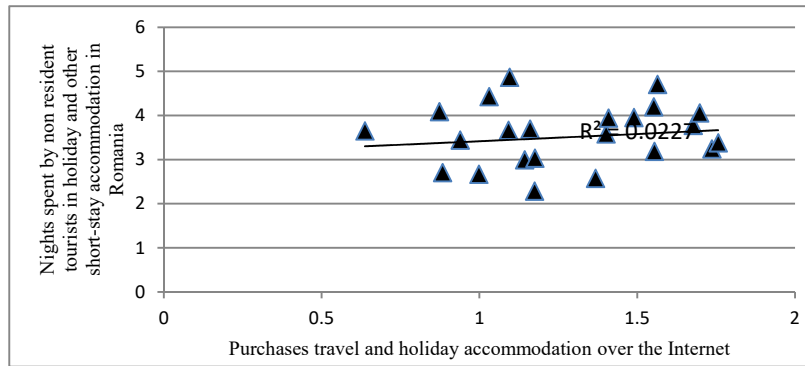


Fig. no. 1 Cross country relationship – average values at country level, 2012-2018

As can be seen in figure no. 1, the relationships derived at the theoretical level are confirmed by this analysis. The next step was to estimate a Fixed Effects Panel model.

Model estimation and results

The four variables have been tested to detect the presence of unit roots, applying the following tests: Levin, Lin and Chu (Levin et al., 2002), ADF – Fischer chi-square (Dickey et al., 1979), Im, Pesaran and Shin W-stat (Im et al., 2003) and the PP – Fischer chi-square (PP) (Phillips and Perron, 1988).

Table no. 1. Results of panel unit root test

Unit Root Test		Levin, Lin & Chu	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square
		H ₀ : Unit root (common unit root process)	H ₀ : Unit root (individual unit root process)		
Level	NST	-6.59610*	-0.47311	49.9146	55.8288
	GDPP	4.18147	7.47481	6.50202	11.5440
	RCLT	-10.0533*	-2.90467*	83.7295*	92.8249*
	PHTA	-2.59488*	1.24019	32.5931	40.5897
First difference	NST	-18.1904*	-4.64096*	105.238*	119.065*
	GDPP	-12.2190*	-3.01471*	87.5740*	126.066*
	RCLT	-13.4555*	-3.53119*	80.4068*	86.6549*
	PHTA	-16.7128*	-4.67548*	106.401*	113.112*

*The null hypothesis is rejected at a significance level of 1%

The results of the stationarity tests, reported in Table no. 1, indicate that the RCLT is integrated of order zero, whereas GDPP, RCLT and PHTA will be stationary after first order differencing.

Next, we used the Hausman test (Hausman, 1978) in order to identify which of the models is more adequate: the fixed effects or the random effects one (Table no. 2). As the probability obtained was 0.0, thus the first model is more appropriate.

Table no. 2. Results of Hausman test

Variable	Fixed	Random	Var (Diff.)	Prob.
GDPP	2.771176	1.832885	0.064743	0.0002
RCLT	0.386808	0.464849	0.000674	0.0026
PHTA	-0.954705	-0.755787	0.002863	0.0002

$$\text{Chi}^2 (3) = 14.632042; \text{Prob} > \text{chi}^2 = 0.0022$$

Further on, we applied the least squares technique to estimate the panel data model. Table no. 3 contains the results of the estimation.

Table no. 3. Panel fixed effects model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPP	3.218798	0.351453	9.158536	0.0000
RCLT	-1.447318	0.538663	-2.686873	0.0081
PHTA	0.415463	0.083315	4.986643	0.0000
C	-18.42132	4.191026	-4.395419	0.0000
R-squared	0.988754			
F-statistic	471.2484			
Prob. (F-statistic)	0.000000			
Durbin-Watson stat	1.708998			

Discussion

The estimation results of the Fixed Effect Panel indicate the existence of a direct relation between NST and GDPP and between NST and PHTA respectively, as well as an inverse relation between NST and RCLT.

Vasiliu et al. (2016) mentioned that “consumers gain the information they need to make decisions about buying products by looking for information in an attempt to decide what, when and from whom to buy. Consumers frequently engage in online search processes to extract current and relevant information for their purchasing decisions, with the Internet becoming one of the most interactive tools that influence users' decisions in the context of shopping. Searching for product information online is an essential part of the decision taking and purchasing comparison process, as it reduces the uncertainty of the purchase and increases the likelihood of satisfaction with regards to the purchase made.”

Today, social media is by far the number one reputation management channel. Social media is also a big forum where users can share their personal experiences by posting comments and reviews that may influence the decision of other customers and could easily improve the quality of the provided services.

Onete et al. (2013) said that “the providers of products and services cannot maintain their economic activities if they cannot identify as accurately as possible the needs and preferences of those purchasing the products and services. These ones can be individual consumers as well as other business organizations. In this process of identifying needs and preferences, social media can play a very important role. Social media provides a series of tools through the agency of which producers can analyze the needs from the market and can determine the costumers' expectations. At the same time, they can find out faster if the products and services they provide meet their clients' expectations. Social media and the internet in general allow gathering almost fully complete information before purchasing a certain product or service.

The consumer can read all the existing information about the product or service he is about to purchase, can compare the offers of different sellers/ distributors and can evaluate the information obtained in this environment with the information from traditional media or from personal experience.”

The development of technologies motivated small entrepreneurs to rethink how they maintain and develop their relationship with the customers. It is not enough to offer the best value to the clients, but also stability, sustainability, because of the competition and care of the environment. When buying a product or service, customers are influenced by feelings and perceptions as well, not just by reasoning and costs. Most of them are tired of standardized services, for example.

Due to the 2008 crisis, the demands for sustainable alternatives increased. The emergence of new ideas and pioneers in changing the world with its old paradigms took place.

As a result in Europe, Amsterdam was the first European “sharing city” back in 2010.

The sharing economy is the act of collaboratively usage of underutilized inventory through cost-sharing. Airbnb was one of the pioneers in this industry and it was founded in 2008 in the U.S.A., having an available platform in more than 200 countries in the world. The company recorded a massive growth since it started, in 2015 having nearly 17 million total guests who stayed with Airbnb hosts around the world. (Airbnb Summer Travel Report, 2015) It is a trendy site among European tourists, working just like any other sharing business. It is an intermediary platform for tourists and accommodation providers.

The whole system works based on reviews. Both the hosts and the tourists receive a review after each transaction.

The advantages of Airbnb for are the lower prices in comparison with hotels, the comfort especially for big groups, thus good price quality ratio and the reducing of holiday costs by putting the kitchen at tourists’ disposal.

The disadvantages of Airbnb are no concierge services, no breakfast, lack of intimacy if the “entire place” is not chosen, the host rules with regards to the check-in and check-out, the payment at the time of confirmation, the strict cancellation policy (Zervas et al., 2016).

In Romania, it's relatively new and most people who rent accommodation establishments on Airbnb have been doing this just for few years. But more and more people are open to this because of the opportunity given to small entrepreneurs to develop and balance the economy. The main reasons tourists prefer Airbnb apartments is the lower costs, the good comfort, the increased feeling of “home” and the opportunity to empathize with the locals.

Usually the younger people choose Airbnb due to their lower income, or tourists that do not consider the accommodation very important.

As known, the private sector is the largest component of the GDP representing household expenditures as the act of renting, for example. Home sharing and the whole tourism industry have a great impact on the GDP, Airbnb guests stay longer and spend more money in diverse neighborhoods throughout the city.

Conclusions

According to the analysis above, the relationship between the tourism demands, economic growth, tourism prices and information technology is very important. The tourism in Romania, in this case the number of nights spent at tourists accommodations, increased in the mentioned period due to the GDP/Capita and online purchases. The development of technology, the need of more sustainability, the demands regarding tourism led to an infrastructure growth and improvement, resulting in the emergence of online platforms as Airbnb.

Although European travelers have bigger incomes in comparison with Romanians, they prefer renting private apartments due to the degree of familiarity and flexibility. Usually families or big groups rent the most apartments, but people who own small businesses are not excluded.

Airbnb led to an economic growth as it is directing the tourists' expenses in many parts of economy more or less by not offering complete services as hotels do. This fact balances the economy, by forcing tourists direct or indirect to purchase food and different services from other providers in other industries.

But overall tourism is a stimulating element for the global economic system. The sharing economy being the pioneer in making the world more sustainable and offering the opportunity for small entrepreneurs to develop in such a manner that everybody has the possibility to thrive.

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