

Analysis on the Distribution of Resident Tourists from 29 European Countries, by Age Groups, in 2016, using the Factor Analysis Method

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Abstract

The study of tourism activities involves the use of databases that provide information about the size, evolution and structure of this economic and social activity. The statistical indicators specific to the domestic and international tourist traffic comply with these requirements; however, by processing them by certain statistical methods, there are provided more information of a different nature.

In this context, our paper points out that, by applying the CFA method, in processing a database for the "number of tourists" indicator, we can enrich our knowledge of the particularities related to the participation of each country (out of the 29 analyzed) in each age group, in terms of domestic tourism. By analyzing the structure of each age group of tourists, we can identify similarities and differences between the analyzed countries regarding the domestic travel demand; moreover, this analysis can also play a useful role in guiding the development of new tourism products and services, satisfying the residents' specific needs.

Key words: domestic trips, correspondence factor analysis, resident tourists, age

J.E.L. classification: C10, C38, L83, M31, Z32

1. Introduction

Some indicators can be used in the analysis of the tourist traffic, which, in most cases, contributes to the assessment of the size and eventually the structure of tourism activities. The main objective of this study is to show that the "number of tourists" is not only a statistical indicator of a quantitative nature, often used in domestic and international statistics (Snak, Baron and Neacsu, 2001, Minciu 2004). When processed by the CFA(Correspondence Factor Analysis) method, it provides us with the necessary framework in order to make some comparative interpretations of the share held by the number of tourists in each country, per age groups. In other words, it allows us to identify and compare the participation rate of each country, in each tourist age group. Moreover, if we accept that this indicator reflects the tourist demand, then the results obtained (even if they are quantitative) reveal some important aspects of the resident tourists' purchasing and/or consumption behavior. Of course, such an approach would imply that every analyzed country is characterized by certain demographic features (such as total population and structure by age groups). Moreover, it also highlights aspects related to the level of economic development, employment rate, income level, purchasing power of the national currency, free time, structure of the school year, level of education/ culture, habits, preferences, traditions, fashion in taking domestic trips. In addition to these issues, which relate to the tourism demand, we should also discuss several features of the tourist supply in each country, i.e. the diversity of tourism forms, tourist destinations, development level of the material base and access routes, promotion and promotional offers of tour operators, the tourists' buying and consumption behavior in each country. All these issues influence the size of the tourist traffic, but also the tourists' behavior.

2. Creating the appropriate research framework

This study is a desk-based, quantitative and descriptive research based on the analysis of cross-sectional secondary data from international statistics, represented by the values of the "number of tourists" indicator. The database was taken from Eurostat data (from the Data Explorer menu) and it is represented by the number of resident tourists (per total and per age category, as entered and used in international statistics, available for 29 countries, in 2016), which forms the domestic tourism of the analyzed countries.

The scientific working tools are represented by the exploratory statistical method known as "correspondence factor analysis" (CFA) and the SPSS (Statistical Package for Social Sciences) software.

The concepts and definitions used in this study are consistent with the specifications described in the "Methodological Handbook for Tourism Statistics"- International Recommendations for Tourism Statistics (United Nations and UNWTO, 2008)

3. Data, results and discussions

The correspondence table, which presents the distribution of statistical units according to the simultaneous variation of two categories of the same variable, is represented by the distribution of the number of tourists by "country of residence" and main "age groups", as presented in the European statistics.

Table no. 1: Correspondence table for the number of tourists who took domestic trips in 2016, by "country of residence" and "main age group"

Country	Number of tourists per Age groups							Active Margin
	less than 15 years	from 15 to 24 years	from 25 to 34 years	from 35 to 44 years	from 45 to 54 years	from 55 to 64 years	65 years or over	
Belgium	0	203583	229944	355987	338543	357761	181290	1667108
Bulgaria	0	16761	17895	30991	22847	8681	4503	101678
Czech Republic	0	440743	616070	735660	583629	413641	318009	3107752
Denmark	0	0	0	0	0	0	0	0
Germany	0	4096536	4461597	4187831	5434972	4193099	4610249	26984284
Estonia	0	53399	110820	72671	52887	0	0	289777
Ireland	0	212833	318349	372014	307636	252610	218212	1681654
Greece	0	16299	42758	44889	35481	27261	11082	177770
Spain	0	1089991	1235219	1327002	1148549	742730	425519	5969010
France	0	1310274	1554280	1844145	1790820	2044726	2428949	10973194
Croatia	0	75673	70688	63474	46107	43371	19047	318360
Italy	662342	668725	855782	1140991	896233	662409	552682	5439164
Cyprus	0	42997	48611	36386	25092	16493	15051	184630
Latvia	0	67128	83550	85765	67522	48481	24875	377321
Lithuania	0	8914	8334	7421	7169	5080	6433	43351
Luxembourg	0	0	0	13149	6342	0	4364	23855
Hungary	230890	147490	222673	334826	255498	179983	199758	1571118
Malta	0	16105	23336	8730	14079	5597	0	67847
Netherlands	1072836	857766	985116	914245	980481	907168	934716	6652328
Austria	0	401015	467567	402862	536982	382492	364897	2555815
Poland	0	458720	636222	730329	451487	414557	264732	2956047
Portugal	118282	83455	87058	167517	128457	84742	59762	729273
Romania	0	4862	10797	8091	6281	4777	2254	37062
Slovenia	0	50042	77221	87215	68849	44281	30185	357793
Slovakia	0	149857	109017	130681	78028	164764	25813	658160

Finland	0	353974	487731	447250	442025	383009	416632	2530621
Sweden	0	542366	436424	461727	632523	296861	799361	3169262
UK	0	1139300	1322110	1833960	2490890	1852840	1878780	10517880
Switzerland	415842	426501	514544	506613	584594	445168	427750	3321012
Active Margin	2500192	12935309	15033713	16352422	17434003	13982582	14224905	92463126

Source: Eurostat data processed by SPSS

Each row in Table 1 contains information about the size of domestic tourism, but also about the tourism profile of each country, regarding the distribution/ structure of the number of resident tourists, per main age groups.

In 2016, in the 29 countries surveyed, 92,463,126 tourists took domestic trips for personal purposes.

Out of the 29 countries surveyed, only five countries (Italy, Hungary, the Netherlands, Portugal and Switzerland) specified the number of tourists aged less than 15 years. Certainly, in the other countries, there were persons from this age group who took domestic trips; maybe, for various reasons (such as the contents of the registration form in the accommodation unit, the legislation or the statistical registration system in each country), there were no records and reports on the number of tourists aged less than 15 years.

Applying the CFA method involves calculating each column profile, showing the structure of the age group variable, according to the share held by the statistical units of the other variable, i.e. "country of residence".

Table no. 2: Column profiles for the distribution of the shares held by the number of tourists who took domestic trips in 2016, per age groups and country of residence (Column Profiles output)

Country	Number of tourists per Age groups							
	less than 15 years	from 15 to 24 years	from 25 to 34 years	from 35 to 44 years	from 45 to 54 years	from 55 to 64 years	65 years or over	Mass
Belgium	.000	.016	.015	.022	.019	.026	.013	.018
Bulgaria	.000	.001	.001	.002	.001	.001	.000	.001
Czech Republic	.000	.034	.041	.045	.033	.030	.022	.034
Denmark	.000	.000	.000	.000	.000	.000	.000	.000
Germany	.000	.317	.297	.256	.312	.300	.324	.292
Estonia	.000	.004	.007	.004	.003	.000	.000	.003
Ireland	.000	.016	.021	.023	.018	.018	.015	.018
Greece	.000	.001	.003	.003	.002	.002	.001	.002
Spain	.000	.084	.082	.081	.066	.053	.030	.065
France	.000	.101	.103	.113	.103	.146	.171	.119
Croatia	.000	.006	.005	.004	.003	.003	.001	.003
Italy	.265	.052	.057	.070	.051	.047	.039	.059
Cyprus	.000	.003	.003	.002	.001	.001	.001	.002
Latvia	.000	.005	.006	.005	.004	.003	.002	.004
Lithuania	.000	.001	.001	.000	.000	.000	.000	.000
Luxembourg	.000	.000	.000	.001	.000	.000	.000	.000
Hungary	.092	.011	.015	.020	.015	.013	.014	.017
Malta	.000	.001	.002	.001	.001	.000	.000	.001
Netherlands	.429	.066	.066	.056	.056	.065	.066	.072
Austria	.000	.031	.031	.025	.031	.027	.026	.028
Poland	.000	.035	.042	.045	.026	.030	.019	.032
Portugal	.047	.006	.006	.010	.007	.006	.004	.008
Romania	.000	.000	.001	.000	.000	.000	.000	.000
Slovenia	.000	.004	.005	.005	.004	.003	.002	.004
Slovakia	.000	.012	.007	.008	.004	.012	.002	.007
Finland	.000	.027	.032	.027	.025	.027	.029	.027
Sweden	.000	.042	.029	.028	.036	.021	.056	.034

UK	.000	.088	.088	.112	.143	.133	.132	.114
Switzerland	.166	.033	.034	.031	.034	.032	.030	.036
Active Margin	1.000	1.000	1.000	1.000	1.000	1.000	1.000	

Source: Eurostat data processed by SPSS

The figures in Table 2 show **the distribution of the shares held by the number of tourists**, per age groups and country of residence. The values in this table shape the column profile (i.e., the structure of each age group, by the tourists' country of residence); moreover, we can also establish the position of each country (the ranking of countries) in terms of the share held by the number of tourists in each age group. At the same time, we can assume that the figures in Table 2 represent the shares of the contribution made by each country, or, in other words, the participation rate of each country, by the number of the resident tourists that took domestic trips, per age groups.

The following aspects are the most important:

- The column profile for the age group "*less than 15 years*" has the following features:
 - the Netherlands has the largest contribution in terms of tourists, with a share of 42.9%.
 - the fewest tourists are in Hungary, i.e. 9.2%.
- The column profile of the age group "*from 15 to 24 years*" has the following features:
 - Germany has the largest contribution, since the resident tourists hold a share of 31.7% in this group. This country is followed (with a great difference) by France (10.1%), the UK (8.8%) and Spain (8.4%);
 - average shares are held by the Netherlands (6.6%), Italy (5.2%) and Sweden (4.2%);
 - lower and similar shares are held by several countries: Poland (by 3.55%), Switzerland (3.3%), Austria (3.1%) and Finland (2.7%).
 - low and equal shares are held by Belgium and Ireland (1.6%) and low and similar shares are held by Slovakia (1.2%) and Hungary (1,1%);
 - the smallest share, i.e. 0.1%, is held by Bulgaria, Greece, Lithuania and Malta. In other words, these four countries hold the lowest shares in terms of the tourists aged from 15 to 24 years, and Germany holds the largest number of tourists.
- The column profile of the age group "*from 25 to 34 years*" has the following features:
 - Germany has the largest contribution, i.e. the resident tourists hold a share of 29.7% in this group. It is followed by France (10.3%), the UK (8.8%) and Spain (8.2%). These aspects are almost identical to those presented in the age group "*from 15 to 24 years*";
 - average shares are held by the following countries: the Netherlands (6.6%), Italy (5.7%), Poland (4.2%) and the Czech Republic (4.1%);
 - lower and similar shares are held by several countries: Switzerland (3.4%), Finland (3.2%), Sweden (2.9%), and Ireland (2.1%);
 - low and equal shares are held by Belgium and Hungary (1.5%), Croatia and Slovenia (0.5%);
 - the lowest share is held by Lithuania and Romania (0.1%).
- The column profile of the age group "*from 35 to 44 years*" has the following features:
 - Germany has the largest contribution, since the resident tourists hold 25.6% in this age group. It is followed by France (11.3%), the UK (11.2%) and Spain (8.1%);
 - average shares are held by the following countries: Italy (7%), the Netherlands (5.6%), Poland and the Czech Republic (by 4.5%), Switzerland (3.1%);
 - lower and similar shares are held by Sweden (2.8%), Finland (2.7%), Austria (2.5%), Ireland (2.3%), Belgium (2.2%) and Hungary (by 2%);
 - the lowest shares are held by Bulgaria and Cyprus (0.2%) and Luxembourg and Portugal (0.1%).
- The column profile of the age group "*from 45 to 54 years*" has the following features:
 - Germany has the largest contribution, since its resident tourists hold a share of 31.2%. It is followed by the United Kingdom (14.3%), France (10.3%) and Spain (6.6%);
 - average shares are held by the following countries: the Netherlands (5,6%) and Italy (5,1%), Sweden (3,6%), Switzerland (3,4%), the Czech Republic (3,3%) and Austria (3,1%);
 - lower and similar shares are held by Belgium (1,9%) and Ireland (1,8%);

- the lowest shares are held by Bulgaria, Cyprus and Malta (i.e. 0.1%), Estonia and Croatia (0.3%), Latvia, Slovenia and Slovakia (0.4%).

- The column profile of the age group "*from 55 to 64 years*" has the following features:

- Germany has the largest contribution, i.e. its resident tourists hold a share of 30%. It is followed, with great differences, by France (14.6%) and the UK (13.3%);

- average shares are held by the following countries: the Netherlands (6.5%), Spain (5.3%), Italy (4.7%);

- lower and similar shares are held by Switzerland (3.2%), the Czech Republic and Poland (3%), Austria and Finland (2.7%), Belgium (2.6%), Ireland 1.8%), Hungary (1.3%) and Slovakia (1.2%);

- the lowest shares are held by Bulgaria and Cyprus (0.1%).

- The column profile of the age group "*65 years and over*" has the following features:

- Germany has the largest contribution, i.e. its resident tourists hold a share of 32.4%. It is followed, with great differences, by France (17.1%) and the UK (13.2%);

- average shares are held by the following countries: the Netherlands (6.6%), Sweden (5.6%), Italy (3.9%), Spain and Switzerland (3%), Finland (2.9%), Austria (2.6%), the Czech Republic (2.2%);

- low and similar shares are held by Ireland (1.5%), Hungary (1.4%), Belgium (1.3%);

- the lowest shares are held by Greece and Cyprus, (0,1%), Latvia, Slovenia and Slovakia (0,2%).

It is noteworthy that Germany is the country with the largest contribution, in terms of the number of tourists, within each age group, except for the age group "*less than 15 years*", where there are no data. Moreover, Germany has a balanced contribution to each age group (see Table 2). A few other countries can also be mentioned: Ireland, the Netherlands, Austria, Finland and Switzerland, where balanced contribution rates are noticed for all age groups.

4. Conclusions and recommendations

✓ In our opinion, the results obtained in this study provided us with the support to analyze and make comparisons between countries in terms of size and structure, by the age groups of resident tourists. At the same time, the results obtained by processing the database with the CFA method contributed to determining the ranking of countries according to the absolute value of the number of resident tourists (see Table 1) who take domestic trips, but also by their shares within each age group (see Table 2).

✓ Based on these results, we were able to perform some analyses (in terms of the ranking of each country) and comparisons (between countries; between individual values, on the one hand, and the total average of the 29 analyzed countries, on the other hand). In this context, we recall the following:

- the age group "*less than 15 years*" holds an average share of 2.7%. Over-average shares are held by all the five countries that reported tourists in this age group: Portugal (16.2%), the Netherlands (16.1%), Hungary (14.7%), Switzerland (12.5%) and Italy (12.2%);

- the age group "*from 15 to 24 years*" holds an average share of 14%. The highest shares (over the overall average) are held by the following countries: Croatia (23.8%), Malta (23.7%), Cyprus (23.3%), Slovakia (22.8%) and Lithuania (20.6%). The lowest shares are held by the UK (10.8%) and Greece (9.2%);

- the age group "*from 25 to 34 years*" holds an average share of 16.3%. The highest shares, above the general average, are held by countries such as Estonia (38.2%), Malta (34.4%), Romania (29.1%), Cyprus (26.3%), Greece (24.1%), Croatia (22.2%), Latvia (22.1%) and Poland (21.5%). The smallest shares, compared to the general average, are held by Portugal (11.9%) and the UK (12.6%);

- the age group "*from 35 to 44 years*" hold an average share of 17.7%. The highest shares, above the general average, are held by the following countries: Luxembourg (55.1%), Bulgaria (30.5%), Greece (25.3%), Estonia (25.1%), Poland (24.7%), Slovenia (24.4%); the lowest shares are held by Malta (12.9%), the Netherlands (13.7%), Switzerland (15.3%), Germany (15.5%) and Austria (15.8%);

- the age group "from 45 to 54 years" holds an average share of 18.9%. Compared to the general average, the highest shares are held by the following countries: Luxembourg (26.6%), the UK (23.7%), Bulgaria (22.5%), Austria (21%), Belgium (20.3%), Greece and Sweden (20%). The lowest shares are held by Slovakia (11.9%), Cyprus (13.6%), Croatia (14.5%) and the Netherlands (14.7%);

- the age group "from 54 to 64 years" has an average share of 15.1%. The highest shares are held by Slovakia (25%), Belgium (21.5%), France (18.6%) and the UK (17.6%). The lowest shares are held by Malta (8.2%), Bulgaria (8.5%), Cyprus (8.9%) and Sweden (9.4%);

- the age group "65 years and over" hold an average share of 15.4%. Compared to the general average, the highest shares are held by Sweden (25.2%), France (22.1%), the UK (17.9%) and Germany (17.1%), while the lowest shares are held by Slovakia (3.9%) and Bulgaria (4.4%).

The quantitative results, obtained by processing the database with the CFA method, contribute indirectly to some aspects of the tourists' behavior in terms of the trips taken in their country of residence. These can be used in the design of strategies aimed at diversifying the tourist supply in each country.

5. References

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