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EMPIRICAL ASSESSMENT OF TOURISM-GENERATED EMPLOYMENT: CONCEPTS AND CHALLENGES

ABSTRACT

Purpose: This paper aims to examine the important concepts and challenges emerging from an assessment of the employment generated by tourism activity.

Methodology: Standard methodology for the compilation of the tourism satellite account is used. The case study is Croatia, a small European country whose economy is immensely driven by tourism, thereby representing a particularly suitable research example.

Results: The paper reports and discusses all practical issues related to the process of assessment and measurement of tourism-generated employment in a small tourism-driven economy.

Conclusion: The assessment of tourism-generated employment is far from being analyzed and documented as thoroughly as the assessment of tourism-generated GDP. A common impression is that researchers have hitherto been too busy measuring tourism-generated GDP, thereby paying insufficient attention to the most important manifestation of GDP creation - employment. Therefore, this paper aims to fill, at least partially, this huge gap in the current literature.

Keywords: Tourism, employment, tourism satellite account, EU, Croatia

1. Introduction

Tourism could stimulate local economies. Since tourism is mostly labor-intensive, employment is considered a key variable for the description of its economic impact. Nevertheless, tourism-generated employment has hitherto been one of the least studied phenomena in tourism economics literature because the assessment of tourism-generated employment is a particularly complex task. Compared

to other industries such as agriculture and manufacturing, tourism is not an industry in the traditional sense and has not been defined as a separate sector within the national accounts. Since it is not an unambiguous sector directly observed in the official statistics but a collection of complementary industries providing goods and services to visitors, standard definitions and classifications are not readily applicable to tourism and consequently to tourism-generated employment. Measurement dif-

difficulties also arise from the specific characteristics of tourism-generated employment. High seasonality, a huge proportion of part-time jobs, and low-paid labor represent just some of the many specificities related to tourism-generated employment.

From a statistical point of view, the data on tourism-generated employment are quite fragmented and lack credibility (UNWTO & ILO, 2014). A wide range of concepts and definitions, different methods and data sources often lead to different estimations, lacking international comparability (Heerschap, 1999; Johnson & Thomas, 1990; Ladkin, 2011). Regarding the applied analytical methods, tourism is a two-sided phenomenon that can be approached from the demand-side and supply-side perspective. When calculating the level of tourism-generated employment, demand-side and supply-side approaches may result in major differences.

The demand-side approach concentrates on the activities of visitors and their consumption of goods and services (UNWTO & ILO, 2014). Therefore, it cannot be used to get an insight into the structure of employment (Heerschap, 1999). It is usually based on the data on tourist expenditures and labor coefficients. The key methodological issue of its appliance lies in the appropriate conversion of the expenditure to the employment figures (Johnson & Thomas, 1990). On the other hand, the supply-side approach is industry-oriented and considers tourism as a set of productive activities that serve visitors (United Nations & UNWTO, 2010). This approach estimates the level of tourism-generated employment by calculating the tourism ratio or the share of total employment in a set of selected industries that can be attributed to tourism (Heerschap, 1999). The main issue is the selection of industries that should be included (Johnson & Thomas, 1990; Glyptou et al., 2014).

Since it is obvious even from a brief inquiry that there is a lot of fuzziness and complexity in the field, this paper aims to report all practical issues emerging from the process of assessment and measurement of tourism-generated employment. In this regard, we have analyzed the case of Croatia, a small European country whose economy is heavily dependent on tourism.

The rest of the paper is organized as follows. The next section presents a review of existing literature with a special focus on the most important concepts in the field. This is followed by the central part

of the paper presenting the practice of tourism-generated employment measurement in the European Union together with the case study of Croatia as a detailed example of the practice in an EU member state. The paper ends with concluding remarks containing a brief discussion of the main findings.

2. A review of conceptual measures assessing tourism-generated employment

Tourism-generated employment can be measured through a set of complementary indicators – the number of people employed, the number of jobs, and the number of full-time equivalent jobs (United Nations et al., 2010; Heerschap, 2018; Koens & Wood, 2017). Since tourism is characterized by a high proportion of part-time jobs, the indicator of full-time equivalent jobs is important for more meaningful comparisons of the size of employment generated by tourism in different destinations (United Nations et al., 2010; Heerschap, 2018). It is calculated by converting all hours worked by persons employed part-time into full-time jobs. While the data on the number of jobs or people employed are relevant to microeconomic policy, the data on the number of full-time equivalent jobs are relevant in macroeconomic governance (Leiper, 1999).

Two conceptual measures, yielding rather different perspectives, can be employed in the process of assessing and measuring tourism-generated employment. The first concept is 'tourism employment' and the second is 'employment in the tourism industries'. The concept of 'tourism employment' implies employment in the production of all goods and services consumed by visitors. These goods and services are produced by either tourism-characteristic industries or other industries within a national economy (United Nations & UNWTO, 2010). In other words, tourism employment measures the number of jobs directly attributable to tourism demand (UNWTO & ILO, 2014). On the other hand, 'employment in the tourism industries' refers to all jobs providing both tourism-characteristic and non-tourism-characteristic services in all establishments in tourism industries (UNWTO & ILO, 2014). All establishments that serve visitors directly and would likely cease to exist in the absence of tourism activity are classified as the tourism-characteristic industry (UNWTO & ILO, 2014).

Tourism-generated employment may take direct, indirect or induced forms, thereby further complicating the assessment of employment impacts of tourism. The figures on direct tourism-generated

employment include those employed in tourism-characteristic industries that provide services directly to visitors, such as travel agencies, tour operators, and accommodation providers (UNWTO & ILO, 2014). The total output of a tourism-characteristic industry usually exceeds consumption by visitors, as part thereof is consumed by non-visitors. The levels of employment generated by tourism should be therefore estimated by using the tourism ratio allocator, which relies on the assumption that the employment generated by tourism in each industry is in direct proportion to the value-added generated by tourism (UNWTO & ILO, 2014).

Indirect employment is generated by the supply chain of other industries which provide inputs to the tourism-characteristic industry, such as agriculture and transportation industries (UNWTO & ILO, 2014). It can be estimated from the national accounts, which enable an insight into the relationships between different industries of a national economy and calculation of the tourism multiplier to determine which part of the employment corresponds to tourism consumption (Heerschap, 2018). When calculating multiplier effects, it is important to adjust for non-touristic sources of demand which generate employment, since in some industries only a part of the employment can be assigned to the consumption of visitors (Koens & Wood, 2017; Heerschap, 2018).

Finally, employment is also generated by the consumption of people who are directly or indirectly employed by the tourism industry, and whose spending stimulates the growth of employment in other areas. This is called induced employment. A comprehensive analysis of the total employment impacts of tourism should therefore include direct, indirect and induced effects (United Nations et al., 2010).

Only a limited number of countries produce meaningful data on tourism-generated employment (UNWTO & ILO, 2008; Chernyshev, 2009). National methods of data collection were often insufficient and inappropriate for accurate measurement (Ladkin, 2011). When collecting employment and other data, countries usually adopt a form of standard industrial classification, such as the International Standard Industrial Classification of All Economic Activities used by United Nations International Labour Organization (ILO), NACE - Statistical classification of economic activities in the European Community used by Eurostat (European Commission and EUROSTAT, 2008), or the North American Industry Classification System.

Analysis of tourism-generated employment necessarily includes more than one statistical source, and hence the integration of data from different sources measuring various dimensions of tourism-generated employment is preferable (UNWTO & ILO, 2014). The major data sources on employment are establishment-based sample surveys, population census and household labor force surveys (United Nations & UNWTO, 2010).

Preferable methodological frameworks for data integration are the Tourism Satellite Account (TSA: RMF 2008), the OECD Employment Module, and the International Recommendations for Tourism Statistics 2008 (IRTS 2008). It is also worth mentioning the European system of national and regional accounts 2010 (ESA 2010), which is especially important for the EU member states.

The most popular methodological framework for estimating the impacts of tourism on the overall economy is the TSA: RMF 2008, which provides a detailed analysis of production units in different industries that provide goods and services consumed by visitors (United Nations et al., 2010). It identifies the supply of goods and services consumed by visitors and describes how the supply of such goods and services interacts with other economic activities (UNWTO & ILO, 2014; Meis, 2014). Table 7 in the TSA: RMF 2008 analyzes employment in the tourism-characteristic industries in terms of the number of jobs, hours of work and full-time equivalent jobs, by status in employment. Before the development of the TSA, it was not possible to determine an aggregate measure of employment in tourism-characteristic industries comparable with other industries or the overall economy (Martin, 2013). TSA is, however, focused on the economic side of employment, and neglects the social dimension of tourism employment, such as working conditions (Martin, 2013; United Nations & UNWTO, 2010). To address the shortcomings of the TSA, additional tools (for instance, the OECD Employment Module) and techniques (for instance, General Equilibrium Model) can be applied (Glyptou et al., 2014; Dwyer & Forsyth, 1998).

The challenges of deriving meaningful figures on tourism-generated employment also arise due to various particularities of tourism, such as high seasonality, a high proportion of informal labor, high variability in the working conditions and high labor turnover (Briassoulis, 1991; Gartner & Cukier, 2012; United Nations et al., 2010; Heerschap, 1999). Furthermore, tourism-generated employment should not be viewed just as a production factor, but also as

a social phenomenon, i.e., socio-demographic characteristics of persons employed, working conditions, etc. (United Nations & UNWTO, 2010). In this regard, the OECD Employment Module represents a convenient methodological framework for measuring the level and some characteristics of employment (e.g., socio-demographic characteristics) generated by tourism activity (OECD, 2000). It is focused on a supply-side perspective, measuring only the employment in a set of selected tourism-characteristic industries (UNWTO & ILO, 2014) and serves as a complementary tool to the TSA: RMF 2008.

A brief literature review of the current state of concepts and general practices regarding the measurement of the tourism-generated employment can demonstrate the complexity of the topic, suffering from deficiencies driven by conceptual ambiguities, data unavailability, analytical capacity needs and the lack of cross-country comparability. With the new trends in the tourism business, the state of tourism employment will certainly change. Advanced digitalization will make some human tasks redundant, but it should also introduce new jobs that will require different classifications. These developments emphasize the importance of comprehensive and standardized monitoring of tourism-generated employment.

3. Assessing tourism-generated employment in the EU

Despite the internationally harmonized framework for the measurement of tourism-generated employment, data at the national and international levels in the European Union still lack quality and comparability. Their relevance for conducting economic and tourism policy is questionable, while the characteristics of primary sources also require special attention. Such a conclusion is supported by the analysis of the development of tourism satellite account implementation in the EU (European Parliament & Council of the European Union, 2011).

Based on a survey of 24 EU member states and the United Kingdom, Norway and Switzerland, it could be concluded that the harmonization of national methodologies has not yet been achieved (EUROSTAT, 2019). In the segment of employment, this survey focused on the compilation of four indicators of employment in tourism industries: 'number of jobs,' 'number of hours worked,' 'number of full-time equivalent jobs' and 'number of people employed.' The information gathered showed that

none of the surveyed countries provided data for all four indicators of tourism-generated employment, and data coverage varies across countries. The data on the number of full-time equivalent jobs have been submitted by 18 countries, the data on the number of jobs by 15 countries, the data on the number of people employed by 8 countries, and the data on the number of hours worked by 7 countries.

The level of the compilation of all required employment indicators across the whole set of analyzed countries reached 46% (58 indicators were transmitted out of a maximum of 108 indicators or 4 indicators for 27 countries), which is much lower than for other tourism satellite account indicators. For instance, 86% of indicators of total domestic supply and internal tourism as well as 95% of indicators of internal tourism consumption and 100% of indicators of production have been submitted by the analyzed countries.

The compilation of employment data within the tourism satellite account framework usually requires the use of a wide range of sources, including labor demand sources such as establishment-based data, labor supply sources such as labor force surveys, and administrative sources such as employment office registers or tax and social security records. The practice across the EU countries singled out the labor force survey as the most relevant data source. It is used by 10 reporting countries as the primary source of data and by five countries as an auxiliary source. Business statistics that are based upon data on enterprise establishments are used by 12 countries, 5 of which use them as the primary source and 7 as an auxiliary source. Supply-use tables, such as the input-output table, and other national accounts data are the primary source of data in 13 countries and an auxiliary source in 3 countries. All other sources, including surveys of tourism service providers and administrative data, have been used by 10 countries, 4 of which use them as a primary source.

4. Sources and indicators used in assessing tourism-generated employment in Croatia

Being a small Mediterranean country with a total population below 4 million, Croatia has experienced a significant restructuring of the national economy in the last 30 years, which is to some extent the consequence of the War of Independence 1991 - 1995. As of today, tourism accounts for more than 15% of Croatian GDP, thereby making Croatia a particularly suitable case study for the analysis of

different kinds of tourism impact on economic and non-economic phenomena.

After more than a decade of development, in 2019, the tourist satellite account became an integral part of official Croatian statistics (Croatian Bureau of Statistics, 2019b). It includes data on internal tourism expenditures and consumption as well as the output of tourism industries. Employment data for Croatian tourism-characteristic industries were compiled on a preliminary basis focusing on the key features of available data sources and their compliance with the requirements of the *TSA: RMF 2008*. The reference year is 2016.

Adjustments related to the classification of products and tourist activities have been conducted due to the lack of relevant data from statistical sources. Culture, recreation, and sports services were aggregated into one tourism-characteristic industry. In order to increase the understanding of the specificities of Croatian tourism, retail trade has been added to the 'standard' list of internationally comparable tourism-characteristic products and activities. It was done because shopping expenditures make up to 15% of average daily expenditures of tourists in Croatia (Institute for Tourism, 2018).

Given common practice of using multiple sources to compile employment data in Croatia (Croatian Bureau of Statistics, 2019a), the first step was to assess the compliance of available sources with the *TSA: RMF 2008*. This informed our choice of measuring employment as employment in the tourism industries, with a focus on the number of jobs and hours worked as indicators of the size of employment and intensity of labor force utilization (United Nations et al., 2010). The data sources are divided into three groups: (i) administrative data sources, (ii) statistical sources related to the demand for labor, and (iii) statistical sources related to the supply of labor.

Administrative data sources include:

- **Tax Administration**

The data are compiled through the income tax form. Filing and submitting this form to the Tax Administration is compulsory for income payers. The collected data are used by the Croatian Bureau of Statistics for the calculation of the number of persons employed in legal entities. The data are published in a monthly publication at the level of the sections and divisions of the Croatian National Classification of Activities, which is harmonized with NACE - Sta-

tistical classification of economic activities in the European Community. Data source weaknesses are related to the problem of compliance of data with the data from other sources and the problem of collecting data according to the prevailing activity of legal entity and not on the level of its establishments.

- **Register of Annual Financial Reports**

The creation of annual financial reports and their submission to the Register of Annual Financial Reports [hereinafter referred to as "RAFR"] is compulsory for all legal entities and natural persons that pay the profit tax. The reports include data on the average number of employees and the number of employees based on hours worked according to prevailing activities of the legal entity. The RAFR is organized as an e-book from which data can be easily accessed (FINA, 2020). Data source drawbacks are related to the problem of compliance with data from other sources as well as to the problem of collecting data according to the prevailing activity of a legal entity and not at the level of its establishments. Data are accessible at any needed level of the Croatian National Classification of Activities 2007 [hereinafter referred to as "NKD 2007"] (Government of the Republic of Croatia, 2007). However, the database does not contain data on gender and employment status of employees and the self-employed and does not allow access by different periods of the year, which would be useful due to the problem of high seasonality of tourism in Croatia.

- **Croatian Pension Insurance Institute**

This source contains data on pension insurance beneficiaries in trades and freelancers by economic activities. The data are processed and published by the Croatian Bureau of Statistics in a quarterly publication including the number of persons employed presented at the level of the sections of the Croatian National Classification of Activities presented by gender (Croatian Bureau of Statistics, 2017a). The data source weakness, in addition to the issue of questionable data compliance with the data from other data sources, arises from an inadequate level of disaggregation by economic activities.

Statistical sources related to the demand for labor:

- **Annual survey of employment in all legal entities**

The survey is conducted and processed by the Croatian Bureau of Statistics and it includes data on the number of persons employed in accordance with the type of employment status, gender, age and educational attainment level on March 31 each year. The results of this survey are published in a yearly publication that includes data on employment by sections and divisions of the Croatian National Classification of Activities (Croatian Bureau of Statistics, 2017b). The data source weakness comes from the time horizon of data and the overall limitation to legal entities.

Statistical sources related to the supply of labor:

- **Labor Force Survey**

The survey is carried out throughout the year by the Croatian Bureau of Statistics on a sample of households. The results are published in a yearly publication, including quarterly data on the number of employees, the self-employed, temporary employees, part-time employees and average usual weekly working hours by the NKD 2007 sections. The applied methodological framework allows data processing at the division level as well. The time horizon and coverage of data comply with the requirements of the TSA: RMF 2008. Thus, the Labor Force Survey can be considered the best available source for the compilation of employment data in tourism-characteristic industries. However, the sections and divisions of the NKD 2007 are not fully compatible with the definition of the tourism-characteristic industries, and the quality of this source is also limited due to insufficient accuracy of the data at the quarterly level (Croatian Bureau of Statistics, 2018). There is also an issue regarding the suitability of the research methodology used for the measurement of employment in the cases of the sharing economy. This is especially important for destinations where renting one's own housing facilities as short-term tourist accommodation is rapidly growing.

Given the limitations of available sources, especially their relevance and accuracy, the compilation of employment data for Croatian tourism-characteris-

tic industries is based on a combination of different sources of official statistical data. To minimize the negative effects of combining data from the sources applying different methodological standards, the number of sources used was minimized. Furthermore, it was necessary to adjust the list of tourism-characteristic industries as well as the list of the compiled employment variables. Corrections were made to the list of tourism-characteristic industries in the segment of country-specific tourism industries, as they assume availability of data at a higher level of industry disaggregation than provided by official statistical sources.

According to the guidance given by the TSA: RMF 2008 (United Nations et al., 2010), employment indicators focus on the intensity of the use of the labor force measured by: (i) the number of jobs by status in employment (employees and self-employed) and gender (male and female); (ii) the number of hours worked by status in employment (employees and self-employed), and (iii) the number of full-time equivalent jobs by status in employment (employees and self-employed) 'in order to wipe out the effects of part-time jobs' (United Nations et al., 2010; para. 4.68). A more detailed overview of the procedures, sources used and the main results of the estimation of employment in the tourism industries in Croatia is given in Table 1. As the overview shows, the Labor Force Survey is the most significant source of data for the estimation of employment in the Croatian tourism industries. However, the Labor Force Survey could not be the only source. Therefore, due to the problem of coherence, the data from the Labor Force Survey were supplemented by the administrative sources having access to individual company business figures.

The established methodological framework resulted in an estimate of approximately 317,500 persons or 20.3% of total employment, which can be attributed to tourism industries in Croatia. A group of 'standard' tourism industries generated approximately 156,000 jobs or 9.96% of total employment. At the same time, these tourism industries generated 9.66% of Croatia's gross value added. Retail trade, as a country-specific tourism-characteristic industry, generated approximately 162,000 jobs or 51% of total jobs. In addition to retail trade, the largest employers among the 'standard' tourism industries are food and beverage servicing industry with 74,000 jobs, and accommodation services for visitors, with approximately 35,000 jobs.

Table 1 Employment in the tourism industries in Croatia

Tourism industries	Sources, limitations of available data and procedure of estimation of the employment in the tourism industries in Croatia	Number of jobs by status in employment and gender					Number of full-time equivalent jobs**	
		Number of jobs by status in employment		Number of jobs by gender		Number of hours worked		
		Total	Employees	Self-employed	Male			Female
Accommodation services for visitors	<p>Source:</p> <ul style="list-style-type: none"> Labor force survey (Croatian Bureau of Statistics, 2018). <p>Characteristics of the source/data used:</p> <ul style="list-style-type: none"> Data available at 2-digit level of NIKD 2007; activities are defined according to the main activity of the 'establishment'. <p>Procedure:</p> <ul style="list-style-type: none"> At the quarterly level, data on the number of employees by employment status and gender as well as the number of hours worked are available. Data on the number of employees and self-employed including gender distribution have been simply transferred from the Labor Force Survey (with adjustments for the non-observed employment and self-employment). Number of working hours has been estimated based on average weekly working hours and the total number of employed persons. 	34,840	33,371	1,469	11,556	23,284	65,971,760	36,328
Food and beverage servicing industry	<p>Source:</p> <ul style="list-style-type: none"> Data available at 2-digit level of NIKD 2007; activities are defined according to the main activity of the 'establishment'. <p>Procedure:</p> <ul style="list-style-type: none"> At the quarterly level, data on the number of employees by employment status and gender as well as the number of hours worked are available. 	74,126	62,372	11,754	32,872	41,254	141,027,032	77,658
Travel agencies and other reservation services industry	<p>Source:</p> <ul style="list-style-type: none"> Data on the number of employees and self-employed including gender distribution have been simply transferred from the Labor Force Survey (with adjustments for the non-observed employment and self-employment). <p>Procedure:</p> <ul style="list-style-type: none"> Number of working hours has been estimated based on average weekly working hours and the total number of employed persons. 	9,185	6,525	2,660	4,970	4,215	15,671,188	8,630
Cultural, sports and recreational industries	<p>Source:</p> <ul style="list-style-type: none"> RAFR and company disclosed financial and business statements. <p>Characteristics of the sources/data used:</p> <ul style="list-style-type: none"> Passenger services are provided by one company so published data enable a compilation of the defined indicators. <p>Procedure:</p> <ul style="list-style-type: none"> Number of employees, working hours and gender distribution have been estimated with respect to the number of employees in the company Hrvatske željeznice, the only provider of passenger railway transport. 	25,073	24,107	966	14,554	10,519	46,105,696	25,389
Retail trade*	<p>Source:</p> <ul style="list-style-type: none"> RAFR and company disclosed financial and business statements. <p>Characteristics of the sources/data used:</p> <ul style="list-style-type: none"> Passenger services are provided by one company so published data enable a compilation of the defined indicators. <p>Procedure:</p> <ul style="list-style-type: none"> Number of employees, working hours and gender distribution have been estimated with respect to the number of employees in the company Hrvatske željeznice, the only provider of passenger railway transport. 	161,854	148,936	12,918	87,573	74,281	288,023,528	158,603
Railway passenger transport	<p>Source:</p> <ul style="list-style-type: none"> Labor Force Survey. RAFR and companies that disclosed financial and business statements. <p>Characteristics of the sources/data used:</p> <ul style="list-style-type: none"> Data from the RAFR do not contain information on the number of self-employed persons and the structure of jobs by gender. <p>Procedure:</p> <ul style="list-style-type: none"> Total employment and the number of hours worked have been estimated as the sum of the total number of employees by working hours. Number of self-employed persons has been estimated based on the number of natural persons (with registered, legal trade entities) that submit annual financial reports to the RAFR. Number of employees by gender has been approximated based on the gender structure presented in the Labor Force Survey. 	1,906	1,906	-	1,463	443	3,412,971	1,879
Road passenger transport	<p>Source:</p> <ul style="list-style-type: none"> Labor Force Survey. RAFR and companies that disclosed financial and business statements. <p>Characteristics of the sources/data used:</p> <ul style="list-style-type: none"> Data from the RAFR do not contain information on the number of self-employed persons and the structure of jobs by gender. <p>Procedure:</p> <ul style="list-style-type: none"> Total employment and the number of hours worked have been estimated as the sum of the total number of employees by working hours. Number of self-employed persons has been estimated based on the number of natural persons (with registered, legal trade entities) that submit annual financial reports to the RAFR. Number of employees by gender has been approximated based on the gender structure presented in the Labor Force Survey. 	6,383	6,139	244	3,454	2,929	11,398,589	6,277

Tourism industries	Sources, limitations of available data and procedure of estimation of the employment in the tourism industries in Croatia	Number of jobs by status in employment and gender				Number of full-time equivalent jobs**
		Number of jobs by status in employment		Number of jobs by gender		
		Employees	Self-employed	Male	Female	
Water passenger transport	<p>Source:</p> <ul style="list-style-type: none"> • RAFR and companies that disclosed financial and business statements. • Labor Force Survey. <p>Characteristics of the sources/data used:</p> <ul style="list-style-type: none"> • Data from the RAFR do not contain information on the number of self-employed persons and the structure of jobs by gender. <p>Procedure:</p> <ul style="list-style-type: none"> • Total employment and the number of hours worked have been estimated as the sum of the total number of employees by working hours. • Number of self-employed has been approximated from the Labor Force Survey based on the assumption that all crafts and trades in the Water Transport NKD 2007 division are engaged in the transport of passengers. • Number of employees by gender is approximated based on the gender structure of employees in the Jadrolinija company, the largest provider of passenger water transport in Croatia. 	2,397	527	2,389	535	3,004
Air passenger transport	<p>Source:</p> <ul style="list-style-type: none"> • Labor Force Survey. • RAFR and companies that disclosed financial and business statements. <p>Characteristics of the sources/data used:</p> <ul style="list-style-type: none"> • Data from the RAFR do not contain information on the number of self-employed persons and the structure of jobs by gender. <p>Procedure:</p> <ul style="list-style-type: none"> • Total employment and the number of hours worked have been estimated as the sum of the total number of employees by working hours. • The number of employees by gender is approximated based on the gender structure of employees in the Croatia Airlines company, the largest provider of air passenger transport in Croatia. 	1,165	-	594	571	1,169
Total		317,456	286,918	30,538	159,425	65,971,760

* As a country-specific tourism-characteristic industry

**Based on 1,816 hours of annual work hours (the sum of monthly hours minus work hours during public holidays and annual leave)

Source: *Institute for Tourism (2019)*

In comparison with the overall economy, Croatian tourism industries are less oriented towards self-employment. The share of the self-employed in the total number of jobs in tourism industries is 11%, which is two percentage points lower compared to the overall level of employment (Croatian Bureau of Statistics, 2018).

All tourism industries in Croatia are predominantly reliant on female workforce. 54% of jobs were held by women and 46% by men. This contrasts with the structure of the total economy, where 54% of jobs were held by men and 46% by women (Croatian Bureau of Statistics, 2018).

The accommodation industry includes the activity of renting and operating self-owned short-stay accommodation. It is not covered by the Labor Force Survey. However, it is especially important in Croatia, where 76,600 households provide approximately 3.5 million commercial tourist nights. With the estimated working time of at least 1 hour per 1 overnight stay required for the work process that includes activities such as registering guests, cleaning and laundering, it follows that 35.5 million hours or 54% of the estimated number of hours worked in the accommodation industry were not included in the employment statistics.

It can be concluded that the assessment of employment figures requires changes in the data collection and processing in both supply-side and demand-side surveys, including coverage of all types of economic entities, adjustment to seasonal oscillations and disaggregation of economic activities. This is important in order to ensure an increase in the accuracy of the Labor Force Survey as well as to enable a more transparent process of data transfer between the different data sources.

Finally, the analysis showed that special attention should be paid to measuring employment resulting from the provision of accommodation within households, since this particular type of part-time employment provides a different insight into employment in the tourism industries with a potentially very significant impact.

5. Concluding remarks

Employment is a key variable in the economic analysis of productive activities and an important factor in long-term competitiveness. Therefore, high-quality measurement of different dimensions

of employment, especially in labor-intensive industries, is imperative. However, as shown, measuring employment in tourism is faced with significant methodological challenges. Methodological complexity stems from the fact that tourism, observed from the supply side, is a set of diverse economic activities that provide products and services to visitors. Moreover, tourism is also often characterized by high seasonality of the demand involving extensive oscillations of the demand for labor.

The challenges of measuring tourism-generated employment represent particularly important issues in the context of internationally harmonized methodological frameworks of tourism statistics and the tourism satellite account. For instance, the scope of tourism satellite account employment indicators is much narrower than the scope of indicators proposed by the International Recommendations for Tourism Statistics. Therefore, the tourism satellite account does not enable an in-depth analysis of the quantitative and qualitative characteristics of human capital and productivity in tourism industries (Joppe & Li, 2016). Moreover, the practical examples exhibit the problems of employment data compilation even within that narrow scope. It undoubtedly requires further improvement of tourism employment statistics and their international harmonization. It also requires the focus to be expanded in order to encompass variables like age group, country of residence, labor costs and educational attainment. The focus should not be related to the choice of indicators only, but also to the question of how to generate these indicators in a quality and harmonized manner.

The analyzed practical example of Croatia also indicates the requirement for improvement of tourism employment statistics, especially concerning the quality of sources. Important weaknesses also stem from insufficient disaggregation of the national classification of economic activities as well as from the measurements of the magnitude of part-time and overtime work. Although these problems are solvable at the national level, important challenges are related to the quality of estimated and compiled data and their cross-sectoral and international comparability.

Since data comparability and harmonization are extremely important, there is an urgent requirement for the development of an internationally transparent, relevant, and harmonized approach to data collection and processing. This is a critical

factor for international comparability of data since the importance of comparability of employment indicators established by the *TSA: RMF 2008* has a limited impact if harmonization is not ensured. Consequently, special attention should be paid to the process of harmonization of key methodological elements of the most relevant data sources. This will ensure data comparability not only between countries with homogeneous economic structures (UNWTO & ILO, 2014), but also between countries offering similar product portfolios.

Furthermore, the changing characteristics of business in modern economies require adaptation of established tourism employment concepts for the impact of the sharing economy. Due to its win-win character for both owners and renters (Fang et al., 2016), the sharing economy in tourism, and especially in accommodation, has grown significantly. In 2019, 21% of EU citizens used a website or an application to arrange accommodation with another person (EUROSTAT, 2020). Since the process of collecting data on short-stay accommodation offered through online platforms has already been launched, we should soon expect successful measurement of the physical and monetary impact of short-stay accommodation offered through online platforms on the output of tourism-characteristic industries. However, as the case study of Croatia has shown, there is a huge methodological issue related to measuring labor inputs involved. This involves dealing with the possible conceptual issues related to the nature of labor in the field of the sharing economy (e.g., legal status of operation, commercial or non-commercial type of services, direct or indirect employment). It also calls for the action

of adaptation of internationally harmonized statistical methods and instruments.

Finally, given the policy-driven requirements for the measurement of overall tourism-generated employment and not only the measurement of employment in the tourism industries, the justification for the usage of the tourism ratio requires additional attention from a cross-sectoral and international perspective. The generally accepted principle that tourism ratios provide a good basis for estimation of tourism-generated employment arises from the assumption that there are the similar structures of inputs in tourism and non-tourism segments of tourism-characteristic industries (United Nations et al., 2010). However, it seems reasonable to question the homogeneity of the production process of tourism-characteristic industries with different portfolios of products and services offered to visitors and non-visitors. This is especially true in the case of the food and beverage servicing industry, where technological and organizational processes can significantly differ between facilities with product portfolios adapted to the needs of specific segments of tourists and facilities focused primarily on local demand. Retail trade as a specific tourism-characteristic industry in many countries is another industry heavily dependent on the size and structure of tourist and non-tourist segments. Therefore, future developments of the methodological framework should provide methods for the measurement of employment in tourism that should ensure more accurate estimates of tourism-generated employment by both tourism industries and tourism products. It would finally ensure higher comparability of employment data across countries with different products and different economic structures.

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