

OVERALL CONTRIBUTION OF THE FOREIGN TOURIST DEMAND ON CROATIAN ECONOMY

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Received 20 March 2017
Revised 5 June 2017
Accepted 7 July 2017
<https://doi.org/10.20867/tosee.04.11>

Abstract

Purpose – The purpose of the paper is to estimate of overall impact of foreign tourist demand on the Croatian output, gross value added and employment.

Methodology – The direct, indirect and induced effects of the consumption of foreign tourists to the overall Croatian economy are based on input-output model. Open input-output model was used to calculate the direct and indirect effects of the expenditures of foreign tourists, while the closed input-output model was used to analyze induced effects.

Findings – Expenditures of the foreign tourists in the recession period 2009-2014 significantly reduced the overall negative impact of recession. Decrease in gross value added and employment without increased competitiveness of Croatian tourism would be more significant and the level of Croatian real GDP would be even lower than recorded. Besides hotel and restaurant sector, indirect and induced impact of foreign tourist demand is significant for food production, personal services and trade.

Originality of the research – The originality and the contribution of the paper is methodological development of model which measure relation of tourist demand and overall macroeconomic performance of an economy. The empirical contribution is calculation of direct, indirect and induced effects of foreign tourists expenditures based on the updated input-output coefficients. The results could be of interest for academic and general public because they provide overall assessment of contribution of tourism industry in Croatia based on the sound methodological framework.

Keywords Input-output model, Expenditures of foreign tourists, Gross value added, Indirect effects, Induced effects

INTRODUCTION

Tourism has become in development focus for many national economies. There is a significant positive relationship between economic growth and development and dynamics of tourism sector. Tourism sector stimulates the level of domestic demand, contribute substantially to financing of the current account deficit and also has been recognized widely due to its contribution to the production and employment. The success of the tourism sector most often affects the success of many other sectors such as agriculture, manufacturing, arts and crafts, transport, wholesaling, retailing and many other production and service sectors. Representing more than just economic strength, tourism is a valuable source of livelihood for millions of people.

According to the World Tourism Organization Annual Report 2015, in 2015 total of 1,184 million tourists were travelling internationally. The same report points out that tourism sector contributing 10% of global GDP and 6% of the world's total exports, in that all play a significant role arrivals and consumption of foreign tourists (UNWTO, 2016, 10, 14). From all mentioned facts, it could be concluded that tourism has become a leading economic sector in broad set of countries.

Many natural attractions and rich cultural-historical heritage, a wide range of range of tourism products, transport infrastructure improvement as well as increasing accommodation capacity in recent years classifies Croatia among the most popular European tourist destinations as well as the country that has continuous growth of foreign tourists (Government of the Republic of Croatia 2013). Consequently, Croatia is one of the countries with the largest share of tourism revenues expressed in GDP, and tourism sector has become one of key and strategically important sectors. According to the data of the Croatian chamber of economy foreign currency income from tourism in Croatia in 2016 amounted to 18.01 percent of GDP, which ranks Croatia one of the leading tourist destinations in Europe (Croatian chamber of economy 2017). In the last several years, the number of foreign tourists steadily increasing in Croatia, as well as the importance of the tourism sector for the whole economy. Foreign tourist arrivals in all types of accommodation establishments have continuously increased for approximately two million arrivals during the period 2010-2014 (UNWTO, 2016, 187). An overview of relevant research related to the measuring tourism contribution to the national economies is provided in further section.

1. LITERATURE REVIEW

Over the time different methods and approaches are developed and used to measure the economic impact tourism sector to growth and development. The most common approach used for calculation of direct and indirect economic impacts of tourism sector, significance of tourism sector on the overall national economy as well as study on the interdependence between tourism and the other sectors of national economy was performed by using input-output analysis.

To examine how changes in final demand for hotels, restaurants and travel agencies influence the whole Romanian economy, authors Surugiu et al. calculated backward and forward linkage coefficients for output, earnings, gross value added and employment. The results of backward linkage calculation placed those tourism industries to the eleventh position from overall 19 sectors; while according to their importance forward linkage coefficients pointed even lower position of the sector (Surugiu, Frent and Surugiu 2009). Input-output model was also applied in order to examine whether there are differences between international tourist spending and domestic tourist spending in South Africa (Saayman, Saayman and Naudé 2011). According to the results of input-output multipliers, international as well as domestic tourism has positive contribution and similar effect to the South African economy. For Turkey economy, Atan and Arslanturk (Atan and Arslanturk 2012) analyzed the importance of tourism sector via income and production output. Results of conducted analysis indicate that tourism is essential and significant sector for the Turkey

economy, particularly in terms of hotels and restaurants. Since the tourism is not a defined industry, authors Cai et al. based on the data from national, regional, or local input-output tables developed a new methodology for tourism impact analysis (Cai, Leung and Mak 2006). Adapted traditional forward and backward linkages approach was introduced and applied for tourism impact analysis on Hawaiian economy. In order to estimate importance of the hotel/motel industry and accommodation industry to the overall economy of Texas, output, labor income and employment input-output multipliers are calculated (Kim and Kim 2015). That was the first attempt to analyze the hotel industry for a particular state of USA.

The tourism impact analysis was implemented as well on the regional level developing Regional Input-Output Modeling System (RIMS II). RIMS II models stand out as very useful models for assessing the impact that the initial change has on the local economy under the assumption of their correct usage. Assumptions that cannot be overlooked and can lead to inaccurate estimates of the effects are fixed production patterns and no supply constraints, as well as on the inputs amounts that come from the local region (Bess and Ambargis 2011). Based on RIMS II regional input-output model, multiplier effects of visitor expenditures in Washington, D.C. were analyzed (Frechtling and Horváth 1999). The results of the multiplier calculations indicate low multiplier values compared to multiplier values of other selected U.S. localities.

Authors Bryan et al. (Bryan 2006) argued that construction of the tourism satellite account in the UK enables much more information and details for political decision makers as well as for the tourism sector itself, and in particular the identification of the critical elements for the success or failure of the tourism sector. To enable policymakers to carry out significant analysis of tourism at the regional level as well as its linkages expanded tourism satellite account to the regional level was developed (Jones and Munday 2010). In Croatia, total tourism contribution was estimated using input-output model which was connected to tourism satellite account via selection of activities and the data of the expenditures of tourism (Šutalo, Ivandić and Marušić, 2011). The result of the analysis of tourism demand impact indicate that tourist spending in Croatian economy generates gross value added in the range of 14.7 percent of total value added in year 2005, for which the analysis was conducted. Also, the input-output model was used to estimate direct and indirect effects of tourism sector on the production of other sectors by Jurčić (1998) and Gelo (2016), and the results of both research had shown that tourism sector has a multiple effect on the Croatian economy.

An overview and comparison of different models (input-output models, Keynesian models, exports base models, computable general equilibrium models, ad hoc models and money generation model) for evaluation economic impact of tourism to the overall economy was performed by Kumar and Hussain (Kumar and Hussain 2014). According to authors, computable general equilibrium model and money generation model are considered as major models for analyzing economic effect of tourism, because those methods provide a wider analysis of the impact of various changes in the economy than other methods. Dwyer (Dwyer 2015) also emphasize the importance of the CGE for tourism policy analysis in providing a wider range of tourism analysis and information to policies that affect the tourism industry in a country and at the regional

level. Those statements about computable general equilibrium application to the impact analysis of various industry as well as tourism to the overall economy is obvious according to the many research in recent years in which computable general equilibrium model was implement. Computable general equilibrium model based on a social accounting matrix was applied to analyze how increase in foreign demand affect Turkish tourism industry. The results of simulation in increasing foreign demand induced increase in GDP, households' income, employment, private consumption and investments (Gül 2015). Model integrating traditional forecasting methods and computable general equilibrium model was applied to Scotland for impact analysis of tourism and its contribution to the Scotland economy. Tourism indicators with structural time-series forecasting and computable general equilibrium impact analysis were adopted for tourism analysis (Blake et al 2006). Based on the Singaporean input-output tables and survey data about tourism in Singapore, CGE model that estimate the role of inbound tourism in the overall economy was established, which according to author Meng (Meng 2014), generate more confidential results that IO model.

2. RESEARCH METHODOLOGY

Input-output analysis is a quantitative macroeconomic analysis that explains interdependences between productive sectors in an economy. The primary goal of input-output analysis is to examine and to interpret effects of final consumption on output, gross value added (GVA) and employment. The statistical-information base of input-output analysis is input-output table showing flows of goods and services between productive sectors of the economy (Miller and Blair 2009).

Impact of intersectoral flows of sector i on the total production of each sector in the input-output table is described by the equation:

$$X_i = \sum_{j=1}^n X_{ij} + Y_i, i = 1, \dots, n \quad (1)$$

where X_i is total output of sector i , X_{ij} represents intermediate sales by sector i to sector j , while Y_i represents the final demand for sector i 's product. The equation (1) can be written as:

$$X_i = \sum_{j=1}^n a_{ij} X_j + Y_i, i = 1, \dots, n \quad (2)$$

where $a_{ij} = \frac{X_{ij}}{X_j}$ is technical coefficient defined as a ratio of a product from sector i that is required by sector j in order to produce one unit of its product. If the entire economy is observed, the system of equations (2) in matrix form can be written as:

$$X = AX + Y \quad (3)$$

where $X = \begin{bmatrix} X_1 \\ \vdots \\ X_n \end{bmatrix}$ is column vector of outputs, $Y = \begin{bmatrix} Y_1 \\ \vdots \\ Y_n \end{bmatrix}$ is column vector of final demands and $A = \begin{bmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \cdots & a_{nn} \end{bmatrix}$ is a square $n \times n$ matrix of technical coefficients, called technology matrix. If the matrix $I - A$ is nonsingular and positive definite matrix, where I is an $n \times n$ identity matrix, solution to the system (3) is:

$$X = (I - A)^{-1}Y \quad (4)$$

Matrix $(I - A)^{-1}$ is called Leontief Inverse matrix, also known as multiplier matrix. Equation (4) represents the dependence of the total production on exogenously given final demand of all sectors, while the element α_{ij} of the Leontief Inverse matrix represents the sector i 's output required, directly and indirectly, per one unit of final demand from sector j .

IO analysis quantifies direct, indirect and included effects of each sector of economy to the overall economy. Mainly, the final consumption effects on output, GVA and employment are estimated via indicators called multipliers. There are two types of multipliers, multipliers type I and multipliers type II which differ according to the form of IO model. IO model in which final consumption is considered as an exogenous variable is used to calculate the direct and indirect effects and indicator which involve direct and indirect effects are called multipliers type I. Closed IO model is IO model in which some components of final consumption, mainly households, are considered as endogenous. In those models effects are defined as direct, indirect and induced and multipliers that involve these effects are called multipliers type II. (McLennan 2006) Some authors argued that multipliers type I underestimate mentioned effects, because sector of households is excluded from their calculation, while multipliers type II are overestimated (Grady and Muller 1988, Miller and Blair 2009). According to the real effect impact is generally located in the middle of the interval in which the value of multiplier type I is its lower, and the value of multiplier type II its upper bound. The key of the calculation of multiplier type I is Leontief Inverse matrix $(I - A)^{-1}$ indicating direct and indirect effects on the production. For the multiplier type II calculation, matrix $(I - \bar{A})^{-1}$ is used, where matrix \bar{A} is obtained by expanding technology matrix A with one more row, representing compensation of employees coefficients and one more column, representing household consumption coefficients. Elements of matrix $(I - \bar{A})^{-1}$ are indicating direct and indirect effects on the production plus induced effects.

Table 1: **Definition of aggregate sectors**

CPA Code	Description of the sector
A	Agriculture, forestry and fishing
B,C,D,E	Manufacturing, mining and quarrying and other industries
F	Construction
G,H	Wholesale and retail trade, transportation, storage
I	Accommodation and food service activities
J	Information and communication
K	Financial and insurance activities
L	Real estate activities
M,N	Professional, scientific, technical, administrative and support service activities
O,P,Q	Public administration and defense, education, human health and social work activities
R,S,T,U	Other service activities

Source: KPD classification (www.dzs.hr).

Input-output method provides not only total contribution, but also detailed estimate on the production sector level. In order to make presentation of results more readable, production units could be grouped together in the sectors as presented in Table 1.

3. DATA SOURCES

Croatian Bureau of Statistics (CBS) recently published a first input-output table for Croatian economy in 2010 according to CPA, rev. 2 classification. Total economy in this table is separated to 64 mutually exclusive production sectors and provides a suitable framework for calculation of indirect and induced impacts of exogenous demand on the overall economy. However, data on consumption of foreign tourists is not presented as separated part of final demand with detailed information on structure of expenditures of foreign tourists, but is summed up together with personal consumption of residents in the vector column of total expenditures of private households on domestic territory. In order to isolate impact of foreign tourist consumption, it is necessary to divide that column on two sub-columns: personal consumption of residents and expenditures of foreign tourists.

Data sources for expenditure of foreign tourist in Croatia are based on combination of different sources. For the purpose of calculation of direct, indirect and induced impact, a value of total tourist revenues should be distributed on the detailed CPA groups which are comparable to level of aggregation which is available from input-output tables. Total revenues of expenditures of foreign tourists in Croatia are available from Balance of Payments (BoP) database which is updated by Croatian National Bank (CNB) on regular quarterly basis. According to methodological framework for balance of payment statistics which is described in CNB Bulletin, revenues related to services

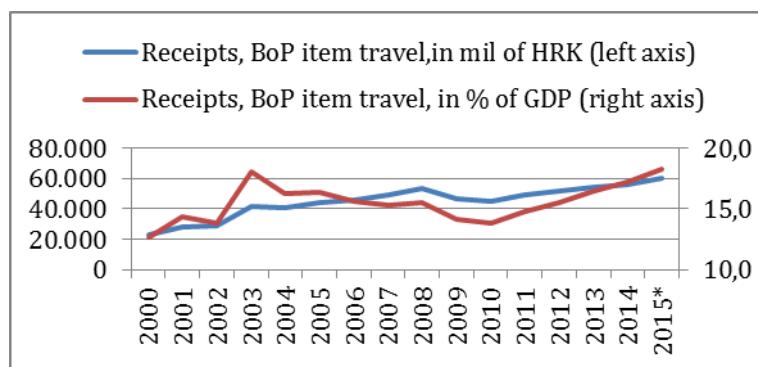
provided to foreign travelers and tourists, are recorded under the BoP position Travel. In the period 1993-1998, this item was estimated by various data sources which were partially inconsistent and were not able to provide a full coverage in accordance with the BMP methodology.

In the second half of 1998, the CNB introduced a Survey on Consumption of Foreign Travelers in Croatia. The survey was conducted in the form of the short interview of the travelers (stratified sample) at the exit of Croatian border. Travelers were asked to provide estimate of their total expenses in Croatia and a few additional questions on motivation of travel (business or private reasons), duration of holiday and type of accommodation (commercial unit or staying in the establishments of their relatives or friends without payment). By combination of those information and additional data provided by Ministry of the Interior and Central Bureau of Statistics total expenditures of foreign tourists were estimated.

Unfortunately, since 2012 CNB have stopped to use this approach which provided at least a minimum stratification of expenditures of foreign travelers and started to estimate this item by relatively simple econometric approach. Total expenditures are estimated based on consumption from 2011 and econometrically computed indicator. Composite indicator which describes the consumption of the foreign tourists are modelled based on a group of variables that are assumed to move in line with tourist expenditures (as arrivals and tourist nights, the number of employed persons in accommodation and food industry, the revenues of hotels and restaurants, industrial production in EU countries etc.).

Based on CNB data for the period after 2012 it is only possible to analyze total receipts recorded in BoP statistics and no further detail is available. However, BoP data on receipts of Croatian residents recorded under item travel is used as approximation of total expenditures of foreign tourists. Trends of this item in nominal terms, as well as share in GDP are shown in Figure 1. Since 2010, receipts from foreign residents on Croatian territory recorded steady growth and in 2015 reached share in GDP higher than 18%.

Figure 1: Trends in expenditures of foreign tourists in Croatia



Source: CNB for receipts, CBS for GDP. *Data for 2015 are not final.

In order to estimate breakdown of total receipts from foreign tourists an additional data source TOMAS survey conducted by Institute for Tourism is used (Marušić, Čorak and Sever, 2015). Institute is conducting TOMAS survey as multiannual research (last three were conducted for 2007, 2010 and 2014) with specific goals oriented to the identification of tourists' profile, identification of the most important advantages of Croatian tourism and estimation of the expenditures of the foreign tourists. Seven coastal counties are covered in the survey in time period between June and September by personal interview of foreign tourists based on questionnaire.

According to the survey results, the most important item in consumption of foreign tourists is accommodation services which cover over than a half of total expenses. Food and beverages in establishments outside accommodation services comprises 18.4 percent of expenditures, while shopping and other services together makes less than 30 per cent of total expenditures. TOMAS survey additionally provides information on structure of expenditures in retail trade on food, beverages, clothing and other products, while distribution of services is available on sport and recreation, culture, entertainment services and trips during holiday (<http://www.iztg.hr/hr/institut/projekti/istrazivanja/>). Comparisons of the total daily expenses and the composition of expenses to the main categories are presented in Table 2.

Table 2: Structure of the expenditures of foreign tourists settled in commercial units during summer according to TOMAS survey

In EUR	2010		2014	
	Value	Structure	Value	Structure
Average daily expenditures	58.00	100	66.36	100
Accommodation services (including food in the residence object)	33.89	58.4	36.22	54.60
Food and beverages in restaurants and bars outside accommodation service	9.08	15.70	12.18	18.40
Expenditures in retail trade	7.92	13.70	9.49	14.30
Other services	7.11	12.30	8.48	12.80

Source: TOMAS survey 2010; 2014 (methodology and results are presented in Marušić, Čorak and Sever, 2015): <http://www.iztg.hr/hr/institut/projekti/istrazivanja/>.

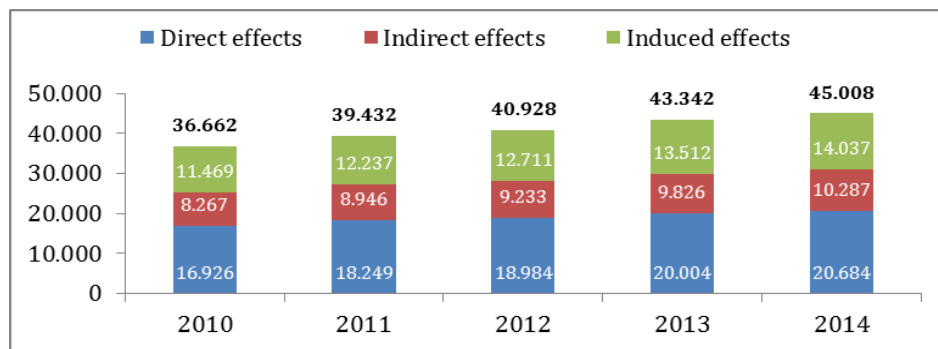
By multiplying the number of overnight stays and average daily expenditures a structure of expenditures for tourist with paid accommodation could be estimated. However, a certain part of item travel as recorded in BoP statistics is related to consumption of tourists settled in establishment owned by their relatives and friends with free of charge accommodation services. For that part of travel expenditures, a structure of expenditures (without item accommodation services) can be used. A third segment of travel expenditures comprise travelers which visit and leave Croatia the same day (without overnight stays) and which are regularly not covered in any official statistical survey. For that category a structure of expenses can be estimated only roughly. However, the most important category of tourist demand in terms of total expenditures is related to "classical" tourists with overnight stays in commercial establishment. By combination of total expenditures from BoP statistics and TOMAS

survey a first draft of decomposed expenditures is constructed and additionally controlled in the context of total supply and uses in Croatian economy.

4. RESULTS

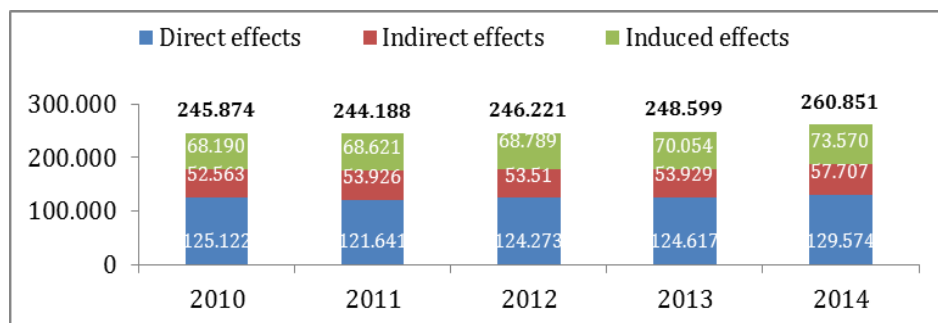
This section presents estimates of contribution of foreign tourist on domestic economic activity based on input-output model described in section 2. Receipts from foreign tourists in terms of national accounts and input-output methodology present a component of final demand which is directly satisfied by domestic producers. In order to quantify total contribution in terms of domestic GVA and employment, an input-output methodology is applied. Total Croatian GVA related to consumption of tourists is higher than direct effect because of additional indirect and induced activity of other producers included in tourism value added chain as described in the methodological part of the paper. However, concept of GVA measure only net effect on domestic income, i.e. gross output minus value of intermediate goods used up in production process.

Figure 2: **Total contribution of expenditures of foreign tourist on Croatian GVA, mil. HRK**



Source: authors' calculations.

Figure 3: **Total contribution of expenditures of foreign tourist on employment, number of jobs on annual level**



Source: authors' calculations.

Total contribution, as well as decomposition of value added and employment on direct, indirect and induced impact of travel expenses of foreigners in terms of GVA and employment are presented in Figure 2 and Figure 3. In the observed period, 2010-2014 growth of direct, indirect and induced effect was recorded. Induced effect on GVA was relatively higher than indirect effects. Expenditures of foreign tourists induced approximately 45 billion of HRK of GVA in 2014 of which approximately 20 billion of HRK of GVA was directly, approximately 10 billion of HRK was generated via indirect effects and approximately 14 billion of HRK was induced by household consumption. Generally, number of jobs increased through the observed period, while in 2014, expenditures of foreign tourist indirectly generated approximately 130 thousands of jobs.

Table 3: Total GVA induced by expenditures of foreign tourists, in millions of HRK

	2010	2011	2012	2013	2014
A	1.762	1.845	1.844	2.013	2.113
B+C+D+E	5.464	5.774	6.062	6.445	6.740
F	215	227	226	244	255
G+H	6.545	7.028	7.193	7.719	8.072
I	11.790	12.616	13.245	13.954	14.410
J	1.089	1.116	1.147	1.206	1.234
K	1.135	1.331	1.353	1.397	1.402
L	3.212	3.644	3.860	4.046	4.236
M+N	2.616	2.787	2.850	3.012	3.156
O+P+Q	865	935	979	1.031	1.044
R+S+T	1.969	2.130	2.168	2.274	2.344
Total	36.662	39.432	40.928	43.342	45.008

Source: authors' calculations.

The data in Table 3 indicate that approximately one third of total value added induced by receipts from foreign tourists is related to sector "Accommodation and food service activities". Units engaged in accommodation and food service industry generated 14.4 out of 45 billion of HRK total value added induced by expenditures of foreign tourists. Besides sector "Accommodation and food service activities", the most intensive impact of foreign tourists is recorded for sector "Real estate activities" and sectors "Manufacturing, mining and quarrying and other industries".

Table 4: Percentage of GVA induced by expenditures of foreign tourists, in %

	2010	2011	2012	2013	2014
A	14.3	15.3	16.2	18.2	20.2
B+C+D+E	10.7	10.9	11.3	12.4	12.9
F	1.2	1.3	1.5	1.6	1.7
G+H	12.9	13.7	14.4	15.5	16.1
I	73.4	76.0	78.0	76.5	77.9
J	8.0	8.5	8.9	9.6	10.1
K	7.8	8.4	9.2	10.0	10.2
L	11.6	12.5	13.2	13.8	14.4
M+N	11.6	12.3	12.7	13.2	13.7
O+P+Q	1.9	2.0	2.2	2.3	2.4
R+S+T	23.3	24.8	24.9	26.0	26.3
Total	13.07	13.80	14.60	15.60	16.24

Source: authors' calculations.

If contribution to domestic sectors is analyzed in relative terms (Table 4), it can be concluded that almost 80 percent of GVA generated by domestic producers in accommodation and food services are induced by expenditures of foreign tourists. More than one fourth of GVA in sector "Other service activities" is induced by foreign tourists while for sector "Agriculture, fishing and forestry" the same indicator in 2014 is around 20%. Consumption of foreign tourist induce only limited share of GVA in sector "Construction" and "Public administration and defense, education, human health and social work activities" which are sectors oriented almost exclusively to domestic units. Activity in those sectors which could be attributed to consumption of foreign tourists is primarily related to indirect and induced impact.

Table 5 and Table 6 present the contribution of expenditures of foreign tourists in terms of induced employment. More than 260 thousands of jobs in Croatia or approximately 17 percent in the year 2014 is directly or indirectly related to consumption of foreign tourists, which can be noted from Table 5 and Table 6. As tourism has very seasonal trends (most of expenditures are recorded in summer period), this indicators is getting more important. If Croatian authorities manage to extend tourist season and attract more tourists in periods outside the main summer season, the impact of tourism on employment could be even more pronounced. The largest number of people employed induced by expenditures of foreign tourists except in sector "Accommodation and food service activities" was noted in sector "Wholesale and retail trade, transportation, storage" while the smallest number was noted in sector "Construction" and "Public administration and defense, education, human health and social work activities".

Table 5: Total employment induced by expenditures of foreign tourists, in thousands of people employed

	2010	2011	2012	2013	2014
A	31.36	33.01	28.27	27.75	27.62
B+C+D+E	31.16	30.86	31.51	32.76	34.26
F	1.41	1.48	1.53	1.69	1.74
G+H	53.24	54.54	59.27	55.68	60.89
I	86.02	80.79	81.32	82.82	84.43
J	3.50	3.47	3.26	3.39	4.18
K	3.24	3.75	3.84	3.80	4.20
L	2.16	1.74	2.06	2.30	2.67
M+N	12.84	12.69	12.45	13.08	15.67
O+P+Q	6.40	6.32	6.99	7.88	9.07
R+S+T	14.54	15.52	15.71	17.46	16.13
Total	245.87	244.19	246.22	248.60	260.85

Source: authors' calculations.

The impact of expenditures of foreign tourists on Croatian GVA in real terms is presented in Table 7. Specific deflator for consumption of non-residents on Croatian territory is not available and the official deflator for GVA from annual calculation of GDP is applied both for GVA and expenditures of tourists. In period 2010-2014

Table 6: Percentage of total employment induced by expenditures of foreign tourists, in %

	2010	2011	2012	2013	2014
A	14.6	15.7	16.5	18.8	20.7
B+C+D+E	9.9	9.8	10.3	11.3	11.7
F	1.2	1.3	1.5	1.6	1.7
G+H	14.4	15.4	16.4	16.6	16.9
I	73.4	76.0	78.0	76.5	77.9
J	8.0	8.3	8.7	9.0	9.7
K	10.1	11.5	11.7	12.1	15.2
L	23.4	18.2	25.3	25.6	26.1
M+N	12.0	12.1	12.4	13.0	14.4
O+P+Q	2.1	2.3	2.5	2.6	2.7
R+S+T	22.7	26.0	25.3	27.1	27.8
Total	14.5	15.0	15.6	16.3	16.6

Source: authors' calculations.

Table 7: Impact of expenditures of foreign tourists on Croatian GVA in real terms

	2011	2012	2013	2014
Mil. HRK, in current prices				
Overall GVA for Croatia	285.701	280.297	277.799	277.216
Contribution in GVA of consumption of foreign tourists	39.432	40.928	43.342	45.008
GVA for Croatia without contribution of consumption of foreign tourists	246.268	239.370	234.457	232.208
Price level 2010=100	101.9	103.3	103.5	103.3
Mil. HRK, in constant 2010 prices				
Overall GVA for Croatia, constant	280.383	271.453	268.453	268.438
Contribution in GVA of consumption of foreign tourists	38.698	39.636	41.884	43.583
GVA for Croatia without contribution of consumption of foreign tourists	241.685	231.816	226.569	224.855
Growth rate				
Overall GVA for Croatia	-0.03	-3.19	-1.11	-0.01
Contribution in GVA of consumption of foreign tourists	5.56	2.42	5.67	4.06
GVA for Croatia without contribution of consumption of foreign tourists	-0.87	-4.08	-2.26	-0.76

Source: authors' calculations.

receipts from foreign tourists positively contributed to the rate of growth. Without tourism, Croatian GVA would record approximately 1 percentage point more intense drop in real GVA. Although official figures for annual GDP on sector level which would be convenient for application of input-output method, significant induced impact as calculated for period 2010-2014, together with growing share in GDP (Figure 1) are factors behind conclusion that current expansion of Croatian economy in last two years is in significant proportion induced by receipts form foreign tourists.

CONCLUSION

Croatia is recognised as attractive place which hosts millions of foreign travellers on annual basis and receipt from tourism positively benefit not only accommodation and food service industry, but also all domestic producers directly or indirectly included in tourism value added chain.

While overall economic activity in Croatia recorded negative growth rate in period 2010-2014, expenditures of the foreign tourist were continuously increasing even in the recession period. Tourism therefore significantly reduced the overall negative impact of recession. National accounts data on section level which are necessary for application of input-output method are not officially published for last two years and only quarterly data with minimum sectoral breakdown are available. However, based on trends of receipts recorded in BoP statistics and multiplicative impact induced in previous

period, it can be concluded that recovery of Croatian economy in significant proportion can be attributed to performance of tourism sector.

Besides sector which include hotels and restaurants in which almost 80 percent of activity is directly or indirectly related to consumption of foreign travellers, significant share of economic activities of certain other sectors included in overall value added chain of tourism like transport, trade, food industry and personal services is also related to tourism. Significant multiplicative effects of tourism on Croatian economy are in line with previous research (Jurčić, 1998; Gelo, 2016; Šutalo, Ivandić and Marušić, 2011). The novelty of this research is application of input-output model to recent period and detailed analyses of impact on GVA and employment on the industry level. Impact of tourism on domestic producers which are directly or indirectly included in the overall value added chain should be taken in the consideration in formulating of development strategy of Croatian tourism. Policy measures oriented to more intense cooperation of domestic producers and integration of Croatian tourism cluster could induce even more pronounced multiplicative effects. Investments in tourism capacities and infrastructure could induce not only value added and employment in hospitality sector, but many other domestic sectors as agriculture, food industry, transport, personal and other services will increase their economic activity.

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