MODELING THE IMPACT OF TOURISM ON GDP OF MONTENEGRO

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ABSTRACT

Tourism contributes to the economic development of the country through increasing value added in GDP, creating new jobs and stimulating the development of tourism and non-tourism activities. In Montenegro, tourism is the fastest growing economic sector with increasing multiple economic effects. Tourism has a stabilizing role in the Montenegrin balance of payments, where income from tourism for many years successfully mitigate the negative balance of trade with foreign countries. Tourism has become one of the leading export sector in Montenegro, which grows in revenue and has the potential to diversify the economy, stimulate entrepreneurship and improve the overall standard of living in the country. The goal of the paper is to use econometric methods to model and estimate i.e.quantify the impact of tourism on GDP of Montenegro.
Keywords: *tourism, GDP, econometric model*

1. INTRODUCTION

The development of tourism and its impact on the economy of a country is associated with the level of overall economic and social development. Most of the economic activity of Montenegro is focused on the development of tourism. Tourism is a very important component of the national economy, which directly and indirectly influance the growth of gross domestic product. Along with a positive impact on economic growth it encourages employment, influance job creation, which is reflected in the improvement of general living standards. In a unique way tourism contributs to the development of complementary activities and it contributes to the overall GDP [1]. These contributions may be direct, indirect and induced. Direct impact is related to the consumption in Montenegro during business travel and vacation, while indirect influances include investments in buildings of importance to the tourist industry.

In consideration of the importance of tourism for a country it is important to distinguish domestic from foreign tourist spending, due to differences in the economic effects that arise from them. Domestic tourism consumption is in fact redistribution of income acquired in an economy, while the foreign tourists spending is a transfer of income from one economy to another, which directly affects the growth of GDP. Given existing resources, especially natural ones, current level of tourism industry development, as well as the strategic orientation of Montenegro to be an ecological state, tourism is one of the most promising activities in the economic development of Montenegro.

Generally tourism is made up of a whole range of economic and non-economic activities and it is one of the most profitable industries in the world with great opportunities for contribution to overall economic development. Expectations in terms of tourism's contribution (direct and total) to GDP growth in the world in the coming years are very optimistic. Table 1 shows the WTTC estimates of

the total contribution of travel and tourism to GDP of the world. It is obvious that Montenegro and Croatia has the best forcats. The table shows the results and projections of the total travel and tourism industry contribution of to GDP. According to the WTTC, the total contribution of travel and tourism to GDP in the world in the period from 2007 to 2015 will be around 9.3%.

Tabela 1. The total contribution of Travel & Tourism to GDP in %, [8]

	2007.	2008.	2009.	2010.	2011.	2012.	2013.	2014.	2015.
Svijet	9,6	9,4	9,3	9,0	9,1	9,1	9,2	9,3	9,3
Evropa	8,1	8,0	8,0	7,7	7,6	7,7	7,6	7,6	7,7
EU 27	8,3	8,1	8,1	7,8	7,8	7,8	7,8	7,8	7,9
Hrvatska	27,6	28,5	25	26,3	27,5	29	29,7	30,1	30,5
Makedonija	5,1	5,2	5,2	5,1	5,2	5,5	5,6	5,7	5,7
Crna Gora	21,6	24	16	15,7	17,1	19,7	22,9	25,5	27,4
Srbija	6,1	5,9	7,5	7,8	8,0	8,0	8,0	8,0	7,9
Austrija	12,1	12	12,3	11,7	11,8	12,2	12,5	12,6	12,8
Grčka	17,3	16,5	15,2	15,3	15,7	16,3	16,7	16,9	17,1
Italija	9,3	8,7	8,4	8,4	8,5	8,7	8,8	8,9	9,0
Portugal	13,6	14,2	13,3	13,8	14,7	15,1	15,4	15,6	15,7
Španija	14,9	14,9	14,7	14,3	14,3	14,4	14,4	14,3	14,3

It should be noted that this research was done in 2006 by WTTC, and now after almost 8 years, it is proved to be too optimistic. However, it is certainly true that tourism's contribution to GDP in Montenegro tend to increase. It is expected that the direct contribution of travel and tourism to GDP grow by 8.1% per year and will reach 827.1 million or 16.5% of GDP by 2023. [9] From all this it is clear that tourism is of great importance for the economy of Montenegro. However, this impact is not easily measured.

2. METHODOLOGY AND DATA

This paper aims to quantify the impact of tourism on the economy of Montenegro. After thorough analysis of the data available from State Agency of Statistic (MONSTAT) and Central Bank of Montenegro, we decided to formulate classical linear regression model with GDP as a dependent variable, and the number of overnight stays as independent varijabla. Gross domestic product measures the value of economic activities in the country. MONSTAT calculates GDP on an annual and quarterly basis for the economic territory of Montenegro, employing the production and expenditure approaches. The production method calculates GDP as the sum of values added by all resident institutional units, that is as the difference between output and consumption intermedia. The advantage of this method is the possibility of looking at the contribution of individual activities to the overall economic growth of the country. By the expenditure approach GDP is calculated as the sum of households' consumption, government's consumption, investment, changes in inventories and net exports of goods and services. The calculation of GDP by production method was developed in constant and current prices. [8]

To measure tourism activity MONSTAT keep records of the number of tourist arrivals and the number of tourist overnight stays. The goal of the statistical survey on arrivals and overnight stays in accommodation facilities is to provide quality data necessary for the creation of tourism policies and strategies. The statistical survey on arrivals and overnight stays in accommodation facilities covers catering and other organizations providing accommodation to tourists (hotels, motels, campsites, holiday resorts), or mediating in providing these services (agencies). This survey covers persons who are engaged in providing accommodation services in private homes and rooms. The survey is conducted on a full coverage in 21 municipalities in Montenegro [9].

The monthly data for the period January 2010 to November 2013, a total of 47 observations, and OLS method are used to estimate classical linear regresion model of GDP.

3. MODEL ESTIMATION - EMPIRICAL RESULTS

The model was specified after the tests of specification, stationarity and co-integration were employed. Although economic theory suggests that industrial production, import and export of goods and services affect GDP, the tests have shown that only import shoul be kept in the model. Hence, in the specified model the log value of GDP is a dependent variable, while the log value of number of tourist overnight stays and log value of import are independent variables.

Due to the seasonal character of the series tourist overnight stays, dummy variable is included in the model, taking value 1 in months where the number of tourist overnights stay is higher than in the previous month, and 0 othervise.

Table 2 Estimated GDP regression model

Dependent Variable: LOG(BDP)				
Method: Least Squares				
Sample: 2010M01 2013M11				
Included observations: 47				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(NOCENJA)	0.099503	0.010326	9.636602	0.0000
LOG(UVOZ)	0.159942	0.075642	2.114462	0.0403
DUMMY1	-0.142845	0.025799	-5.536846	0.0000
C	10.53385	0.830250	12.68757	0.0000
R-squared	0.809037	Mean dependent var	13.58716	
Adjusted R-squared	0.795714	S.D. dependent var	0.179168	
S.E. of regression	0.080980	Akaike info criterion	-2.107959	
Sum squared resid	0.281985	Schwarz criterion	-1.950499	
Log likelihood	53.53703	F-statistic	60.72473	
Durbin-Watson stat	1.959817	Prob(F-statistic)	0.000000	

All regression coefficients are statistically significant at 5% and 1% significance level, except the import coefficient which is statistically significant at 5% level. The coefficient of determination indicates that 80.9% of the variation in GDP is explained by the model. Estimated F-statistic confirms that the model is significant.

The estimated model indicates that when the number of overnight stays monthly increases 1% the average rise of GDP is 9,95%. However, we have to ampasise the fact that although tourism has a positive effect on GDP, the contribution of this industry can not overcome and replace the lack of production and high import dependence of Montenegro.

The employed diagnostic tests revealed that the problems of misspecification, heteroscedasticity, autocorrelation and multicollinearity are not detected in the model. Therefore, the specification of the regression model need not be changed nor transformed; estimated regression coefficients are BLUE.

4. CONCLUSION

Tourism is one of the drivers of the economic development in Montenegro. In Montenegro, tourism is the fastest growing economic sector with multiple effects. Economic impact of tourism on GDP have been constantly increasing.

Our empirical results, i.e. OLS estimates of GDP linear regression model confirmed that the number of tourist arrivals and overnight stays had a positive effect on GDP growth, but not to the expected extent. Also, it was found out that predictions of the sector's contribution to GDP were too optimistically set by WTTC and the Government of Montenegro. Tourism certainly has a very important, if not the most important place in Montenegrin economy, but with the lack of production capacities, inefficiency in the completion of capital investments and the high dependence on imports, it is difficult to expect a boom in the Montenegrin economy while relying so much on tourism. In order to reach the goal of becomming elite tourist destination, it is necessary to fullfil many preconditions, primarily to raise the quality of the infrastructure.

5. REFERENCES

[1] Analiza efekata turizma na BDP, zaposlenost i platni bilans Crne Gore, http://www.cb-mn.
[2] Blanchard O. J., Fisher S., Lectures on macroeconomics, MIT, 1989
[3] CBCG: Makroekonomski izvještaj CBCG, Q3 2013, http://www.cb-mn.
[4] Gujarati D., Basic Econometrics, Fourth Edition, McGraw−Hill Companies, 2004
[5] Hamilton J. D., Time Series Analysis, Princeton University Press, New Jersey, 1994
[6] Ministarstvo turizma i zaštite životne sredine: Strategija razvoja turizma u Crnoj Gori do 2020. godine, decembar 2008
[7] Mladenović. Z.; Nojković, A., Primijenjena analiza vremenskih serija, EF, Beograd, 2012
[8] www.monstat.org
[9] www.wttc.org