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**Tourist arrivals & Tourist expenditures: An investigation of determinants and interactions at international level**

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## **ABSTRACT**

Tourism demand modelling has been one of the most popular research topics in the recent five decades because of the strong practicality to the public and private marketers. The determinants of the tourism demand used in the last century have already been analysed in deep by previous literature, however, the choice of the most appropriate tourism demand variable to be used has been scarcely discussed. In macro level tourism studies, the empirical analysis of tourism demand has considered both the tourist expenditures and the number of tourists. However, from a theoretical point of view, both of them are interrelated. Focusing on the analysis of tourism destinations (at country level) and using traditional main determinants (income, prices, climate conditions, coastline,...), the differences in the role of these determinants are investigated in reference to the tourist demand variables used in empirical exercises and the relationship between them will be demonstrated. The results show how most of the tourism demand determinants at the destination affect total expenditures through influencing the number of the tourists rather than the average tourist expenditure, which helps to develop the strategic management decisions and policies in the destination.

**Keywords:** *demand modelling; tourist expenditure; international tourism; decomposition analysis*

## **1. INTRODUCTION**

In recent decades, tourism has become an indispensable industry, especially in some developing countries. Higher proportion of tourism revenue in total revenue makes it meaningful to increase the tourist expenditures. The tourists destinations, especially those which tend to be saturated, try to find the way to realize the increase of the tourist expenditures. We can obviously find the condition of the tourism market that every tourism manager knows. On the one hand, when the tourism destinations receive a certain number of tourists, the tourists are hoped to have a high level of expenditures; on the other hand, if the level of the average expenditures in the destination cannot be changed, the more tourists are welcomed.

Due to the policy of protecting the environment and the trepidation of the saturation, the tourism managers in the destination are not willing to increase the number of tourists like usual. Consequently, compared to two tourists with a certain quantity of the tourist expenditures, the local managers of the tourism destination prefer one tourist with twice quantity of the tourist expenditures, because of the less influence to the local environment. To the destinations, the balance point is of great urgency to be found between the number of tourists and the tourist expenditures. However, during the last years, some destinations with saturation problems have been characterized by a negative trend in average tourist expenditures but a positive trend in the number of tourist arrivals, which is an eventful issue that has caused a significant increase of externalities.

Thus, modelling tourist demand can play an important role in this controversy. Because the tourism expenditures and the number of tourists have been used as dependent variables in empirical tourism demand studies, and a theoretical relationship between these variables has already existed, this study proposes to go in deep in this relationship. According to Crouch (1994), more studies of tourism demand are about the number of tourist arrivals and departures (63%) rather than the expenditures and receipts (48%) from 1961 to 1992. What's more, only less than 10% of the studies focus on the number of nights and average length of stay (Gokovali, Bahar & Kozak, 2007; Gouveia & Rodrigues, 2005). At the beginning, although demand measured in real money terms is preferable (Anastasopoulos, 1984; O'Hagan & Harrison, 1984), the lack of reliable data makes it difficult to have research, so the tourists number is more common to be measured (Barry & O'Hagan, 1972). Recently the intended use of the results is taken into consideration when selecting the dependent variables, which seems that the selection is strongly targeted. For instance, when the transportation and hotel carriers are interested in the numbers (Mak, Moncur & Yonamine, 1977), the stakeholders care more about the expenditures (Akal, 2004; Chu, 2011). Furthermore, while early studies pay more attention to the variables selection and proper application (Witt & Martin, 1987; Morley, 1994), current papers begin to using modelling and forecasting techniques to deal with the different level of the data (Wong, Song, Witt & Wu, 2007; Song, Li, Witt & Fei, 2010).

This paper pays attention to both of the dependent variables, aiming at analyzing the relationship between the number of tourists and the tourist expenditures in the tourism destinations. It splits the tourist expenditures into the number of tourists and the average tourist expenditures using the natural logarithms. In addition, considering the influence of the macro features in the destinations to the tourist expenditures, a series of variables will be used to analyze. A cross sectional analysis for 219 countries but for three different periods (2014, 2015 and 2016) are used to evaluate the hypothesis. From the results, it is possible to understand how the different determinants influence the total expenditures and if they influence it by the number of tourists or the average expenditures. Although some of the determining variables (the natural characteristics) cannot be changed easily, the results show how destinations can manage different policies with different effects on the tourists arrivals and the average tourist expenditures.

Actually, a large quantity of researchers major in studying the tourism expenditures from the view of the specific destination. Some of them measure the economic impact of tourism through kinds of methodologies, while some of them major in the determinants of the tourist demands. However, a large number of them pay attention to the micro aspect, which means they study it from the view of the characteristics of the tourists. What this paper is going to do is to analyze the tourist demands from the macro view. As a result, apart from analyzing the relationship between two dependent variables, the other novelty of this paper is to use the features of the tourism destinations to replace the characteristics of the tourists.

## **2. LITERATURE REVIEW**

Tourism demand modelling has been one of the most popular research topics within tourism economics literature. From the literature review, it is possible to classify empirical applications in four different ways (Dogru, Sirakaya-Turk & Crouch, 2017): The use of the dependent variables and the independents variables; according to the time periods and data; methodologies; and the original countries and destinations. The first one and the third one are more common to be used in the literature review report, and the last one always has a purpose for analyzing the specific countries or regions.

When talking about the dependent variables, some pay attention to the tourism expenditures at the micro level. In terms of tourists, the daily expenditure and the length of stay in the destination composite the total expenditure (Aguiló, Rosselló & Vila, 2017). As mentioned above, the emphasis studied at this level are the characteristics of the tourists, like nationality, education, age, income, sex, marital status (Wang & Zhao, 2016), etc. Many private marketers try to find the regulations of the tourists behaviour to promote the consumption of tourism products. However, from the point of view of the public tourism management, the major direction is the whole destination, which means that the features of the destinations should be taken into consideration.

Gross domestic product (GDP) has been considered frequently as an important indicator in the sense that it is expected that income of the local residents is a significant determinant of tourism demand, and due to the lack of the data, real or nominal GDP are used, frequently, to replace the income (Lim, 1997). Normally the first impression of GDP is that it will influence the outbound tourism (Zhang, 2011). However, in the destination, GDP also plays a unique role to tourism competitiveness, because the market openness, as a tourism sector competitiveness factor, is measured by the GDP (Navickas & Malakauskaite, 2009). And the destinations with higher competitiveness always attract more tourists (Cracolici & Nijkamp, 2009), even the tourists that are willing to have higher expenditures (Crouch & Ritchze, 1999).

From the perspective of economic factors, the prices of products and the prices of related products will affect tourism demand. The effect of the changes in product prices on demand is a basic law under market economy conditions. It also applies to tourism products. Moreover, since travel products are luxury consumer goods, the impact of price changes on demand is more pronounced, but blindly reducing product prices will affect product quality. For a specific tourism product, the price changes of its related tourism services will affect it. As Martin and Witt (1998) explained, two price components are used frequently: relative prices (RP) and substitute prices (SP) (Song & Li, 2008), both of which have an affect on the tourism demand. RP is more simple, referring to the cost of living at a destination; and SP is about the cost in the competing destination. RP, which measures the prices in the destinations relative to the prices in the original countries, is always used for showing the preferences between the domestic tourism and international tourism. SP, comparing the prices in the destinations and the substitute destinations, normally shows the preferences between the tourism destinations and the competing destinations. However, how to construct the weighted SP index depends on the methodology it uses (Uysal & Crompton, 1985).

Also, for the international tourism, the exchange rate is something interesting because of the different use of the currencies. Some researchers agree with the application of it (Qiu & Zhang, 1995), while the others think that mentioning the prices is enough (Song & Wong, 2003). Through the empirical analysis of Japan's tourism to China, the appreciation of the destination currency will reduce the tourist demand of inbound tourists to a certain extent, but the impact of the price index of destination on inbound tourism is not significant (Luo, 2007). The expenditures about tourism can be divided into the cost on the way travelling and the cost in the destination, so if the local price level is measured, the indicator could be the consumer price index(CPI). In addition to the own price of the destination, as competitors, the substitute prices also play an important role in determining the demand for international tourism (Witt & Martin, 1988).

Other variables like climate in the destination can be taken into consideration as well. With climate change, preferred destinations would shift to higher latitudes and altitudes (Hamilton, Maddison & Tol, 2005), which means that there would be more tourists. At the same time, climate change results in the

selection of the tourism activity. Outdoor sports such as skiing, hiking, rafting, and coastal tourism products would be replaced by certain indoor entertainment projects, which makes the decrease of the expenditure (Zhong & Tang & Cheng, 2011).

The length of coastline is another driver of the tourist expenditures. The purpose of the tourism divides tourists into diverse types (Mok & Iverson, 2000). Consequently, the condition that the tourists prefer the destinations with long coastline always means that they choose the leisure travel with high expenditure (Zheng & Zhang, 2013). The value of the beaches cannot be ignored, but it is not only because of the high spending activities like diving, sailing, etc., but also the large proportion of the tourists who choose the beach tourism, especially in Europe (Wang, 2014).

In addition to these factors, there are many other drivers which also affect the total expenditures through affecting the number of the tourists, such as population and surface (Blake & Jiménez, 2007). Thus, it is expected that the higher the population and the surface are at destination, the higher will be the tourism demand. Also, some other potential determinants are considered like cultural attractiveness, security and corruption. However, Corruption perception index (corrup), Number of people killed in terrorist (attakpop), Government Effectiveness (ge), Political Stability (polstab), Rule of Law (rlaw) and Voice and accountability (va), as the indicators of cultural attractiveness, security and corruption, are rarely mentioned in the previous literature.

In this way, literature review shows that there are a large number of papers analyzing the influencing factors of the tourist demand. However, most of these have analyzed separately the tourist numbers and the tourist expenditures. Following methodological considerations mentioned below in this paper we go in deep in the relationship between these two variables decomposing the marginal influence of each of determining variable on tourism demand.

### **3. METHODOLOGY: The number of tourists and average tourist expenditure**

The tourist expenditure can be influenced by a series of natural characteristics of the tourism destinations, so the model we use here can be gotten from the basic theoretical aspect:

$$E_{jt} = f(X_{jt}^k) \quad (1)$$

$E_{jt}$  means the tourist expenditure at the country  $j$  during the time period  $t$ ;  $X_{jt}^k$  represents  $k$  variables referred to the country  $j$  during the time period  $t$  (determinants of tourism demand). Song, Li, Witt and Fei(2010) use the mathematical formulation to show the influences of the three variables: income level of the destination, price of tourism and the substitute price of tourism. After adjusting the variables, the multiplicative form this paper use is below :

$$E_{jt} = e^{\alpha} (X_{jt}^k)^{\beta_k} e^{\mu_{jt}} \quad (2)$$

$\alpha$  and  $\beta_k$  here are the estimated coefficients;  $e^{\mu_{jt}}$  is the error term, which is used to measure the effect of the other variables that are ignored in this model. For estimation, the Eq.1 is usually transformed through natural logarithms to:

$$\ln E_{jt} = \alpha + \sum_{i=1}^k \beta_i \ln(X_{jt}^i) + \mu_{jt} \quad (3)$$

As mentioned above, the main determinants of the tourist expenditures can be split into two variables, the number of tourists in the country  $j$  at the time period  $t$  ( $N_{jt}$ ) and the average tourist expenditures in the country  $j$  at the time period  $t$  ( $\frac{E_{jt}}{N_{jt}}$ ). The average expenditure of each tourist in the destination country during a certain period of time is always presented by the ratio of total tourist expenditures to the number of tourists in a certain period.

$$E_{jt} = \left( \frac{E_{jt}}{N_{jt}} \right) * N_{jt} \quad (4)$$

Using natural logarithms, Eq.4 can be transformed to a log-linear specification:

$$\ln E_{jt} = \ln N_{jt} + \ln \left( \frac{E_{jt}}{N_{jt}} \right) \quad (5)$$

From the Eq.3 and the Eq.5, the Eq.6 is below:

$$\ln N_{jt} + \ln \left( \frac{E_{jt}}{N_{jt}} \right) = \alpha + \sum_{i=1}^k \beta_i \ln(X_{jt}^i) + \mu_{jt} \quad (6)$$

Furthermore, because of the linear relationship, after using the logarithm, the left of the Eq.6 can be split into two parts. Then the two regressions can be estimated:

$$\ln \left( \frac{E_{jt}}{N_{jt}} \right) = \alpha^A + \sum_{i=1}^k \beta_i^A \ln(X_{jt}^i) + \mu_{jt} \quad (7)$$

$$\ln N_{jt} = \alpha^B + \sum_{i=1}^k \beta_i^B \ln(X_{jt}^i) + \mu_{jt} \quad (8)$$

Once the effect of the two parameters  $\alpha$  and  $\beta_i$  on total tourist expenditures are split on tourist expenditures between the effect on the average tourist expenditures  $\alpha^A$  and  $\beta_i^A$ , and the effect on the number of the tourists  $\alpha^B$  and  $\beta_i^B$ , we can get the truth from the Eq.3, Eq.7 and Eq.8:  $\alpha = \alpha^A + \alpha^B$ ;  $\beta_k = \beta_k^A + \beta_k^B$ . The second equation means that all of  $k$  variables can be explained through the contribution of the number of the tourists or the average tourist expenditures. For example,  $\beta_k$  is the

parameter of the tourist demand model estimated for the total expenditure,  $\beta_k^A$  is the parameter of the tourist demand model estimated for the average expenditure, and  $\beta_k^B$  is the parameter of the tourist demand model estimated for the number of the tourists. As a matter of fact, more variables can be added to analyze the total tourist expenditures. This paper only select limited indicators to composite the linear estimation model, which can be a basic study in the macro level of tourist expenditures research areas.

#### **4. SAMPLE AND DATA**

The sample period of this empirical study is between 2014 and 2016, and all the data is collected from 219 countries in the perspective of the annual level. It is expected that there would be 657 sets of data, however, after removing the invalid data, totally there are 399 sets of data left at last.

In this paper, tourism demand is measured by both of the tourist expenditure (E) and the number of the tourists (N). The data of the former one is downloaded from the website of World Travel and Tourism Council (WTTC), which measures the spending within the destination country by the international tourists, while the other one is collected from Compendium of Tourism Statistics Data 2012-2016 which was published by World Tourism Organization (UNWTO). Total arrivals is divided to over-nights visitors (tourists) and same-day visitors (excursionists) by UNWTO. Due to the lack of data about the excursionists, the number of the over-nights visitors is regarded as the number of tourists in this paper. As for the average expenditure, it can be easily calculated through the total expenditure and the number of the tourists.

The table of the descriptive statistics of the variables below shows the basic information about these dependent variables. The range of the total tourist expenditure is from 0.01 billion dollars to 930.40 billion dollars with the mean expenditure of 18.20 billion dollars. The mean of the number of tourists is 7,583.39 thousand, between the minimum 3.90 thousand and the maximum 84,452.00 thousand.

GDP (Y) and CPI (P), as the important indicators of the income level and the price level, both are collected through the world bank. From the free and open access to global development data in the website of the world bank, the data of these two indicators are able to be downloaded free of charge. Gross domestic product here is the monetary value of all the finished goods and services produced within the certain country's borders in the three time period (2014, 2015 and 2016), which ranges from 169.14 million dollars to 18,524,475.00 million dollars with the average 516,335.51 million dollars. Consumer price index, influencing the competitiveness of the tourism destinations and the substitute destinations, results in the changes of the tourists' travelling decisions. The average of the index CPI among the 399 sets of data is 131.59, which is between 97.75 to the unusual 2,740.27. The large increase in consumer price index always indicates that inflation has become a factor of economic



instability, as a result, it is obvious that the country with this index 2,740.27 is suffering from economic instability.

Average yearly temperature (T) is calculated by averaging the minimum and maximum daily temperatures in the country, averaged for the years 1961-1990 and based on gridded climatology from the Climatic Research Unit elaborated in 2011. Because all the data about the temperature is the average of the countries, so there is no extreme temperatures appearing. The minimum (-5.35°C), the mean (18.74°C) and the maximum (28.25°C) are all in the normal range. Data of the length of coastline (L), which is marked by World Resources Institute, covers 182 independent countries and 13 dependencies, based on data calculated in 2000 from the World Vector Shoreline, United States Defense Mapping Agency, 1989. Some countries are landlocked countries without coastline, while others have long coastlines. The maximum length of the coastline is 202,080.00 km, while the mean is only 4,643.22 km caused by those landlocked countries.

After a comprehensive consideration, in addition to these four variables, some variables about the cultural, political and social conditions, such as number of World Heritage Sites (whs), Corruption perception index (corrup), Number of people killed in terrorist (attakpop), Government Effectiveness (ge), Political Stability (polstab), Rule of Law (rlaw), Voice and accountability (va) and the land area of the destination (sqk), will be referred in this paper.

World Heritage Sites, as the unique attractions attracting a great quantity of tourists, makes an important impact on the international tourism sector. The United Nations Education, Scientific and Cultural Organization (UNESCO) published the World Heritage List in the official website ordered by countries. The number of the world heritage sites in the country with most sites is 53, while some countries have no world heritage sites, and the mean of the sites number is 6.48.

Corruption perception index (corrup), percentage of people killed in terrorist (attakpop), Government Effectiveness (ge), Political Stability (polstab), Rule of Law (rlaw) and Voice and accountability (va), more or less, are all about the political conditions in the tourism destination.

Corruption perception index can be obtained from the website of the International Transparency Organization. The data from 2012 is measured from 0-100, in this paper, the old format (0-10) is used. After transforming, it ranges from the maximum (9.1) which means low level of corruption to the minimum (0.00) which means high level of corruption, and the mean is 4.29. Number of people killed in terrorist is measured by the percentage of the people killed of the whole population. The reason why this variable is considered is that the more safety the destination is, the more popular the destination will be. The range of this data is from 0.00% to 0.0032% with the mean 0.0001%.

The data of Political Stability and Rule of Law is published in the World Governance Indicators (WGI), which sources from the World Bank. Political stability is an indicator used to measure the likelihood that the government will be shaken or overturned by unconstitutional or terrorist violence, which ranges from -2.35 to 1.45 with the mean 0.05. The rule of law index directly reflects the implementation of social rules and the degree of compliance with the public, which needs special consideration of the police and courts, as well as crime and violence. It ranges from -1.83 to 1.97 with the mean 0.10. In addition to these two governance indicators, Government Effectiveness and Voice and accountability are also two important indicators published in the World Governance Indicators (WGI) by the World Bank. Government Effectiveness captures 'perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies'. The data of it used here ranges from -1.78 to 2.07 with the mean 0.16. Voice and accountability, as the fourth indicator, captures 'perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media'. The data of it used here ranges from -1.82 to 1.76 with the mean 0.15.

The land area of the destination (sqk) is obtained from CIA World Factbook which published by Central Intelligence Agency [US] in 2017. The largest country is 9984670.00 km<sup>2</sup>, which is totally in contrast to the smallest country (31.30 km<sup>2</sup>), and the average area is 727937.25 km<sup>2</sup>.

Table 1. Descriptive statistics of the variables.

	N	Minimum	Maximum	Mean	Std. Deviation
whs	399	0.00	53.00	6.48	9.88
corrup	399	0.00	9.10	4.29	2.23
attakpop	399	0.00	0.32	0.01	0.034
ge	399	-1.78	2.07	0.16	0.92
polstab	399	-2.35	1.45	0.05	0.85
rlaw	399	-1.83	1.97	0.10	0.92
va	399	-1.82	1.76	0.15	0.89
sqk	399	31.30	9984670.00	727937.25	1883759.97
N (thousand)	399	3.90	84452.00	7583.39	14824.39
E (billion\$)	399	0.01	930.40	18.20	71.12
P	399	97.75	2740.27	131.59	134.89
Y (million\$)	399	169.14	18624475.00	516335.51	2065389.70
L (km)	399	0.00	202080.00	4643.22	19476.77
T (°C)	399	-5.35	28.25	18.74	8.03
Valid N	399				

## 5. EMPIRICAL APPLICATION

Before the database is imported into the data analysis software, some of the variables need to be dealt with due to the mathematic problems. In order to convert the multiplication calculations to addition calculations, the natural logarithm is added into some of the variables: N, E, (E/N), P, Y, L and sqk. Consequently, the used variables at last should be  $\ln N$ ,  $\ln E$ ,  $\ln(E/N)$ ,  $\ln P$ ,  $\ln Y$ ,  $\ln L$  and  $\ln sqk$ .

Because there is no coastline in some of the landlocked countries, however, the antilogarithm of natural logarithm cannot be zero, the variable  $\ln L$  should be transformed into  $\ln(L+1)$ . At the same time, the influence of the temperature to the tourism demand is not linear, so the quadratic function is going to be used in this condition. As a result,  $T^2$  and  $T$  become the final variables in the regression analysis.

As mentioned before, the final database have the data through three years (2014 to 2016), so three dummy variables can be defined ( $D_{2014}$ ,  $D_{2015}$ ,  $D_{2016}$ ) to reflect the influence of the year to the tourism demand.  $D_{2014}$  means that  $D_{2014}=1$  and 0 otherwise;  $D_{2015}$  means that  $D_{2015}=1$  and 0 otherwise and  $D_{2016}$  means that  $D_{2016}=1$  and 0 otherwise. In the regression analysis model, due to the keeping of the constant, only two dummies are required ( $D_{2015}$ ,  $D_{2016}$ ).

The estimation results of the equation (6), (7) and (8) are shown in the table 2 below. It is obvious that the parameters in column [1] are equal to the sum of the parameters in column [2] and column [3], which means that the parameters of the tourist demand model estimated for the total expenditure are the sum of the parameters of the tourist demand model estimated for the average expenditure and the parameters of the tourist demand model estimated for the number of the tourists. In other words, the impact of every determinants to the total tourist expenditure can be explained both by the impact of the number of tourists and the average tourist expenditure. From the view of single column, for instance, the final total tourist expenditure can be separately explained by the influence of different variables.

Although some of the parameters are not significant, the basic rule can be seen clearly. For instance, the constants in the table 2 are 2.351 ( $\alpha$ ), 2.865 ( $\alpha^B$ ) and -0.514 ( $\alpha^A$ ), which make the equation ( $\alpha = \alpha^A + \alpha^B$ ) true. Similarly, it can be proved that other equations ( $\beta_k = \beta_k^A + \beta_k^B$  (k from 1 to 15)) are also true, which evidences the hypothesis made before. Another rule is that most of the tourism demand determinants at the destination affect total expenditure through influencing the number of the tourists rather than the average tourist expenditure through comparing the absolute value of the parameters in the column [2] and column [3]. It is obvious that most of the absolute value of the parameters in the column [2] are larger than those in the column [3]. In the table 2, some of the parameters are without stars, which means that they are no significant, or, in other words, that could be equal to 0.

Table 2. Results of OLS model.

	Ln E		Ln N		Ln(E/N)	
	[1]		[2]		[3]	
Const.	2.351***	(0.002)	2.865***	(0.008)	-0.514	(0.588)
Ln Y	0.754***	(0.000)	0.518***	(0.000)	0.236***	(0.000)
Ln P	-0.145	(0.274)	-0.576***	(0.002)	0.432**	(0.010)
Ln (L+1)	0.076***	(0.000)	0.040***	(0.006)	0.035***	(0.007)
T <sup>2</sup>	-0.002***	(0.001)	-0.005***	(0.000)	0.003***	(0.000)
T	0.060***	(0.000)	0.132***	(0.000)	-0.072***	(0.001)
D <sub>2015</sub>	0.005	(0.943)	0.127	(0.183)	-0.122	(0.145)
D <sub>2016</sub>	0.060	(0.384)	0.284***	(0.004)	-0.223**	(0.010)
whs	0.022***	(0.000)	0.007	(0.259)	0.016***	(0.002)
corrup	-0.054**	(0.017)	-0.090***	(0.005)	0.036	(0.206)
attakpop	3.423***	(0.001)	3.641**	(0.010)	-0.218	(0.860)
ge	0.484***	(0.000)	1.159***	(0.000)	-0.674***	(0.000)
polstab	0.179***	(0.009)	0.317***	(0.001)	-0.138	(0.107)
rlaw	-0.134	(0.245)	-0.550***	(0.001)	0.416***	(0.004)
va	-0.204***	(0.001)	-0.418***	(0.000)	0.214***	(0.006)
Ln sqk	0.029*	(0.068)	0.102***	(0.000)	-0.074***	(0.000)

Significance level: \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The income of the tourist destination has a positive relationship with the total tourist expenditure, which can be interpreted as the condition that the more developed the destination is, the higher the total tourist expenditure will be. However, through the decomposition analysis it is shown how this influence is mainly related by a higher number of tourists. From Table 2, it could be observed how the elasticity functions to the number of tourists, which is 0.518, and it is a number that is higher than 0.236 which corresponds to the elasticity against average expenditure.

The price is also an interesting determinant. Thus, firstly, it should be noted how the total effect on tourist expenditure is not significantly different to 0. However, it has a significant and negative effect on tourists arrivals but a positive and significant effect on average expenditures. Consequently it seems that an increase in prices, on the one hand, as economic theory suggests, makes tourism more expensive and induces to a higher tourist averages expenditures. Anyhow, the final result shows a non-significant effect on total tourist expenditures.

The length of the coastline, like the income, has positive relationship with all of the three measures of tourism demand. Thus, an increase of 1% in the coastline length of a country is related to a 0.076 increase in the total expenditure, an effect that is caused by both the increase in tourism numbers (0.040) and by its average expenditure (0.036). It seems that the results can be explained by the number of beaches and a series of related activities on the beach. The recent tendency is that a certain number of tourists prefer to enjoy 3s tourism rather than any other kinds of tourism. What's more, this kind of relaxed tourism always brings about a high level of expenditure.

The temperature is also an interesting variable, because by the inclusion of  $T^2$  and  $T$ , it is possible to capture non linear effects. Thus, on the one hand, it is found that for total expenditures and for total tourists an inverted u-shape is obtained. That means that, a higher temperature is linked to a higher level of tourism but this direct relationship become weaker as temperature grows until it turns into negative. In other words, it is possible to identify a maximum in the destination temperature that makes tourism ideal. However, this inverted u-shape is not found for the average expenditure. In this case, a u shape is found. The interpretation of this result is that for a certain temperature a minimum exists. Overall, it seems that the higher the temperature is, the higher the number of tourists but the lower their average expenditure is, although this relationship can be truncated for extreme temperatures.

Both of the dummy variables ( $D_{2015}$ ,  $D_{2016}$ ) are not significant in the model of the total tourist expenditure, which indicates that the total tourist expenditure are not different from the observations in 2014. However, in 2016, there is a positive relationship between the year and the tourist number, evidencing how in 2016 there were a significant increase in tourist numbers (compared to 2014, the reference year), and a negative relationship between the year and the average tourist expenditure, evidencing how in 2016 the increase in tourist numbers was not accompanied by an increase in tourist expenditure.

The world heritage sites positively affect the total tourist expenditure through the positive influence of the average tourist expenditure. However, it seems that the number of these sites can not be related to a higher number of tourists. Thus, the increase in total expenditures due to the presence of Heritage Sites would be related to a higher propensity to higher average expenditures and no to a higher number of tourists.

The percentage of people killed in terrorist attacks, as a new applied indicator, shows an unexpected result, which is completely opposite to our cognitive. As we can see from the table, the total expenditure is promoted by the terrorism through increasing the number of the tourists, but actually what we thought was that the terrorism always results to the decrease of the tourists number. However, when we think more about this condition, it may be explained by problem of the length of time. The dataset used here is at an annual level, while the decline of the tourists number is the quick reaction of the tourism market. In addition, government nowadays learn a lot about how to face the emergencies

like natural disasters and terrorism. As Doug Lansky (2016) stated in the speech named 'Tackling the Toughest Issues Destinations', 'once the terrorism happened, the destination should not stop advertising this destination, and with the condition that people are getting more desensitized to the terror, the rebound will come back soon because of the high popularity after the terrorism.' At the same time, price plays an important role due to the sharp decline of the tourists number after terrorism happened. Once the low level of tourists number causes the low price level in the destination, some people will be attracted by the price, especially those from Italy and Russia.

The corruption perception, government effectiveness, political stability, rule of law and voice and accountability are the five indicators about the political environment of the tourism destination in this paper. Two of them (corrupt, va) have negative relationship with the total tourist expenditure, while two of them (ge, polstab) have positive relationship. At the same time, rule of law seems to be no significance here. Both of the negative impact of the corruption perception and voice and accountability on the total expenditure could be explained by the negative impact on the number of the tourists, however, voice and accountability still have positive impact on the average tourist expenditure though it is too slight to influence the total expenditure. Government effectiveness, the opposite of voice and accountability, have positive impact on the total tourist expenditure due to the positive impact on the number of the tourists despite of the negative impact on the average tourist expenditure. Political stability, which functions like the corruption perception, have positive impact on the total expenditure through the increase of the tourists number. Rule of law, even though it is no significant to the total expenditure, has negative impact on the tourists number but positive impact on the average tourist expenditure.

Among these variables, there is something interesting that could be taken into account. As we expected before, voice and accountability should have positive impact on the total tourist expenditure. However, the relationship is negative. When considering it more, it could be understood. With high level of voice and accountability, there might be something happened out of control, like the procession and the mass strike. These might cause the unsteady of the politic, which will further cause to the result of the lower level of the tourists number.

The area of the country, as the physical characteristic of the tourism destination, plays an active role on the total tourism expenditure through the impact on the tourists number. It could be easily understood that the countries with more land areas always attract more tourists thanks to the different landscape features or the cultural features. However, there is a negative relationship between this indicator and the average tourist expenditure, which seems to be hard to explain by the existed theories. One impossibility is that the larger area of the destination causes the longer length of stay, which influences the average tourist expenditure.

All in all, through the results in the table 2, it is clear that the impact on the total tourist expenditure could be explained by the impact on the tourists number and the impact on the average tourist

expenditure, but the impact level of the variables on the tourists number and the average tourist expenditure is not always be the same. Normally if both of them are positively or negatively affected, the impact on the total tourist expenditure is the same like the tourists number and the average tourist expenditure (income, the length of coastline and the number of world heritage sites); if one of them is positively affected while the other is not, then the relationship between the variable and the total tourist expenditure will depend on the stronger variable between tourists number and the average tourist expenditure.

## **6. CONCLUSION**

When talking about measuring the tourist demand, the arrival of the tourists and the tourist expenditures are two critical indicators which cannot be ignored because of their relevance in political analysis. Most of the existing literature is analyzing these two indicators, but they are often studied separately. In the recent two decades, it begins to appear in everyone's sight because the destination managers and the stakeholders have realized the significance of the tourist arrivals and the tourist expenditures. Many destination managers are looking for some special points about the destination features to develop the local tourism industry and to reach the final goal: to obtain the highest expenditure in the condition of controlling the tourists arrivals within a reasonable range. Actually from the view of the impact of the characteristic of the tourism destination on the tourists demand which are considered in this paper, the public managers of the tourism destinations benefits something like to know why the total tourist expenditure changes and how to control it by taking some measures about the determinants we mentioned. More importantly, a new way of thinking about the determinants can be learned here.

Scanning the past literature it has been evidenced how both of tourist arrivals and expenditures have been used indistinctly in order to modelling the tourist demand. However, from the theoretical economic point of view these variables are not equivalent but are characterized by a specific relationship. This study goes in deep in this relationship and explores empirical implications using 12 variables about political, economical and cultural situation of the tourism destinations from the macroeconomic perspective and analyzes the tourism demand in the destination at international level. Apart from these, the emphasis of the paper is the interaction of the dependent variables of the tourism demand and the explanation of the total tourist expenditures by splitting them into the number of the tourists and the average tourist expenditures.

The objective of this study was to know how these kinds of variables influence the total tourist expenditures, and if it is through the impact on the tourists number or by the impact on the average tourist expenditure. Using the methodology mentioned above, not only the number of the total expenditure is allowed to be split, but also the impact of all the variables on the total expenditure could be split into the impact on the tourist arrivals and the average tourist expenditure. From the results of

the estimation, the destination managers can find the relatively important variables when they have decided to control the tourist arrivals or the average expenditures. According to this, some adjustment of the strategies and policies can be made to help with the healthy development of the tourism sector. On the one hand, when the tourists arrivals need to be controlled and the average expenditure needs to be maintained, the first step we could do is to find the related variables. Based on the analysis carried out, we can see that all of the variables should be taken into consideration except the world heritage sites. Looking at this variable, the impact on the average tourist expenditure is more obvious than the one on the tourist arrivals, so when the number of the world heritage sites changes, tourists number will change as we thought but the average tourist expenditure will have a more substantial change. On the other hand, if we want to keep the tourist arrivals and adjust the average tourist expenditure of the destination, the best one we can do something about is the world heritage sites.

The specific weight of the impact on the dependent variables (tourist arrivals and the average tourist expenditure) is essential, however, the positive and negative relationship should be noted as well. What this study shows us is that most of the relationship between the determinants variables and the dependent variables is in line with the past literature. The income level of the tourism destination positively affects the tourism sectors through the impact on the three dependent variables in the same direction, in contrast with the price, which causes to the negative relationship with the total tourist expenditure due to the negative impact on the tourists arrivals. As for the other variables concerning terrorist attack and voice and accountability which were rarely applied before, some unexpected results appeared accidentally. Under normal thinking, terrorism negatively affects the whole tourism sector because of the sharp decline of the tourists arrivals, on the contrary, it shows a positive impact which cannot be understood. The condition of the openness and transparency of the government seems to be the same with the terrorism. Whatever, the results of this paper prove our initial hypothesis that the impact of the total tourist expenditures could be split into the impact on the number of the tourists and the average tourist expenditure.

According to the hesitations we met in the process of the modelling, there are still limitations in this paper. The conclusions summarized from this study are all based on the dataset which is built up from the different website published by the organizations. At the beginning of this work, 219 countries and tourism destinations are taken into the statistical analysis, thus there is an expectation to get more than 600 sets of data after using the three time periods. However, because of a large quantity of the missing information of some variables in some countries and tourism destinations, there are only 399 sets of data finally. 399 is not a small sample size, however, compared to some papers using thousands sets of data, it is still a little. Thus it could be understood that there is a high tolerance to some parameters of the variables and the error level may increase. The second thing is about the selection of the determinants. Although the variables made use of include the aspects of economic, society, culture and politic, there are only 12 without considering the dummy variable about the year periods.



What the future research can do in the first step is to look for more sets of the data and think about more physical characteristics of the tourism destinations, which are the basic method to increase the accuracy of the parameters. One thing that could be done is to collect the data at the month level, which can avoid some deviation, such as the problem we met about the variable about terrorism mentioned above. In terms of research methodology, this paper uses the simplest linear regression analysis dealing with the limited data. Many other methodologies could be taken into accounts if more complicated database was used. When explaining the results, some parameters are out of the expectation, which seems meaningful to be focused on to make more depth analysis.

## 7. BIBLIOGRAPHY

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