EasyChair Preprint

№ 1251

The Direct Contribution of Tourism to the Gross Domestic Product of Romania

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June 30, 2019

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Abstract. Tourism, as one of the secondary activity sector of the economy, with a strong involvement and presence on the active labor market, has a particular dynamics in the context of GDP formation and determination. In Romania, tourism is and will be an activity that raises many questions, curiosities, in terms of oscillations, fluctuations in capital inflows and outflows, cash, labor force, active material base, etc. In the present paper I considered the study of the weight of the cash inflows in their various forms (cash, cash, meal vouchers, vacation vouchers), materialized in the sale of tourist services by non-residents in large part but also by residents.

Keywords: Tourism, Travel, Gross domestic product.

1 Introduction

Income and expenditure from tourism are highlighted in the ″tourism-travel″ heading (current operations account) where the credit includes foreign tourists spending in the receiving country, expenditure related to accommodation, food, domestic transport, balneary treatment and other services, and the debit includes expenditure of the same nature incurred by residents abroad.

The extent to which the official registration system for accommodation facilities seeks to highlight as much exact as possible the situation of demand and supply in this sector is a growing concern in terms of reflecting the reality of the sector due to the existence of numerous accommodation capacities, related services and other similar unregistered operations. It is estimated that the value of these unregistered accommodation capacities or the ″black economy″ in this sector would be considerable, but it is not registered in the official statistical data, which includes a component of spending on holidays and leisure, which may offer many more details in this area. This system is still at an early stage and requires revision and improvement for the data it provides to be considered as certain data.

2 The Satellite Travel Account System (TSA) and the involvement of tourism in the creation of state budget revenues.

Tourism does not present itself as a single branch of activity in the National Accounts System, being very different from the other branches of the economy.

Why is it important TSA:

- gives us information on the economic impact of tourism, the national balance of payments, investment, including the contribution to gross domestic product formation;
- gives us information on the number and peculiarities of employees working in the tourism sector;
- it is permissible to compare tourism with other sectors of the economy [2] (op.cit., p15).

Table 1. TSA structure, demand accounts.

TSA structure	Demand accounts
TOURISM AND PERSONAL TRIPS	All personal spending on tourism services and travels for the economy of residents
BUSINESS TRIPS	Tourism Indirect Consumption Goods and services (transport, accommodation, meals, recreation, etc.) for employees travelling for business purposes.
INDIVIDUAL GOVERNMENT SPENDING	This category includes expenses (transfers and subsidies) made by government agencies
EXPORTS (VISITORS)	Visitor spending on goods and services provided from the economy.
COLLECTIVE GOVERNMENT SPENDING	This category includes the spending of government agencies for tourism-related services that are not directly related to the tourist but which are beneficial to the community as a whole, such as: tourism promotion, safety, order and cleanliness services in tourist resort areas.
CAPITAL INVESTMENTS	This category includes spending directly by the tourism industry and government agencies in order to improve equipment, facilities, and tourism infrastructure as a whole.
EXPORTS (EXCLUDING VISITORS)	This category includes exported goods intended either for final consumption by visitors or for economic agents

Source: WTTC Romania [3], p. 20

The first four elements (tourism and personal trips, business trips, individual government spending, exports - visitors), means all expenses for tourists and tourists, as well as travel services and travel services, represented by their exclusive consumption

in the local economy, to which are added the following three elements (collective government expenditure, capital investment, exports - non-visitors) to achieve the total demand for tourism and travel.

Table 2. TSA structure, offer accounts.

TSA structure	Offer accounts
GDP OF THE TOURISM AND TRAVEL INDUSTRY (DIRECT EFFECT)	Direct contribution of suppliers of tourism services (, accommodation structures and additional companies thereof.) to the economy
GDP OF THE TOURISM AND TRAVEL INDUSTRY (INDIRECT EFFECT)	The Gross Domestic Product associated with tourism consumption.This component includes all suppliers of products and services (catering, laundry, bookkeeping, utility providers)
THE VALUE OF THE GOODS THAT THE FIRMS IN THE TOURISM SECTOR ACQUIRE DIRECTLY OR INDIRECTLY THROUGH IMPORT	The value of goods imported directly or indirectly by companies
GDP OF TOURISM AND TRAVEL ECONOMY (DIRECT AND INDIRECT EFFECT)	The Gross Domestic Product and the labour force (the manufacturers of goods and ending with construction)
IMPORTS FROM TOURISM AND TRAVEL ECONOMY	The value of goods imported directly or indirectly by companies operating in the tourism sector

Source: Adaptation after WTTC Romania [3], p. 21.

Compared to the fees they usually pay by paying tourist services, tourists sometimes are levied fees in less direct ways, such as: airport taxes, exit taxes, customs fees for obtaining visas, where applicable, tolls for access to resorts or on motorways, entrance fees to museums, resort tax, municipal taxes, parking fees, etc. are just a few examples of the methods commonly used in taxing tourists. Tourism, as an economic activity, increases personal income, the number of jobs, etc.

3 Tourism Contribution to GDP Formation

Tourism Direct Gross Domestic Product (TDGDP).

"The direct gross domestic product from tourism is obtained by adding to the gross value added directly from tourism the taxes, less subsidies on products in the country

and imports. In 2016 it was RON 21,153.8 million, representing 2.765% of the Romanian Gross Domestic Product (RON 765,135.4 million). This part of GDP will be called tourism direct gross domestic product." [4] (op.cit., p. 10, 12 ,13, 16)

The share of international tourism receipts in GDP is another suggestive indicator that characterizes the contribution of international tourism to the economic welfare of a country.

The direct effect of tourism on GDP reflects the total expenditure of resident and non-resident visitors as a result of business or leisure overnight stays in a given country and allows tourism contribution to the national economy to be presented in two different ways. Firstly, foreign exchange earnings for international visitors can be expressed separately from their contribution to GDP, and secondly, total earnings from tourism can be expressed as a percentage of GDP.

We bring as an example a few details about non-resident tourists:

"In 2016, the amount of money spent in Romania by tourists from other non-resident foreign markets amounted to RON 6,620.5 million.

The highest percentage was achieved by accommodation services for non-residents (44.6%), followed by meal services (25.2%)." [4]

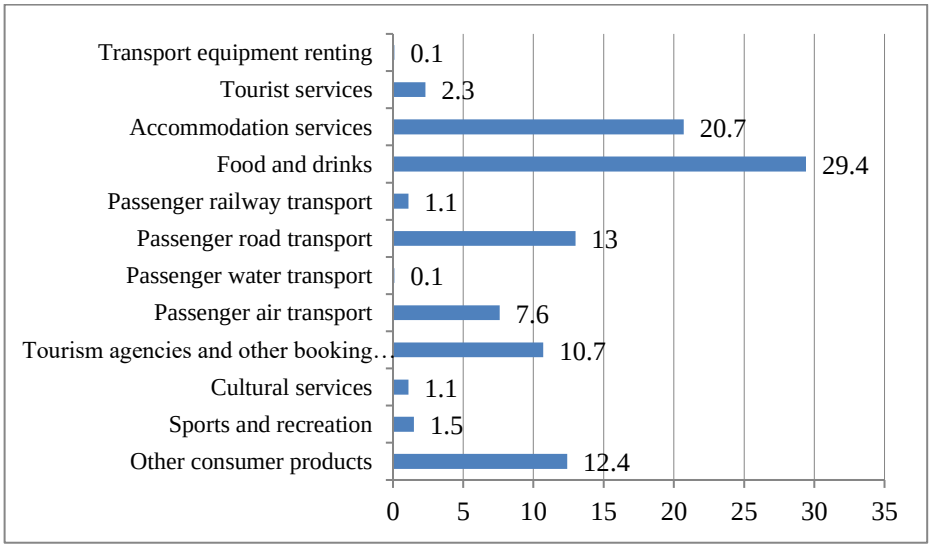

Fig. 1. Structure of tourist expenses of Romanian residents, in 2016 - %

Source- www.insse.ro, [4], p. 13

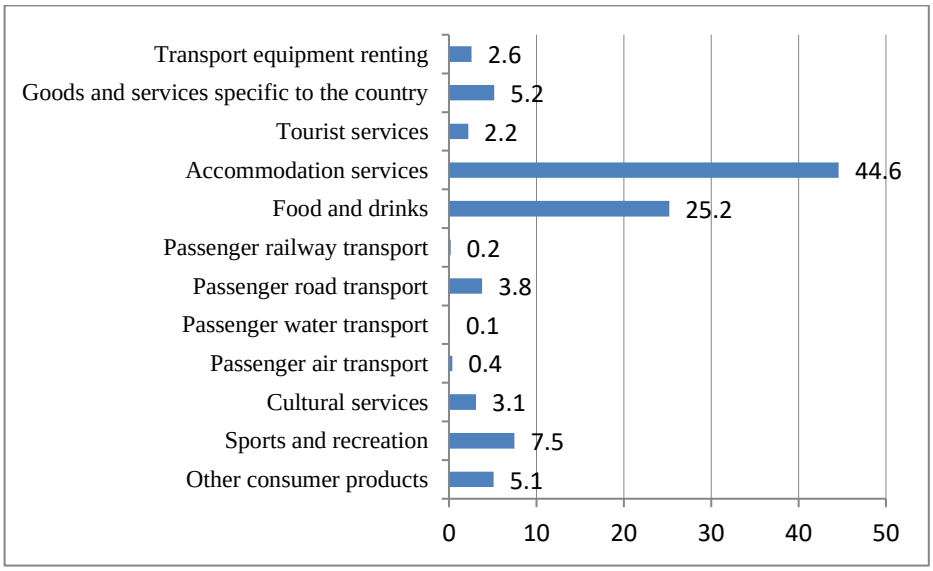

Fig. 2. Structure of tourist expenses of non- residents, by products, in 2016 - %

Source- www.insse.ro [4], p 12

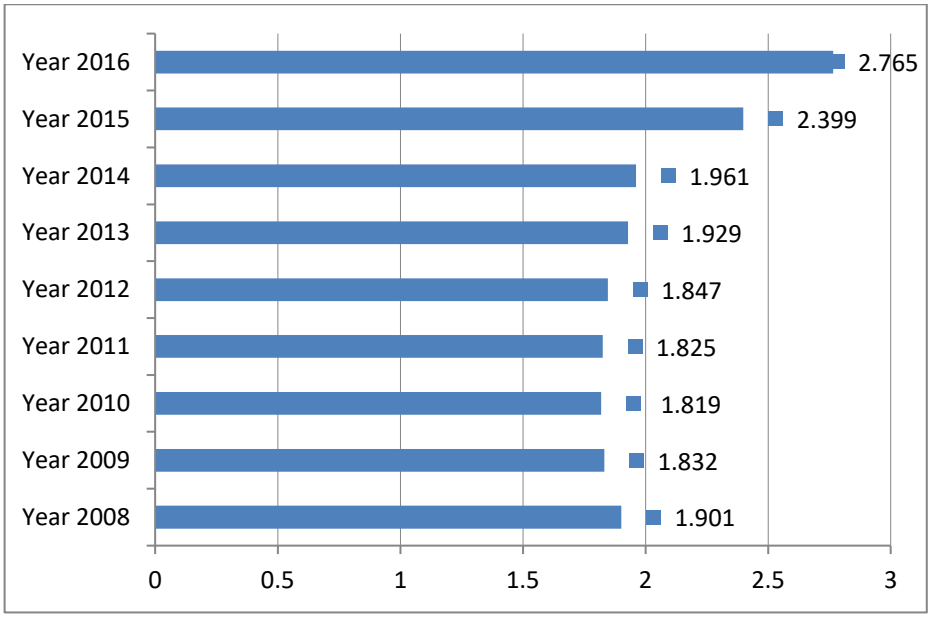

Fig. 3. Years 2008-2016, Share of tourism (GDP)

Source- www.insse.ro, INS – 2016, TSA, pg 14

TSA – Tourism Satellite Account

"The (INS) data published in early April shows that the number of arrivals registered in Romania's tourist accommodation facilities in the first two months of 2018 increased by 6.7%, compared to the same period of the previous year, while in overnight stays there was an increase of 6.4%.

Of the total number of arrivals in tourist reception facilities with accommodation functions, those of Romanian tourists accounted for 79.4% in the mentioned period, and that of foreign tourists accounted for 20.6%, weights similar to those of the first two months of 2017. The average length of stay in Romania was 1.9 days for Romanian tourists and 2 days for foreign tourists. As for the expenses incurred by non-resident tourists accommodated in Romania during 2017, the official statistics reveal that they exceeded RON 6 billion. Non-resident tourists (about 2.75 million) who last year chose as destination our country spent an average of RON 2,183 per person." [5].

4 Research Methodology

Performing a correlation analysis between the "Tourist Receipts Structures" and "Gross Domestic Product". We will check for Romania the dependence of "reception facilities" on "gross domestic product". To correlate with the results of the Eviews program, we use the following names of the two variables:

y = TOURISM PRIZE STRUCTURES (SPT);
x = GROSS DOMESTIC PRODUCT (GDP)

The simple linear regression model proposed in this case will be:

$$Y = \beta_0 + \beta_1 \cdot X \ + \varepsilon \quad \text{or} \quad SPT = \beta_0 + \beta_1 \cdot PIB + \varepsilon$$

where:

- Touristic reception facilities (SPT) are the dependent variable (persons);
- Gross Domestic Product (GDP) is the independent variable (billions of lei);
- ε is the random variable error (residue);
- β_0 and β_1 are the parameters of the regression model.

The regression is: $\hat{Y} = b_0 + b_1 \cdot X$

where:

- b_0 estimates the parameter β_0 and
- b_1 estimates the parameter β_1.

For the simple linear regression model considered, by the least squares method we have estimated the values of the parameters listed in the table 3.

Table 3. Estimates of Simple Linear Regression Model Parameters (MODEL 1) by least squares method

Dependent Variable: SPT
Method: Least Squares
Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2845.599	137.4327	20.70539	0.0000
PIB	0.003901	0.000478	8.161786	0.0000

R-squared	0.769092	Mean dependent var	3706.727
Adjusted R-squared	0.757547	S.D. dependent var	838.9099
S.E. of regression	413.0751	Akaike info criterion	14.97164
Sum squared resid	3412621.	Schwarz criterion	15.07083
Log likelihood	-162.6881	Hannan-Quinn criter.	14.99501
F-statistic	66.61475	Durbin-Watson stat	0.947616
Prob(F-statistic)	0.000000		

where: b_0 = 2845,599, b_1 = 0,003901

So, $\hat{Y}$ = 2845,599+ 0,003901 $\cdot X$ or SPT = 2801,265+ 0,003901PIB

The slope of the right = 0.003901 shows that for a change of 1000 billion lei of "gross domestic product", the "tourist accommodation structures" the tourist growth of the product is seen to change in the same direction, averaging 4.

The point where the right-hand regression intersects the Oy axis is b_0 = 2845,599 and does not have an economic significance known in this case.

Testing the validity of the regression model

- will result in a null hypothesis: H0: invalid model
- we have the alternative hypothesis H1, valid model
- we compute test F:

Table 4. ANOVA check the quality of the MODEL 1 adjustment

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11366545	1	11366545.360	66.615	.000[a]
	Residual	3412621.0	20	170631.050		
	Total	14779166	21			

a. Predictors: (Constant), GDP (mld lei)

b. Dependent Variable: tourist accommodation structures (nr)

We have $F_{calculated}$ = 66,615. Compare $F_{calculated}$, for k=1 and a significance threshold α = 5%, with $F_{a;\ k;\ n-k-1} = F_{0,05;\ 1;\ 20}$ = 4.35 (table value) and since

$F_{calculated}$ = 66.615> 4.35 = $F_{0.05;\ 1;\ 20}$ and prob(F-statistic) = 0.0000 <0.05 then we find that at the 5% threshold the H0 hypothesis is not accepted, but the alternative is accepted, so we conclude that the model is valid.

We are going to test the significance and validity of the analyzed parameter

- set the null hypothesis: H0: $\beta_0 = 0$
- the alternative hypothesis is set: H1: $\beta_0 \neq 0$

Since $t_{calculated}$ = 20,705 > 2,086 = $t_{0,025;\ 20}$ for a significance threshold α = 5% and p-value = 0,0000 <0,05, the assumption H0 is rejected, and the alternative H1 is accepted, so is significantly different from 0.

We have a confidence interval for the parameter β_0: 2558,919 < β_0 <3132,279 at a significance threshold α = 5%.

Table 5. Trusted Interval Estimates for MODEL 1 Parameters

Coefficients [a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower	Upper
1 (Constant)	2845.599	137.433		20.705	.000	2558.919	3132.279
GDP (mld lei)	3.901E-03	.000	.877	8.162	.000	.003	.005

a. Dependent Variable: Tourist accommodation structures (number)

Testing the significance of the parameter β_1:

• set the null hypothesis: H0: $\beta_1 = 0$

• the alternative hypothesis is set: H1: $\beta_1 \neq 0$

Since $t_{calculated}$ = 8,162> 2,086 = $t_{0;\ 025;\ 20}$ for a significance threshold α = 5% and p-value = 0,0000 <0,05, concluding the null hypothesis H0 is rejected, and alternatively H1 is accepted. 0.

The confidence interval for the parameter β_1 to a significance threshold α = 5% is:

$0.003 < \beta_1 < 0.005$

The intensity of the link between the two variables is appreciated by the correlation ratio (R).

Yield: R = 0.877.

Since R = r, we consider that the two variables are in a linear relationship. The estimated value of the determination ratio (R-squared) R2 = 0.769, we find that the variance of the indifferent variable explains in a real percentage of 76.9% that of the dependent variable "tourist accommodation units".

Testing of the significance of the determination coefficient (R2)

- the null hypothesis is established: H0: R2 is not statistically significant;
- the alternative hypothesis is determined: H1: R^2 is statistically significant;
- Calculate test F:

$$F_{calc} = \frac{n-p-1}{p} \frac{R^2}{1-R^2} = 66{,}615$$

Since $F_{calculated}$ = 66,615> 4,35 = F0,05,1; 20 and Prob(F-statistic) = 0,0000 <0,05 = at a significance threshold α = 5%, the assumption H0 is rejected and alternative H1 so the determination coefficient is statistically significant.

5 Conclusions

At a materiality threshold of 5%, the model is valid, and the variation of the independent variable "gross domestic product" explains 76.9% the variation of the dependent variable "tourist accommodation structures". We find that in the conditions in which the value of the independent variable "gross domestic product" changes by 1000 billion lei, the "tourist accommodation structures" change on average in the same sense as 4. In other words, by an increase of 1000 billion lei "Gross domestic product", "tourist reception facilities" are growing by about 4. All the data provided by the authorized institutions of the Romanian state, but also by other private institutions of statistical analysis, converge to the following conclusions: Romania has a huge tourist potential, untapped to the maximum, with major deficiencies in hotel services, as well as other types of services that accompany the tourist product, the poor infrastructure and the overaged material base.

Also, in the present paper, we have shown that the Romanian GDP depends very much on the tourist entrances of the non-residents as well as that of the residents, unfortunately the volumes of the non-residents' entrances are much smaller than the volume of the tourist entrances of the residents, which leads to the perpetuated conclusion every year, that there is a financial deficit higher rather than a surplus. Also, Romanians spend more abroad than in the country, which again leads to a deficit between spending and income on the tourist services of the residents. Evolution is, however, an encouraging one for the last years, growing from year to year, an important role in this growth phenomenon of Romanian tourism has its membership in the EU, but also the phenomenon of globalization.

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