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## DETERMINANTS OF TOURISM CONTRIBUTION TO NATIONAL ECONOMY

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### **Abstract**

*The aim of the paper is two-folded: firstly, theoretically to examine the determinants of tourism contribution, and then secondly, empirically to test the most profound factors that have influence on tourism development in Macedonia. Moreover, the study attempts to discover the relationship and the level of significance of several variables representing tourism contribution. For that purpose, the regression makes estimations by the OLS method, with a data set covering 1993-2012. The research findings reveal that some determinants exerted economically important influence on Macedonian economy, by showing elasticity. Particularly, the results show that foreign tourist arrivals is an influencing element, crucial for further tourism development, thus supporting the national economy.*

**Keywords:** *Tourism contribution, Multiple regression model, Macedonia.*

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### **Introduction**

Tourism has emerged as one of the major industries in the world economy. In 2011, it contributed almost EUR 4.5 trillion to the world global economy, or 9% of global gross domestic product (GDP), 100 million direct jobs and EUR 500 billion investments in tourism (WTTC, 2011). Due to many effects that implies, tourism is often promoted by less developed countries. In this line one may note the various economic effects, which affect positively on the overall economy of the country. In one hand, it may have variety of microeconomic influences, like assisting in quality improvement of the employees, benefiting from the scale economies and developing new facilities according to the international standards for tourism demand and supply. Regarding the macroeconomic effects, tourism is seen as a mean for enhancing the foreign export, generating foreign currency earnings, new employment opportunities, contributing to foreign debt repayment, increasing national income, generating new economic sources etc. Moreover, everyone identifies tourism as a source of economic growth and development.

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The main objective of this paper is to investigate the components that have positive influence thus contributing to the GDP of Macedonia. Moreover, this empirical study attempts to estimate the contribution of tourism to the overall economic activity of Macedonia. In order to achieve that goal, the paper is structured in several sections. After the introductory part, a brief overview is given on the theoretical and empirical literature covering the research issue. The paper proceeds with a snapshot on the most important economic indicators representing tourism contribution to Macedonia. The research design encompassing the methodology and research frame are posed in addition as well. The main research findings, discussion and conclusions are noted at the end.

## Literature review

The issue referring the economic impacts of tourism and its effects on country's economic development is highly explored. Namely, numerous researchers have been involved and a wide variety of techniques have been applied in quantifying tourism economic effects. Studies vary extensively in quality and accuracy, but mostly address the economic impact analysis (Crompton, 1993; Lundberg et al, 1995; Huybers, 2007; Babu et al, 2008; Ramos & Jimenez, 2008; Stabler et al, 2010). In this respect, the economic impact analysis traces the flows of spending associated with tourism activity in a region in order to identify changes in sales, tax revenues, income, and jobs due to tourism activity. The principal methods being applied are visitor spending surveys, analysis of secondary data, economic base models, input-output models and multipliers (Frechtling, 1994: 119).

Due to the fact that economic development represents just one process of a complex system known as human development, means that economic development inevitably leads to human development and the quality of life (Osberg & Sharpe, 2003, p.36). So, the human development or the increase-ment of human quality of life is the main goal of the economic development (Hayami & Godo, 2005; Kanbur, 2003). In this respect, the achieved economic and human development may be measured and presented by various indicators, like: value agregate indicators, natural indicators, social indicators and so forth (Cypher & Dietz, 2009; Grabowski et al, 2007; Soubbotina, 2004; Todaro & Smith, 2009).

Tourism economic impacts are, therefore, an important consideration in economic development, as well as in state, regional and community planning. In the same line, it is necessary to implement a document for tourism development, since it represents strong mechanism and a tool for creating general policy of the overall economic development (Williams & Shaw, 1991; Frechtling, 2001). Additionally, defining the development priorities as a basic element of the development strategy is the biggest obstacle to each country (Gunn, 1993; Hall, 2005). Such concept, imposes the necessity of introducing new economic policy, whereas, tourism shall be treated as integral part of the entire economy.

## Snapshot on tourism contribution to Macedonia

Macedonia identified tourism as a mean for generating various micro and macro-economic effects (Government of Macedonia, 2012). During 2002-2012, the participation of tourism in the creation of the gross domestic product (GDP) has an average of only 1.35 % per year (Table 1). Compared to the world average of 2.8% in 2011, and the average for Other Europe<sup>20</sup> of 2.4% (WTTC, 2012), lead us to conclusion of very modest tourism contribution.

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20) Macedonia is listed in Other Europe, since Europe as a region is divided in two sub-regions (WTTC, 2012, 17):

1. European Union (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and UK);

2. Other Europe (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Iceland, Kazakhstan, Kyrgyzstan, Macedonia, Moldova, Montenegro, Norway, Russia, Serbia, Switzerland, Turkey and Ukraine).

Based on Table 1, generally, one may note growth in the GDP of tourism industry, which was yet, very volatile. However, it has to be pointed out that the negative growth rate is partially due to the war conflicts in Macedonia and the region. For example, in 2000 Macedonia noted extreme fall of tourism activity, which can be interpreted as a consequence to the Kosovo war, bomb attacks on Serbia and refugee crisis in 1999. On the other hand, such conclusion throws a shade on unexpected extremely high growth of tourism in 2002 (when actually all these negative shocks still had an influence), which can be elaborated as an outcome of abstinence of domestic population for travelling abroad i.e. an increase in domestic tourism demand. Further, a fall of the GDP is noted in 2004, which can be provoked by increased interest for traveling abroad, caused by the recovered economic activity and the rising consumer lending. Additionally, from Table 1 is noticeable a structural breakdown as a result to the financial recession (starting as of 2009 and 2010, and slightly improving as of 2011).

**Table 1.** GDP in tourism in Macedonia, 2002-2012

Year	GDP in tourism	Annual growth (%)	GDP total	% of total GDP
2002	3759	16.6	256016	1.47
2003	4121	9.6	270314	1.52
2004	4051	-1.7	282748	1.43
2005	4245	4.8	295052	1.44
2006	4309	1.5	309895	1.39
2007	4677	8.5	328951	1.42
2008	4954	5.9	345239	1.43
2009	4528	-8.6	342062	1.32
2010	4406	-2.7	351963	1.25
2011	4460	1.2	361714	1.23
2012	4579	2.7	360850	1.27
Ave 2002-2012	4372	3.4	297374	1.4

Source: Authors' own calculations based on: State Statistical Office. (various years) and National Bank of the Republic of Macedonia. (various years).

Furthermore, the importance of tourism to Macedonia economy can be evaluated by the tourism inflows, which in 2009 represented 26% of total inflows of services and 8% of exports of goods in Macedonia. In the same line, the tourism inflows were 20% higher than the foreign direct investments. In the frames of services, tourism inflows were the second biggest item (just a little bit lower compared to the inflows of transport services), which is 1.3 times higher than the inflows of business services and 2.4 times larger than communication services inflows. Accordingly, the net tourism inflows in Macedonia have an average of 1% of GDP. Such condition indicates high potential to increase tourism effects in economic activity in Macedonia.

The forecasts regarding tourism development in Macedonia are very optimistic. Namely, the estimated results are encouraging and by 2021 it is expected that the direct contribution of tourism to the GDP will reach to 1.6 % thus bringing revenue of EUR 170 mil. according to the constant 2011 prices; the total contribution of tourism to GDP will rise to 6.0%; the visitor exports are expected to generate EUR 76 mil. (5.1% of total exports); and the investment in tourism is projected to reach the level of EUR 76

mil. representing 2.8% of total investment. Additionally, it is expected that the number of employees that indirectly support the tourism industry in Macedonia will have an upward trend and will reach 35000 jobs in 2021, representing 5.4% of the total workforce (WTTC, 2011).

### Research methodology

The investigation is made by regression analysis, mostly based on stylized facts obtained from desk-research and available sources of secondary data. The applied data set covers a period from 1993 to 2012. Generally, a regression model is used in order to estimate the impact of several factors that may be important in explaining tourism contribution. In this line, the regression analysis intends to discover the relationship and the level of significance of several commonly applied variables representing tourism contribution to Macedonian economy. So, the following are considered as potential determinants of Macedonian tourism contribution:

- Total travel and tourism (T&T) contribution to GDP (expressed in EUR). This includes wider effects from investment, the supply chain and includes income impacts. Moreover, this variable actually takes into considerations direct, indirect and induced contribution. The data are obtained from the World Travel and Tourism Council;
- Capital investment (expressed in EUR). This includes spending by all sectors directly involved in the travel and tourism industry. Moreover, this variable takes into account the investment spending by other industries on specific tourism assets such as new visitor accommodation, passenger transportation equipment, as well as restaurants and leisure facilities for specific tourism use. The data are obtained from the World Travel and Tourism Council;
- Foreign tourist arrivals. This includes arrivals of persons who have a permanent residence outside Macedonia, who are temporarily residing in Macedonia and who spend at least one night in an accommodation establishment or another catering facility providing lodging. The data are obtained from the State Statistical Office of the Republic of Macedonia; and
- Total overnights. This includes overnight of domestic and foreign tourists in Macedonia. Yet, a certain number of overnights are not included due to fact that some tourists, particularly those in private rooms, cottages and those staying with relatives and friends, are not registered. The data are obtained from the State Statistical Office of the Republic of Macedonia.

In order to examine the variables, the research introduces multiple regression method. The main idea is to involve several factors in the analysis in order to estimate the effects of each factor. Moreover, the attempt is to quantify the impact of various simultaneous influences upon a single dependent variable. In this line, the following empirical method is applied:

$$y_{it} - \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \varepsilon_{it}$$

where:

$y_{it}$  denotes the dependent variable (total T&T contribution to GDP);

$\beta_0 \dots \beta_n$  denotes the regression coefficients;

$x_1 \dots x_n$  denotes the independent variables (capital investment, foreign tourist arrivals, total overnights);

$\varepsilon_{it}$  denotes the disturbance term that is assumed to be normally distributed with a mean of zero.

All variables enter the regression model in a logarithmic form. On the one hand, this is a commonly employed tool for smoothing the variance, while on the other hand, the log-log regression enables an estimation of the elasticities. The regression makes estimations by applying the simple ordinary least squares (OLS) method. The OLS is often noted as one of the most reliable regression methods due to general quality of minimized bias and variance. Since we test the regression with multiple variables, the F-test is employed. The intention is to check whether one or a group of independent variables has an influence on the dependent variable. Hence, the overall significance of the regression is measured (Gujarati, 2003).

Table 2 shows the descriptive statistics for the variables used in the main regression. Furthermore, the data on skewness and kurtosis are presented, which are needed for the test of normality distribution i.e. the Jarque-Bera (JB) test. In case of normally distributed residuals, the skewness will be zero, or it can be tolerated from -0.5 to 0.5. It is noticeable from the Table 2, that this holds true for three variables: OVER (-0.301221), TT (0.074414) and INV (0.377265). For the variable FOREIGN, the value is above zero indicating positive asymmetry (skewness). Regarding kurtosis, one may note that normally distributed residuals should have value equal to three. With this regards, just FOREIGN (2.922299) satisfies that condition, while OVER (3.280707) is very close. Hence, these variables satisfy the assumption for normal distribution. The rest of the variables have coefficients far below three. The probability of rejecting the null hypothesis of normality largely exceeds the critical level of significance, confirming that all the variables are normally distributed.

**Table 2.** Descriptive statistics

	FOREIGN	INV	OVER	TT
Mean	200369.9	20072197	2054863	188000000
Median	197216.0	18887097	2020217	193000000
Maximum	351359.0	40532258	2706373	372000000
Minimum	98946.00	1129032.	1254582	5258065
Std. Dev.	65613.48	11976357	329823	121000000
Skewness	0.635572	0.377265	-0.301221	0.074414
Kurtosis	2.922299	1.985153	3.280707	1.655528
Jarque-Bera (JB) test	1.419115	1.399325	0.386517	1.601036
Probability	0.491862	0.496753	0.824269	0.449096
Observations	21	21	21	21

Note: FOREIGN=Foreign tourist arrivals; INV=Capital investment; OVER=Total overnight; TT=Total T&T contribution to GDP.

**Table 3.** Correlation matrix

	FOREIGN	INV	OVER	TT
FOREIGN	1			
INV	0.677641	1		
OVER	0.476323	-0.078728	1	
TT	0.694646	<b>0.947369</b>	-0.030494	1

Table 3 presents interesting information on the degree of correlation between the variables used in the regression analysis. It is assumed that in the linear regression model, there is an absence of multicollinearity among the independent variables. In case of having high correlation between independent, the estimation of the regression coefficients is possible, but with large standard errors and as a result, the population values of the coefficients cannot be estimated precisely. As noted by Kennedy (2008), the multicollinearity is a problem if the correlation is above 0.80. One may note that that is the case with the correlation coefficient between INV and TT (0.947369), which might affect regression results.

Furthermore, very high correlation coefficients can be observed between FOREIGN and TT (0.694646), as well as between FOREIGN and INV (0.677641). These results are logical and expected since the foreign tourist consumption has profound impacts over the GDP, and represent solid base in increasing tourism capital investment. Based upon Table 3, one may conclude that the correlation between the variables is strong, suggesting that multicollinearity might be a problem.

### Discussion

Table 4 presents the estimation output from the general regression model. The value of the coefficient of determination (adjusted R-squared) is 0.897035 meaning that approximately 90% of the variations in the dependent variable can be explained with the influence of all independent variables, taken together. Although this result should not be neglected, yet, Table 4 points to few problems. For instance, it can be seen that only one regressor (INV) is statistically significant at the conventional significance level. The standard error of the regression is 0.342020. The F-statistic is 59.08030 ( $p = 0.0000$ ), meaning that the regression is statistically significant. To assure the authenticity of the results the Durbin-Watson test is additionally employed. So, as noted in Table 4, the Durbin-Watson statistics is 0.622465, meaning that the residuals have positive serial correlation, and a note of caution is needed when interpreting the results. Moreover, the fact that the coefficient of determination is larger than the value of the Durbin-Watson statistics might be used as a “rule of thumb” for the presence of spurious regression. These problems are probably related to the very high correlation between INV and TT.

**Table 4.** Regression results

Dependent variable: LOG(TT)				
Method: OLS				
Included observations: 21				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.026796	7.799041	-0.516319	0.6123
LOG(INV)	1.202183	0.107739	11.15829	0.0000
LOG(FOREIGN)	-0.009195	0.351421	-0.026164	0.9794
LOG(OVER)	0.201401	0.649444	0.310113	0.7602
Adjusted R-squared	0.897035	F-statistic		59.08030
S.E. of regression	0.342020	Prob(F-statistic)		0.000000
		Durbin-Watson stat		0.622465

Therefore, the independent variable INV is excluded, since it is responsible for the distortion of the result preventing the precise estimation of the effects of each variable on total contribution to GDP. Table 5 presents the estimation output from the parsimonious regression. Now, after excluding capital investment (INV), the regression coefficients of FOREIGN and OVER have changed dramatically and both of them are statistically significant at 5%. Since the residual diagnostic tests pointed to the presence of heteroscedasticity and serial correlation, the Newey-West method (HAC standard errors & covariance) is also employed.

**Table 5.** Parsimonious regression results

Dependent variable: LOG(TT)				
Method: OLS				
Included observations: 20				
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	37.49819	14.54530	2.578027	0.0195
LOG(FOREIGN)	2.291352	0.534783	4.284639	0.0005
LOG(OVER)	-3.200760	1.255940	-2.548497	0.0208
Adjusted R-squared	0.554077	F-statistic		12.80411
S.E. of regression	0.525823	Prob(F-statistic)		0.000406
		Durbin-Watson stat		0.558620

The value of the coefficient of determination (adjusted R-squared) is now lower (0.554077), the standard error of the regression is higher up to 0.525823, while the F-statistic declined to 12.80411. From Table 5, one may see that both FOREIGN and OVER exert economically important influence on total T&T contribution to GDP. As all the variables in the regression are expressed in logarithms, the regression coefficients can be interpreted as showing the elasticities. For instance, a 1% increase in foreign tourist arrivals is associated with a more than 2% increase in total T&T contribution to GDP. This implies that Macedonian tourism industry is highly elastic to the number of foreign tourists. Concerning the total overnights, it is interesting to note that a negative regression coefficient is obtained, which is contrary to prior expectations. This might be explained as follows:

First, the regressor OVER refers to total overnights including both domestic and foreign, though domestic overnights are predominant. For instance, their share in total overnights averaged 75% during 2000-2012; and

Second, and related to the above, domestic tourists are known to spend low amounts on extra tourism services, which explains why the value added of the tourism industry remains low despite the increasing number of overnights.

In this line, one may note the necessity of identifying measures and activities in the line of attracting larger number foreign tourists who will spend much more in additional tourism services. Hence, the introduction of new intelligent ways for tourism promotion of Macedonia is a must (Petrevska & Koceski, 2013).

## **Conclusion**

This empirical investigation has resulted in reaching several conclusions concerning the possibility to identify determinants of tourism contribution to Macedonian economy. The data set covered the period 1993-2012 and the regression is done by applying the OLS method, as one of the most reliable regression methods.

This research confirmed that the foreign tourist arrivals and total overnights are relevant and significant predictors when referring total tourism contribution to GDP. More precisely, the regression results pointed that these variables exerted economically important influence on Macedonian economy, by showing elasticity. In this line, in a case of having 1% increase in foreign tourist arrivals, it is expected to have more than 2% increase in total tourism contribution to Macedonian GDP, thus presenting high elasticity. Yet, the regression results draw completely opposite conclusion concerning the total overnights due to obtained negative regression coefficient. In this line, some presumptions must be taken in consideration. Namely, this variable encompasses total overnights (nights spent by domestic and foreign tourists) whereas domestic tourists have major domination. Simultaneously, it must be underlined that domestic tourists seems to be very modest consumers since they spend very small amounts on additional tourism services. Consequently, there is an absence of additional value added to the Macedonian tourism industry, despite the increasing number of overnights during the sample period.

The variable capital investment was excluded since it was responsible for the distortion of the result preventing the precise estimation of the effects of each variable on total tourism contribution to GDP. It seems that regardless the average amount of more than 20 mill. EUR per year, the capital investment in tourism industry, cannot be envisaged as important factor that contributes to national economy.

Beside the several limitations that occurred during calculations in terms of statistical data, yet one may conclude that the presented model may be useful and applicable. However, several other topics remain open for further research in this area in terms of including more variables, increasing the sample period, making comparisons with similar countries etc.

Generally, this research identified the factors that had an impact over total tourism contribution to GDP in Macedonia. Finally, the paper emphasized that foreign tourist arrivals, as a major influencing factor, is crucial for further tourism development, thus supporting national economy. Therefore, the study underscores the necessity for continuous analysis of tourism direct economic impacts as an important consideration for strengthening Macedonian economy.



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