Ace Milenkovski, Sashko Gramatnikovski, and Dejan Nakovski. 2019. Statistical Data in the Tourism Research. *UTMS Journal of Economics* 10 (1): 57–65.

Preliminary communication
(accepted May 1, 2019)

STATISTICAL DATA IN THE TOURISM RESEARCH

Ace Milenkovski[1]
Sashko Gramatnikovski
Dejan Nakovski

Abstract
Tourism research in its content and methodology is based on numerous statistics. The type and nature of the statistical data used in tourism research can be different and it can relate to general statistical data such as demographics, economic, transport data etc. or they can apply it specifically to the tourism indicators. A key factor for quality tourism research, beside the quality of statistical data is the diversity of the data and the greater segmentation of tourism statistics. Starting from this conclusion, the authors of this paper will make an analysis and comparison by benchmarking tourism statistics that are available in the country, with a special emphasis on their segmentation in order to note the specific deficiencies. The obtained results will show a difference in the presentation of tourist statistics by official sources. This suggests the need for certain qualitative changes in the methodology of collecting data and publishing. In the opinion of the authors, the results of the research will contribute to the promotion of the understanding of the importance of tourism statistics.

Keywords: tourism policy, development, database.

Jel Classification: L83; Z32; I15; O18

INTRODUCTION

Studies concerning the quantitative analysis in tourism are related to arriving and overnight tourists, tourist turnover, types of tourist attractions visited by tourists, the country from which the tourists are etc. These all are based on statistical data. In this type of research commonly the secondary data is used which is published by official Institutions. In quantitative analysis of tourism in The Republic of North Macedonia data

[1] **Ace Milenkovski,** PhD, Full Professor; **Sashko Gramatnikovski,** PhD, Associate Professor; **Dejan Nakovski,** PhD, Assistant Professor, University of Tourism and Management in Skopje, North Macedonia.

from the State Statistical office of the Republic of North Macedonia is used. This institution for data processing of tourism statistics as a source uses data which is obtained from hotels and the catering industry. Data on tourists and nights spent are gathered based on the regular monthly reports of the board and lodging establishments (Statistical review 2016). State Statistical office does not use data from Tourism Satellite Account (TSA) which is a popular internationally recognized method for measuring tourism's contribution to the economy. The credibility and visibility of tourism as a distinct economic activity are, therefore, based on TSA data which have the power to show its macroeconomic importance. These improve the usefulness of the TSA as a statistical instrument for sound tourism policies (Frent 2018). The increasing power of technology puts new, advanced statistical tools at the disposal of researchers (Shapoval et al. 2018). Established methods to record tourist activities cannot produce quantitative data with precise spatial references (Kadar 2014). Available statistics on tourism from official European sources are limited in terms of both the spatial and temporal resolutions, curbing potential analyses and applications relevant for tourism management and policy (Batista e Silva et al. 2018). From the processed data the State Statistical office of the Republic of North Macedonia publishes official tourism statistics in the following categories: Tourist arrivals and nights spent; Tourist arrivals and nights spent, by types of resorts; Arrivals of foreign tourists by types of resorts; Tourist arrivals and nights spent, by types of accommodation facilities; Tourist arrivals and nights spent, by country of origin. When processing the data, the following definition of tourist is used by the State Statistical office of the Republic of North Macedonia and it reads: A tourist is considered to be any person who temporarily spends at least one night in some form of lodging, not located in his own permanent place of residence (Statistical review 2016). It follows that in the official tourism statistics only for passengers who are covered by the definition are processed from the presented data.

The tourism statistics are used in Tourism planning, but it also can be used to monitor Tourism specific policies, Regional policy and Sustainable development. Considering that tourism is an important economic activity, the authors believe that quality tourism statistics are the basis for tourism research, tourism planning and creation of proper policy for tourism development. In an era of fierce competition among destinations to increase the number of visitors, emerging markets play a critical role in the development of the national tourism industry (Atadil et al. 2017). Therefore, this paper will make an analysis of the data on tourism statistics from the State Statistical office of the Republic of North Macedonia and compare the data to some tourism developed countries. The aim is to present the level of quality and extent of applicability of the tourism statistics that are at our disposal.

1. METHODOLOGY

Research included a review of recent data from the State Statistical Office of the Republic of North Macedonia, data from Eurostat and from UNWTO – Tourism Statistics. This paper will first review the basic tourist statistics officially published in the Republic of North Macedonia, and then will review tourist statistics officially

published in reference countries. Comparative analysis was made for comparing data from these sources. The research in this paper is conducted using quantitative research methods. The quantitative methods have been used to perceive the quantity and segmentation of statistical tourist data. Methods of analysis, synthesis, and statistical data processing methods were also used. Also, there is made a tabular display of processed data and the results obtained in research. The analysis is based upon secondary research conducted from August to October 2018.

2. RESULTS AND DISCUSSION

So that we can see the difference in how the publication of tourism statistics are presented we will show examples of some tourist statistics. Statistical data on tourism that is officially published and made available by the State Statistical Office of the Republic of North Macedonia, are segmented into several basic categories and will be presented below.

Table 1. Tourist arrivals and nights spent, 1960–2015

	Tourist arrivals			Tourist nights spent		
	total	domestic	foreign	total	domestic	foreign
1960	303.122	164.543	138.579	868.627	541.334	327.293
1961	327.024	182.336	144.688	1,005.891	646.449	359.442
…						
…						
…						
2015	816.067	330.537	485.530	2,394.205	1,357.822	1,036.383

Source: Data from Statistical review: Transport, tourism and other services. 2015. State statistical office of the Republic of North Macedonia. 2015: 11, table 1.

Table 1. presents the total number of tourists who visited the country according to the definition which is used by the State Statistical Office of the Republic of North Macedonia, which is shown above, the total number of realized lodgings and the separation of domestic and foreign tourists. For the same character of data, we will present segmented data monthly. The next category for which we receive an overview of the data is the following category Tourist arrivals and nights spent, by types of resorts.

Table 2. Tourist arrivals and nights spent, by types of resorts

	Tourist arrivals			Tourist nights spent		
	total	domestic	foreign	total	domestic	foreign
Skopje	220.212	22.782	197.430	378.253	37.972	340.281
Spa resorts	29.169	25.533	3.636	215.541	192.750	22.791
Mountain resorts	62.335	44.502	17.833	136.436	97.831	38.605
Other tourist resorts	355.890	188.004	167.886	1,407.244	952.985	454.259
Other resorts	148.461	49.716	98.745	256.731	76.284	180.447

Source: Data from Statistical review: Transport, tourism and other services. 2015. State statistical office of the Republic of North Macedonia. 2015: 11, table 4.

In this analysis of the data, on the whole territory of the country only five types of resorts have been isolated, in the opinion of the authors it is not enough for a specific tourism research (eg. research related to rural or city tourism). In addition to the total number of arrivals and overnight stays, the State Statistical Office of the Republic of North Macedonia, provides an overview of tourists which have arrived and stayed a night by country of origin.

Table 3. Tourist arrivals and nights spent, by country of origin

	Tourist arrivals			Tourist nights spent		
	2013	2014	2015	2013	2014	2015
Austria	8.376	7.603	8.602	14.248	12.506	14.004
Albania	16.982	17.561	18.493	40.671	42.067	39.086
…						
…						
…						
Other countries	3.175	2.747	2.596	8.090	6.402	5.541

Source: Data from Statistical review: Transport, tourism and other services. 2015. State statistical office of the Republic of North Macedonia. 2015: 11, table 10.

In table 3. officially have been published only the number of tourists from different countries, but for research more information is needed (eg. age group, economic category, etc.). How are tourism statistics categorized in some European countries, which are used as comparative, shown later in the manuscript. Some travel statistics from France are presented in table 4.

Table 4. France: Basic indicators 2012–2016 (in 000)

	Inbound Tourism				
	2012	2013	2014	2015	2016
Arrivals					
Total	197.552	204.410	206.599	203.302	202.930
Overnight visitors	81.980	83.634	83.701	84.452	82.570
Same day visitors	115.543	120.776	122.898	118.851	120.360
Arrivals by main purpose					
Total	81.980	83.634	83.701	84.452	82.570
Personal (holidays, leisure, recreation)	71.801	73.455	71.929	72.605	70.726
Business and professional	10.179	10.179	11.773	11.847	11.844

Source: Data from World Tourism Organization. 2018. France: Country-specific: Basic indicators (Compendium) 2012–2016. Tourism statistic. 2018: 2, table 1.

Table 4. shows not only the total number of tourists who visited France, a segmentation has been made and provides an overview of the number of tourists that have stayed a night and also the number of tourists who are same-day visitors. Apart from this type of data, a segmentation of tourists has been made for the main reason of traveling and according to this segmentation it is an overview of the number of visitors that the main reason to visit is leisure / recreation and the information on the number of visitors that the main reason for visiting is business and professional work. A similar

categorization of tourism statistics is represented by the data of Italy and Spain table 5. and table 6.

Table 5. Italy: Basic indicators 2013–2017 (in 000)

	Inbound Tourism				
	2013	2014	2015	2016	2017
Arrivals					
Total	76.762	77.694	81.068	84.925	89.931
Overnight visitors	47.704	48.576	50.732	52.372	58.253
Same day visitors	29.058	29.118	30.336	32.552	31.678
Arrivals by main purpose					
Total	76.762	77.694	81.068	84.925	89.931
Personal (holidays, leisure, recreation)	62.576	64.058	67.747	70.275	75.394
Business and professional	14.186	13.636	13.321	14.649	14.537

Source: Data from World Tourism Organization. 2018. Italy: Country-specific: Basic indicators (Compendium) 2013–2017. Tourism statistic. 2018: 2, table 1.

Table 6. Spain: Basic indicators 2013–2017 (in 000)

	Inbound Tourism				
	2013	2014	2015	2016	2017
Arrivals					
Total	103.231	107.144	109.834	115.561	121.677
Overnight visitors	60.675	64.939	68.175	75.315	81.786
Same day visitors	42.555	42.206	41.659	40.246	39.891
Arrivals by main purpose					
Total	103.231	107.144	109.834	115.561	121.677
Personal (holidays, leisure, recreation)	56.604	60.625	63.196	69.611	76.095
Business and professional	4.071	4.313	4.979	5.704	5.692

Source: Data from World Tourism Organization. 2018. Spain: Country-specific: Basic indicators (Compendium) 2013–2017. Tourism statistic. 2018: 2, table 1.

In a comparison of the nature or type of data presented in table 1. the nature of the data presented in table 4., table 5. and table 6. There is a noticeable difference in terms of representation of the number of tourists. In the first case in table 1. there is no segmentation of tourists, which according to the authors is a restriction on certain tourism research in the country. This limitation applies to some specific forms of tourism that have been developed in the southern part of North Macedonia, such as casino tourism and dental tourism, which is almost entirely dependent on same-day visitors from neighbouring Greece. The measurement of spatial concentration of tourism demand and economic activity is usually based on statistics collected within regional administrative boundaries and omits the spatial interdependency between neighbouring regions (Majewska 2017). Shared heterogeneity was found to statistically improve the explanatory capacity of duration models when multidestination tourism trips data are analyzed (Santos et al. 2015). This implies that to be able to make quality tourism research, precise results are needed for proper planning of tourism and conduct of proper tourism policy for this part of the country, therefore we must segment the tourists by Overnight visitors and Same-day visitors in the official presentation of tourism statistics.

Data analysts in industry and academia make heavy use of market segmentation analysis to develop tourism knowledge and select commercially attractive target segments (Dolnicar et al. 2014).

Another difference is perceived when comparing the data is the following: in table 4., table 5. and table 6. statistical data is presented on tourists which are segmented according to Arrivals by main purpose, in two main categories Personal (holidays, leisure, recreation) and Business and professional work. In the official tourism statistics that are published in the Republic of North Macedonia there is no such segmentation in the representation of the number of tourists visiting the country. The number of tourists are represented by country of origin (table 3.) and the number of Tourist arrivals and nights spent, by types of resorts (table 2.), according to these data, especially the data from table 2. during the research, we can assume what is the main motive for travel of tourists and in which category they belong to.

The global phenomenon of visiting friends and relatives (VFR) travel is substantial, including in developed countries. In profiling its dimensions, researchers have examined various VFR characteristics including length of stay, origins and travel mode, though no thorough exploration has been undertaken of VFR demographics (Backer and King, 2017).

This type of statistical data is segmented into Personal (holidays, leisure, recreation) and Business and professional, these are very important data for the creation of quality tourism offers, because different travellers need specific travel requirements. The needs and demands of tourists who travel due to Business and professional work are very different from the tourists traveling due to holidays, leisure and recreation. In the statistics of some countries such as Austria and Slovenia, there is no segmentation of Overnight and Same day visitors, therefore the basic statistical data is presented according to arrivals and mode of transport, table 7. and table 8.

Table 7. Austria: Basic indicators 2013–2017 (in 000)

	Inbound Tourism				
	2013	2014	2015	2016	2017
Arrivals					
Total	…	…	…	…	…
Overnight visitors	24.813	25.291	26.728	28.121	29.460
Same day visitors	…	…	…	…	…
Trips by mode of transport					
Total	11.730	11.476	11.088	12.026	11.593
Air	39	50	12	58	36
Water	2	11	…	4	2
Land	11.689	11.415	11.076	11.964	11.555

Source: Data from World Tourism Organization. 2018. Austria: Country-specific: Basic indicators (Compendium) 2013–2017. Tourism statistic. 2018: 2, table 1.

Table 8. Slovenia: Basic indicators 2013–2017 (in 000)

	Inbound Tourism				
	2013	2014	2015	2016	2017
Arrivals					
Total	…	…	…	…	…
Overnight visitors	2.259	2.411	2.707	3.032	3.586
Same day visitors	…	…	…	…	…
Trips by mode of transport					
Total	2.259	2.411	2.707	3.032	3.586
Air	467	496	806	903	1.068
Water	2	2	2	2	3
Land	1.790	1.866	1.847	2.069	2.447

Source: Data from World Tourism Organization. 2018. Slovenia: Country-specific: Basic indicators (Compendium) 2013–2017. Tourism statistic. 2018: 2, table 1.

Table 7. and table 8. present the data regarding the segmentation of tourists according to Arrivals and mode of transport, in that sense data is segmented into a number of tourists arriving by Air, by Water and by Land. Availability and suitability of public transport enhances the perceived attractiveness of a destination for tourists (Parahoo, 2014). This kind of data does not exist in the official tourism statistics by the State Statistical Office of the Republic of North Macedonia. The data on the mode of transport used by tourists are also important and necessary for research related to tourism planning and policy for the development of tourism.

Taking into account the results of the comparative analysis, the authors provide a draft model that will be used to present and publish tourism statistics, in the future time for foreign tourists in the Republic of North Macedonia. The authors suggest the following example model, which would be the most suitable for the Republic of North Macedonia, example: table 9.

Table 9. North Macedonia: Basic indicators 2019–2023 (in 000)

	Inbound Tourism				
	2019	2020	2021	2022	2023
Arrivals	…	…	…	…	…
Total	…	…	…	…	…
Overnight visitors	…	…	…	…	…
Same day visitors	…	…	…	…	…
Arrivals by main purpose	…	…	…	…	…
Total	…	…	…	…	…
Personal (holidays, leisure, recreation)	…	…	…	…	…
Personal (visiting friends and relatives)	…	…	…	…	…
Business and professional	…	…	…	…	…
Trips by mode of transport	…	…	…	…	…
Total	…	…	…	…	…
Air	…	…	…	…	…
Land	…	…	…	…	…

The proposed draft model for presenting and publishing tourism statistics will enable all stakeholders (researchers, tourism planners, tourism policy makers, the business sector, etc.) to have a quantitatively larger number of data, which will be characterized by greater segmentation and provide more detailed insight into the tourist movement of foreign tourists in the country.

CONCLUSION

Tourism research and tourism development policy are largely dependent on quality and segmented tourist statistics. From the research that has been done, it is evident that there is a difference in the official published tourist statistics, in certain countries. This difference relates to the type and character of the presented tourism statistics, but also applies to the segmentation of data. Certain forms of tourism, such as casino tourism and dental tourism have a major stake in the tourism industry in the southern part of the country. The development of these two forms of tourism is based on foreign tourists from Greece, which are mostly same day visitors. According to this very important tourist statistic data is segmentation of tourists by tourists overnight and same day visitors. There is a lack of this type of data in the official tourist statistics for the country. There is also a difference in presented data segmented by arrivals by main purpose; there is a lack of this type of data in official public tourist statistics in the country. Knowledge of this kind of data is important in research related to business tourism, VFR tourism, leisure, recreation, etc. The last difference concerns the segmentation of tourism data according Trips by mode of transport. Such statistics have a particular influence on the tourism development policy related to the development of the tourism infrastructure. Considering the importance of quality tourism statistics, the authors consider it necessary to adapt the type of official statistics of the country, according to the example of the indicated developed European tourist countries.

REFERENCES

Atadil, Hilmi A., Ercan Sirakaya-Turk, and Volkan Altintas. 2017. An analysis of destination image for emerging markets of Turkey. *Journal of Vacation Marketing* 23 (1): 37–54.

Backer, Elisa, and Brian King. 2017. VFR traveller demographics: The social tourism dimension. *Journal of Vacation Marketing* 23 (3): 191–204.

Batista e Silva, Filipe, Mario Alberto Marin Herrera, Konstantin Rosina, Ricardo Ribeiro Barranco, Sergio Freire, and Marcello Schiavina. 2018. Analysing spatiotemporal patterns of tourism in Europe at high-resolution with conventional and big data sources. *Tourism Management* 68: 101–115.

Dolnicar, Sara, Bettina Grun, Friedrich Leisch, and Kathrin Schmidt. 2014. Required Sample Sizes for Data-Driven Market Segmentation Analyses in Tourism. *Journal of Travel Research* 53 (3): 296–306.

Frent, Cristi. 2018. Informing tourism policy with statistical data: The case of the Icelandic Tourism Satellite Account. *Current Issues in Tourism* 21 (9): 1033–1051.

Kadar, Balint. 2014. Measuring tourist activities in cities using geotagged photography. *Tourism Geographies: An International Journal of Tourism Space, Place and Environment* 16 (1): 88–104.

Majewska, Justyna. 2017. GPS-based measurement of geographic spillovers in tourism: Example of Polish districts. *Tourism Geographies: An International Journal of Tourism Space, Place and Environment* 19 (4): 612–643.

Parahoo, Sanjai Kumar, Heather Lea Harvey, and Gihad Yakoob Abdelrahim Radi. 2014. Satisfaction of Tourists with Public Transport: An Empirical Investigation in Dubai. *Journal of Travel & Tourism Marketing* 31 (8): 1004–1017.

Santos, Glauber Eduardo de Oliveira, Vicente Ramos, and Javier Rey-Maquieira. 2015. Length of Stay at Multiple Destinations of Tourism Trips in Brazil. *Journal of Travel Research* 54 (6): 788–800.

Shapoval, Valeriya, Morgan C. Wang, Tadayuki Hara, and Hideo Shioya. 2018. Data Mining in Tourism Data Analysis: Inbound Visitors to Japan. *Journal of Travel Research* 57 (3): 310–323.

State Statistical Office of the Republic of North Macedonia. 2017. Tourism in the Republic of North Macedonia, 2011–2015. *Statistical Review: Transport, tourism and other services.* Skopje: State Statistical Office of the Republic of North Macedonia.

United Nations World Tourism Organization. 2018. Tourism statistics. *Country-specific*. https://www.e-unwto.org/toc/unwtotfb/current (accessed October 10, 2018).