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Experiences in the Compilation of Supply and Use and Input-Output Tables in Slovenia: Applications for Tourism Satellite Accounts

Abstract

In the recent years there has been an implementation of tourism satellite accounts methodology for Slovenia. Statistical office cooperated in the project in the field of tourism statistics and national accounts. The system of TSA tables has been installed and reconciled within the national supply and use tables. In the paper there are presented characteristics and results of the compilation and the applications within the national accounts and supply and use tables. There is presented the employment of input - output methods and its results for the calculation of direct and indirect effects of tourism consumption.

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INTRODUCTION

With the compilation of tourism satellite accounts (TSA) it is possible to get a comprehensive picture and analysis of the whole segment of tourism industry in the country which is otherwise not easily to set apart and combine from basic national accounts or other statistical data. National accounts and particularly supply and use and input-output tables provide a database which can be combined with mainly physical indicators data from basic tourism statistics to get a complete set of monetary and physical data on the importance of tourism in the country, its share in the whole economy and with the applications of input-output techniques to calculate the impacts of tourism on the domestic economy.

More and more countries are adopting and implementing the TSA methodology to measure the role of tourism in their economy. To establish the methodology and to calculate the first TSA for Slovenia Ministry of the Economy has launched a project in 2003. The performer and leader of the project was International Tourism Institute. Statistical Office of the Republic of Slovenia (SURS) was a cooperating institution in the project taking part in the providing data and performing of a part of additional calculations of the statistical data from tourism and other relevant statistics and by providing national accounts data and perform the integration of TSA into national accounts and supply and use tables. The results of the project were finished and published at the end of 2004.

In parallel to main TSA there were performed by the same TSA methodology also separated detailed calculations for gambling industry which represents an important part of the Slovenian tourism. The results of these calculations were finished and published in 2006. In the paper there are presented experiences and results of these two projects.

I. METHODOLOGICAL FRAMEWORK OF TSA TABLES

According to the System of National Accounts (SNA) satellite systems expand the analytical capacity of national accounting for selected areas of concern without overburdening or disrupting the central system. The characteristics of satellite systems allow for:

- provision of additional information on particular areas of concern,
- use of complementary or alternative concepts,
- extended coverage of costs and benefits of human activities,
- further analysis of data by means of relevant indicators and aggregates,
- linkage of physical data sources and analysis to the monetary accounting system.

On the one hand, satellite systems are linked with the central framework of national accounts, on the other hand, as they are more specific to a given field or topic, they are also linked to the information system specific to this field or topic. In this way they facilitate analyses of specific fields in the context of macro-economic accounts and analysis. Satellite systems could be established for many fields of analysis, such as

culture, education, health, social protection, tourism, environmental protection, research and development.

SNA proposes that the analysis of supply and use of specific goods and services may be inserted in an input-output framework. Characteristic producers, characteristic products and connected goods and services, which are related to the specific subject of the satellite system, are detailed, while classifications of other producers and products are compacted. This allows an application of input-output modelling in studying a specific industry.

Tourism is an industry which cannot be immediately identified in input-output tables or in national accounts which are being constructed at the certain level of standard international classifications (NACE, ISIC). However, this industry can be formed by aggregating different economic activities which serve it directly.

Tourism is an important and fast growing industry, but it is because of the fact that it comprises products of more industries in many countries not adequately and comprehensively statistically observed. Recognizing this fact WTO, OECD and EUROSTAT undertook a work to develop a comprehensive methodology and guidelines for monitoring monetary flows and economic significance of tourism – Tourism Satellite Accounts (TSA) – which compilation already commenced large number of countries and are a recommended methodology for all EU member countries.

TSA are based and aligned with the concepts of the System of National Accounts (SNA) what enables consistency and comparability of the results within the domestic economy and internationally. In this way, considering same concepts, definitions and classifications which are used in national accounts, it is possible to adequately measure the contribution of tourism to gross domestic product (GDP) and to enable consistent comparison with other economic activities within national accounts.

TSA is a system of 10 tables derived from supply and use tables. There are same concepts, only there are some differences in the treatment by products in TSA regarding SNA tables which have to be considered (e.g. net treatment of package tours in TSA compared to gross treatment in national accounts). Minimum requirement for the system of TSA for the country to exist is the compilation of tables 1-6 and 10. With these there is a detailed presentation of supply and consumption of tourism in monetary and physical terms, of activities which supply tourism products as well as of main TSA aggregates – internal tourism consumption, internal tourism data in physical units, value added of tourism industry, total tourism value added and tourism GDP.

II. COMPILATION OF TSA FOR SLOVENIA

There are some characteristics of Slovenian tourism which make statistics many problems in the measurement of tourism flows. Slovenian tourism supply is heterogeneous (seaside, alpine, spa & wellness, cities) and it is a whole year activity, not only seasonal. There are some specific tourism products (casinos with mainly daily

visitors predominantly from abroad; tax and duty free shops and other trade activities along the border areas). Slovenia is geographically small and easy to reach by cars what enables many daily visits from border countries, also because of price competitiveness in catering and trade. It is also a transit country with a large number of border crossings per year. Slovenians travel a lot, were a major destination is neighbour Croatia, and also make many daily excursions. All these issues make the complete statistical coverage of tourism very difficult.

Statistical Office of the Republic of Slovenia (SURS) is since many years well covering physical tourist flows and it has also regular surveys on tourist consumption of foreign and from 2000 on also on domestic tourists. But because of specifics of Slovenian tourism and with a large segment of daily and transit tourist there remains also a segment of uncovered flows. The expected benefit of the implementation of TSA was to achieve a complete coverage of all flows and to implement a systematic and comparable measurement of monetary flows which was until then not sufficient.

In the TSA compilation there was a separate data collection and calculation for the demand side and for the supply side. For the demand side data was partly achieved from regular official statistical data of SURS, partly from additional secondary sources and partly improved and supplemented by data from additionally carried out ad-hoc surveys. For the supply side national accounts data were used.

Official statistical surveys of SURS which were used for the demand side comprise following surveys from tourism statistics: Report on arrivals and overnight stays of

tourists, Survey on tourism travels of domestic tourists, Report on the visitors of tourist sites, casinos and swimming pools, Report on capacities and traffic in tourism ports, Report on travel agencies, Survey on foreign tourists in summer season. Additionally there were used surveys from other connected statistics: surveys of hotels and restaurants activity, of culture homes, of zoological gardens and aquariums, of museums, of cultural societies, of galleries, of transport. For all these activities data on physical flows were combined with data on average consumption of individual segments of tourist to calculate consumption of tourists in these areas.

Additional data, which are not covered by regular official statistics, were gathered from other available official evidences or from data of tourism, sporting or other societies and for some segments ad-hoc surveys were prepared. Here there was an advantage that Slovenia is a geographically small country and this data was therefore easier to collect. The areas covered with additional sources were: mountain huts, tourist farms and wine shops, secondary homes (holiday's buildings), health resorts, gambling industries, ski resorts, duty-free shops, other shopping, daily excursions, natural and cultural sites, pilgrimage places, attendance of performances, consumption of transit travellers.

For the production side and for the employment data were achieved from national accounts databases for supply and use tables. There were used data on production, intermediate consumption and value added and its components by detailed NACE/CPA classification of activities and products. By the use of TSA methodological recommendations there was constructed a list of tourism specific (tourism characteristic and tourism connected) and tourism non-specific products and services for Slovenia,

which was connected to CPA classification for products and to NACE classification of activities. First, there were defined broad factors of connection with tourism for all these activities upon experiences and knowledge on the tourism in Slovenia, upon up-to-then existing analyses of Slovenian tourism and of companies in tourism and non-tourism municipalities and upon studies and expert experiences in other countries. This resulted in first supply-based estimates. During the course of study these supply based estimates and connection factors were changed upon the comparison with the calculated estimates of tourism consumption and this resulted in the final estimation of tourism supply and consumption and connection factors of all activities with tourism. Upon these there were calculated aggregates of tourism production, intermediate consumption, value added and its components, tourism GDP and on employment in tourism.

III. RESULTS – ECONOMIC DATA ON TOURISM FOR SLOVENIA

As a part of TSA there were calculated direct economic effects of tourism which are a result of engaging in the production of tourism goods and services and additionally, with the application of input-output multipliers, indirect effects of tourism demand which it has on the domestic economy. Estimates were prepared for the year 2000 for which there were at the time of the project available complete national accounts data with supply and use and a symmetric input-output table and for this year SURS also started with a regular survey on travels of domestic tourists as well as it has carried out the survey on foreign tourists which is carried out every three years.

- **DIRECT EFFECTS**

According to the TSA methodology there were prepared TSA tables 1, 2, 4, 5 and 6 on categories of tourism consumption and supply and on production accounts, table 7 on employment and partially table 10 on non-monetary indicators. There were set foundations for the production of tourism gross fixed capital formation and tourism collective consumption tables which will in the next phase enable to compile a complete TSA system.

In TSA tables 1, 2 and 4 there are values of individual categories of tourism consumption (inbound, domestic, internal), specified by products and categories of visitors (same days visitors, tourists). The main category which represents total tourism consumption on the domestic territory is internal tourism consumption and it is presented in TSA table 4. It is the sum of inbound tourism consumption (consumption of international receptive tourism, i.e. consumption of foreign tourist in the country) and domestic tourism consumption (i.e. domestic tourists' consumption within the country). TSA table 4 for Slovenia is presented in *Table 1*. Total internal tourism consumption in Slovenia for the year 2000 was 329.453 Mio SIT. In the total internal tourism consumption 67,1 % was the consumption of foreign tourists and 32,9 % was the consumption of domestic tourists.

Table 1: Internal tourism consumption, Slovenia, 2000, Mio SIT (Slovenian Tolars)

	Consumption of international receptive tourism		**Domestic tourism consumption**		**Internal tourism consumption**
	(1)		(2)		(3)=(1)+(2)
		%		%	
Tourism specific products	**157.400**	**63,5**	**90.280**	**36,5**	**247.680**
Tourism characteristic products	**155.233**	**63,5**	**89.130**	**36,5**	**244.354**
1. Accommodation services	33.273	69,3	14.709	30,7	47.982
1.1 Hotels and other lodging services	31.298	72,6	11.830	27,4	43.128
1.2 Additional lodging services	1.975	40,7	2.879	59,3	4.854
2. Food and beverage serving services	53.384	70,4	22.446	29,6	75.830
3. Passenger transport services	14.777	64,0	8.324	36,0	23.101
4. Travel agency, tour operator and tourist guide services	905	4,2	20.418	95,8	21.323
5. Cultural services	4.165	44,1	5.274	55,9	9.439
6. Recreation and other entertainment	7.058	36,0	12.535	64,0	19.594
7. Gambling	41.080	89,8	4.642	10,2	45.722
8. Miscellaneous tourism services	581	42,6	782	57,4	1.363
Tourism connected products	**2.176**	**65,4**	**1.150**	**34,6**	**3.326**
Tourism non-specific products	**63.729**	**77,9**	**18.044**	**22,1**	**81.773**
Total tourism products	**221.129**	**67,1**	**108.324**	**32,9**	**329.453**
Number of overnight stays					**10.484.890**

Source: Implementation of Tourism Satellite Accounts (TSA) in Slovenia (2004)

The economic importance and position of tourism in the domestic economy is seen from the TSA tables 5 and 6. In the TSA table 5 there are presented production accounts and generation of income accounts of tourism and other industries and in TSA table 6 this is extended with the presentation of total domestic supply and its relation towards the internal tourism consumption what results in the calculation of the tourism ratio on supply. Tourism ratio on supply by products is applied to relevant producing industries to receive shares and values of tourism production and of other aggregates, including tourism value added. TSA Tables 5 and 6 for Slovenia are calculated with the data from supply and use tables and are presented in the *Appendix*.

Total tourism value added in the year 2000 for Slovenia was 136.985 Mio SIT what represented 3,75 % share in the total value added of the economy. Characteristic tourism industries created 74% of this amount; the rest was created by tourism connected or tourism non-specific activities. By the addition of taxes less subsidies on products which pertain to tourism products it was calculated tourism GDP. It amounted to 161.613 Mio SIT what represented 3,83 % share in total GDP. Data are presented in *Table 2*.

Tourism ratios on supply are ranging from 1 for tourist agencies and tour operators services and gambling activities, which are totally used only for tourism, to the lowest 0,007 in non-specific products. It is so low because here are included all other activities in the economy. Results are presented in *Table 3*.

Table 2: Tourism value added by activities, Slovenia, Mio SIT

Activity	**Total value added of activity**		**Tourism value added**	
	Mio SIT	%	Mio SIT	%
Tourism specific industries	**227.124**	**6,22**	**103.075**	**75,25**
Tourism characteristic industries	**216.358**	**5,92**	**101.403**	**74,02**
1. Accommodation services	30.395	14,05	24.009	23,68
2. Food and beverage serving services	57.187	26,43	23.213	22,89
3. Passenger transport services	48.703	22,51	8.334	8,22
4. Travel agency, tour operator and tourist guide services	11.669	5,39	7.682	7,58
5. Cultural services	18.634	8,61	5.087	5,02
6. Recreation and other entertainment	17.492	8,08	8.028	7,92
7. Gambling	25.401	11,74	24.472	24,13
8. Miscellaneous tourism services	6.878	3,18	578	0,57
Tourism connected industries	**10.766**	**0,92**	**1.672**	**1,22**
Tourism non-specific industries	**3.425.553**	**93,78**	**33.910**	**24,75**
Total value added	**3.652.677**	**100**	**136.985**	**100**
Share of tourism in the economy:				
Tourism value added	**3.652.677**	**100**	**136.985**	**3,75**
Tourism GDP	**4.222.111**	**100**	**161.613**	**3,83**
Tourism value added without business trips	**3.652.677**	**100**	**135.625**	**3,71**
Tourism BDP without business trips	**4.222.111**	**100**	**160.252**	**3,80**

Source: Implementation of Tourism Satellite Accounts (TSA) in Slovenia (2004)

Table 3: Tourism ratios on supply, Slovenia, 2000, Mio SIT (Slovenian Tolars)

	Total output of domestic producers (basic pr.)	**Total domestic supply (purchasers' pr.)**	**Internal tourism consumption**	**Tourism ratio on supply**
Tourism specific products	**508.439**	**560.378**	**247.680**	**0,442**
Tourism characteristic products	**487.325**	**538.960**	**244.354**	**0,453**
1. Accommodation services	49.526	53.100	47.982	0,904
1.1 Hotels and other lodging services	44.672	48.246	43.128	0,894
1.2 Additional lodging services	4.854	4.854	4.854	1,000
2. Food and beverage serving services	163.224	183.281	75.830	0,414
3. Passenger transport services	129.662	143.262	23.101	0,161
4. Travel agency, tour operator and tourist guide services	19.716	21.323	21.323	1,000
5. Cultural services	31.179	34.064	9.439	0,277
6. Recreation and other entertainment	39.529	42.454	19.594	0,462
7. Gambling	39.779	45.722	45.722	1,000
8. Miscellaneous tourism services	14.710	15.753	1.363	0,087
Tourism connected products	**21.114**	**21.418**	**3.326**	**0,155**
Tourism non-specific products	**8.180.154**	**11.132.204**	**81.773**	**0,007**
Total tourism products	**8.688.593**	**11.692.582**	**329.453**	**0,028**

Source: Implementation of Tourism Satellite Accounts (TSA) in Slovenia (2004)

- **INDIRECT EFFECTS**

To take into account additional effects of tourism which it has on the production and value added creation of the economy there were calculated total (direct and indirect) effects by applying input-output multipliers. To perform the calculation national input-output table was extended for detailed tourism products. The calculation has been performed using adjusted tourism consumption excluding business trips. Business trips are a part of tourism consumption in TSA but a part of intermediate consumption in national accounts and are therefore not included by the calculation of indirect effects. By calculating direct and indirect effects it was found out that tourism demand produced for the year 2000 total value added of 200.738 Mio sit what represented 5,5 % of the value added of the total economy. The multiplier of value added was consequently 1,480.

IV. SPECIAL TOURISM SATELLITE ACCOUNTS FOR GAMBLING INDUSTRY

In parallel to the preparation of TSA data was being prepared and work was going on to compile also separate more detailed TSA for gambling industry. This application of TSA for special tourism industry was upon our knowledge not yet done in any country. The accounts were prepared for the years 2000 and 2003 and were finished and published in 2006. Gambling industry represents an important part of Slovenian tourism

and of exports and it contributes an important value of taxes to the budget. There are opportunities and plans to extend and to further invest in these activities, but there are also concerns about their social side effects. Therefore, there was an interest to calculate extensively and comparably economic direct and indirect effects of this activity. For the calculation detailed data on the number of visitors, visitors' consumption, structure of output, costs and taxes paid and on investments was received directly from casinos and from the governmental office for the coordination and supervision of games of chance (UNPIS). With the coordination of these data with national accounts and supply and use tables data it was possible to compile entire detailed production and generation of income accounts for gambling industry and to prepare all TSA tables as for the main tourism accounts.

- **DIRECT EFFECTS**

Upon our calculations total gambling consumption at purchasers' prices in Slovenia in the year 2000 amounted to 49.137 Mio sit what has represented 14,9 % of the total internal tourism consumption. Total gambling output at basic prices was 42.731 Mio sit what represented 15,0 % of total tourism output. Total generated value added of gambling industry was 29.443 Mio sit, what was 21,7 % of the total tourism value added. Gambling industry represented in that year 0,3 % of output and 0,8 % of value added of the whole economy. Gambling products are highly taxed and therefore a special analysis was done to get comprehensive data on the total amount of taxes paid in this industry. Taxes paid consist of special concessionary tax (classified to other taxes on production), special taxes on gambling products (classified to taxes on products),

income taxes and input VAT. Gambling is a VAT exempted product and therefore input VAT on intermediate consumption and investments cannot be deducted. In the year 2000 all taxes paid in gambling amounted to 18.688 Mio sit what has represented 2 % of all tax revenue. Most visitors of casinos are foreign tourist and therefore 88 % of gambling is export. Summing up these facts it is seen that gambling is an industry with high value added ratio to output, high export share and with high tax burden. More results are presented in *Table 4*. Complete TSA tables 6 for gambling industry for the year 2000 and 2003 are presented in the Appendix.

- **INDIRECT EFFECTS**

By the extension of national input-output table with additional details for gambling products it was by the use of input-output multipliers possible to calculate direct and indirect effects of gambling demand on the national economy. In the year 2000 calculated total value added (direct and indirect effects) amounted to 37.247 Mio sit, what makes the multiplier of value added 1,265. The multiplier is lower than for total tourism demand because of higher share of value added in gambling industry.

To take into account also other effects of gambling industry there were for 2003 calculated additionally induced effects which are triggered by final consumption from wages and salaries and investments in gambling industry. By taking into account direct, indirect and induced effects the multiplier of value added amounted to 1,432.

For gambling it is specific a higher rate of taxation compared to other industries, since there is also a high concessionary tax. There are different opinions in Slovenia on the question if it is better that this amount is invested by general government and municipalities, who are legitimate to this amount, or it will be economically better that this amount is invested directly by gambling industry firms. There were calculated effects of these potential investments of this amount in the gambling industry. The total multiplier of value added has by taking into account also these effects risen to 2,046. Results of the calculations of direct, indirect, induced and potential effects are presented in *Table 5*.

Table 4: Direct economic effects of gambling tourism, Slovenia

Year 2000:	
Gambling consumption, purchasers' prices, Mio SIT	49.137
Share of gambling in internal tourism consumption, %	14,9
Gambling output, basic prices Mio SIT	42.731
Share of gambling output in tourism output, %	15,0
Gambling value added, Mio SIT	29.443
Share of gambling value added in tourism value added, %	21,7
Share of gambling value added in total value added, %	0,81
Gambling GDP, Mio SIT	35.849
Share of gambling GDP in tourism GDP, %	22,4
Share of gambling GDP in total GDP, %	0,85
Exports of gambling, Mio SIT	43.241
Share of exports in gambling consumption, %	88,0
Share of gambling exports in tourism exports, %	19,6
Taxes, paid in gambling, Mio SIT	18.688
Share of taxes paid in gambling in the total tax revenue, %	2,0
Year 2003:	
Gambling consumption, purchasers' prices, Mio SIT	62.562
Gambling output, basic prices Mio SIT	52.266
Gambling value added, Mio SIT	38.980
Share of gambling value added in total value added, %	0,78
Gambling GDP, Mio SIT	49.275
Share of gambling GDP in total GDP, %	0,86
Exports of gambling, Mio SIT	52.177
Share of exports in gambling consumption, %	83,4
Taxes, paid in gambling, Mio SIT	26.404
Share of taxes paid in gambling in the total tax revenue, %	2,1

Source: Integral Calculation of Economic Effects of Gambling in Slovenia (2006)

Table 5: Extended economic effects of gambling tourism, Slovenia

Year 2000:	
Gambling value added, direct effects, Mio SIT	29.443
Calculation with input-output multipliers:	
Gambling value added, direct and indirect effects, Mio SIT	37.247
Value added multiplier I	1,265
Year 2003:	
Gambling value added, direct effects, Mio SIT	38.980
Calculation with input-output multipliers:	
Gambling value added, direct and indirect effects, Mio SIT	49.414
Value added multiplier I	1,267
Induced increase of value added in the economy because of final consumption of employees in gambling from wages and salaries, Mio SIT	4.035
Induced increase of value added in the economy in year concerned because of investments in gambling, Mio SIT	2.367
Gambling value added, direct, indirect and induced effects, Mio SIT	55.816
Value added multiplier II	1,432
Potential yearly increase of value added because of investment in the amount of concessionary tax, Mio SIT	18.620
Potential increase of value added in the economy because of induced effects of these investments, Mio SIT	3.400
Potential increase of value added in the economy because of induced effects of additional final consumption of employees in gambling because of increase in wages (or new employment), Mio SIT	1.899
Gambling value added, direct, indirect, induced and potential investment effects, Mio SIT	79.736
Value added multiplier III	2,046

Source: Integral Calculation of Economic Effects of Gambling in Slovenia (2006)

V. CONCLUSIONS

Preparation of the first TSA was an important contribution to the comprehensive assessment of the economic importance of tourism in Slovenia. By this there were taken into account all activities which are contributing to the tourism in the country and thus the analysis was not only limited to the standard tourism industries (HORECA + TA). Within the project it was carried out also a detailed analysis and a preparation of special TSA for gambling industry which plays an important role in the Slovenian tourism. Within the project there were besides direct effects additionally calculated also indirect effects of tourism consumption and separately of gambling consumption using input-output methods. Slovenia has decided to accelerated develop tourism and it is one of the priorities of the current economic strategy. Because of this, governmental bodies and expert economic society is interested in the analysis of total economic effects of tourism and in regular compilation of TSA. This year a new project on updating the TSA to the years 2003 and 2005 has been launched and Slovenian statistical office will be a cooperating institution. In few years time this task is planned to become one of the regular tasks of the Slovenian statistical office.

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