

EMPIRICAL ANALYSIS OF SEASONALITY PATTERNS IN TOURISM

PhD Biljana Petrevska, Assistant Professor, Faculty of Tourism and Business Logistics, Goce Delcev University
- Stip, Macedonia, e-mail: biljana.petrevska@ugd.edu.mk

Abstract: The paper makes an attempt empirically to investigate the presence of seasonality patterns in tourism. For that purpose, the case of Macedonia is elaborated by introducing data referring tourist arrivals for the period 1992-2012. The analysis is based upon employment of the Gini coefficient, as one of the most commonly applied indicators for measuring and expressing inequalities caused by temporary disorders. The computed data reject the research hypothesis and highlights new facts regarding seasonality in tourism demand in Macedonia. Namely, the outcomes point to conclusion of absence of seasonality i.e. tourism flow concentration is not significant to tourism development. Hence, this study underlines that the up-to-date modest tourism results must not be addressed to seasonality as strong and limiting factor for tourism development in Macedonia, since there is no such.

Key words: *Tourism demand; Gini coefficient; Seasonality; Tourism Development.*

1. Introduction

Due to variety of positive impacts on national economy, growth and overall development, each country is interested in tourism. Yet, its development is often interrupted by seasonality which is noted as one of the most influencing factor for limiting continuous tourism enlargement. In this respect, seasonality may be dictated by climate factor, such as temperature and sunshine, school or industrial holidays, the social scheduling of the society, accessibility or simply inertia through personal habits and so forth. So, one may understand seasonality as a phenomena that provokes incomplete and unbalanced usage of means necessary for economic development (BarOn, 1973). Moreover, combating seasonality and prolonging tourism season are important pillars of a sustainable and competitive tourism

development. Generally, seasonality is a notable characteristic of tourism demand being strongly liked to it and cannot be ignored. Though tourism flows to particular destination are determined by a complex array of factors that influence and impact visitor behavior, seasonality is one of the most predominant features of tourism demand.

This study, specifically intends to answer the following research questions:

- Is tourism in Macedonia affected with strong seasonality?
- Has tourism seasonality in Macedonia constant patterns?

In order to explore these assumptions, the paper is structured in several parts. After the introductory part, Section two provides a critical overview of the theoretical and empirical literature on seasonality in tourism. Section three presents a snapshot on tourism flows in Macedonia in the past twenty years. The research design encompassing the methodology and research frame are posed in Section four. Section five presents the main research findings and discussion, while the main conclusion and future challenges are noted in Section six. Generally, this study contributes by the empirical findings on measuring and expressing seasonality in tourism in Macedonia. More precisely, this research quantified seasonality patterns in tourism demand and argued that the modest results in tourism development in Macedonia must not be addressed to seasonality.

2. Literature review on seasonality in tourism

There is a large body of literature which main thesis are that seasonality in tourism must be addressed in an in-depth-manner in order to be understood and quantified. Generally, seasonality is defined as systematic, although not necessarily regular, intra-year movement in economic time series which are often caused by non-economic phenomena, such as climatic changes and regular timing of religious festivals (Thomas and Wallis, 1971).

Seasonality in tourism is an issue that is recognized as an important concern in tourism research. It has been a subject of interest among researchers and academicians thus provoking continuous debates and argumentations (Yacoumis, 1980; BarOn, 1993 and 1999; Baum, 1999; Lundtorp, 2001; Higham and Hinch, 2002; Jang, 2004; Rodrigues and Gouveia, 2004; Chung, 2009). Yet, they all generally agree that seasonality is occurred due to temporary imbalance in tourism flows caused by three types of factors:

- (1) Nature (sunny days, snow falls, insolation etc.);
- (2) Institutional factor (religious and pilgrimage travel, workers' holidays, students' ferries, festival events etc.); and
- (3) Other factors (social pressure, personal preferences, inertness etc.).

Moreover, it is noted that this type of systematic variations may be present during the year, semester, but also in the frames of a month or a week, even in a single day (Holloway, 1994; Lundberg et al, 1995). Each of them may have positive or negative influence on tourism development.

If having negative consequences over tourism development, the researches

pose the fact that seasonality may not be controlled (Allcock, 1989; Edgell, 1990; Go, 1990; Snepenger et al, 1990; Laws, 1991; Szivas et al, 2003; Goeldner and Ritchie, 2003). In this respect, they all refer to damaging influences in:

- (a) Employment (part-time employment, social instability and insecurity etc.);
- (b) Investments (high risks over law occupancy rate); and
- (c) Environment (pollution, over crowding, xenophobia, criminal activity etc.).

Thankfully to various methods for detecting seasonality, one may identify and introduce measures and activities in order to cope and overcome negative impacts on tourism. As the most commonly applied methods, the academicians note: extension of the season by introducing new tourist products immune to seasonality; application of positive pricing policy; developing business tourism, etc. (Sutcliffe and Sinclair, 1980; Witt et al, 1991; Nadal et al, 2004).

On the other side, there is a large body of literature that elaborates an approach that seasonality provokes positive effects as well, particularly in terms of sociology and ecology. Namely, after devastating high season, long and quiet period is more than welcomed especially for recovering the sources, and the local population as well (Hartmann, 1986; Drakatos, 1987; Butler, 1994; Grant et al, 1997).

3. Overview on tourism flows in Macedonia

In order to make an in-depth analysis regarding the inquiry of seasonality in tourism demand, we decomposed tourism flows by quarters. So, all quarters: Q1 (January, February and March), Q2 (April, May and June), Q3 (July, August and September) and Q4

(October, November and December) differ in tourism flows. Figure 1 visually presents tourism flows in Macedonia, in terms of tourist arrivals for the period 1992:Q1 - 2012:Q3. One may clearly note that the third quarter undoubtedly performs highest results when referring tourist

arrivals. This is general conclusion for entire sample period. Summer months have extremely high performances even in 2001 which was the weakest year in tourism manner due to the war conflict in Macedonia.

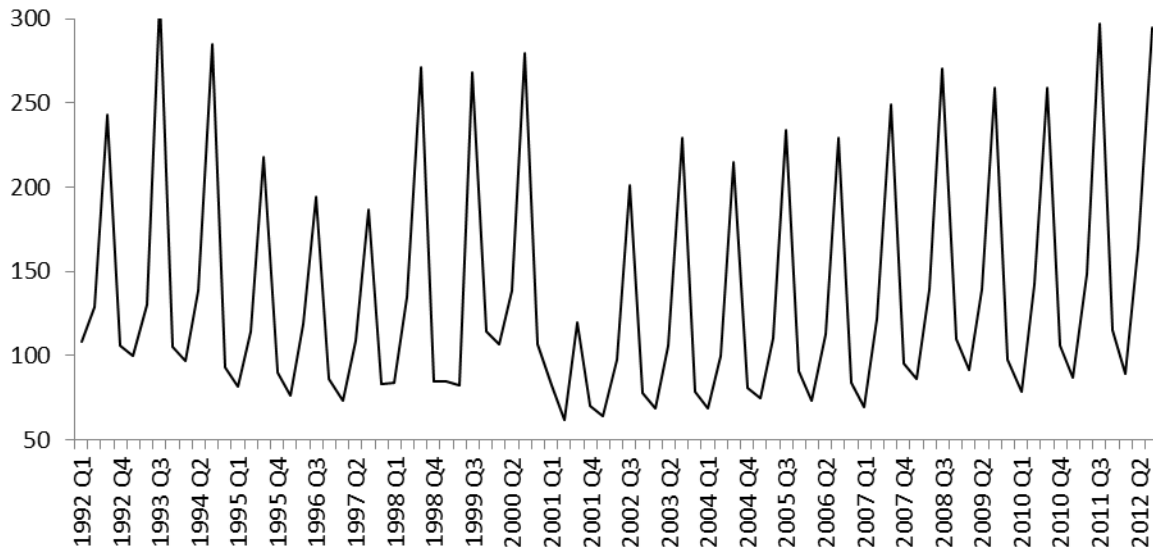


Figure 1. Tourist arrivals in Macedonia, 1992:Q1 - 2012:Q3

Source: Author's own calculations based on State Statistical Office (various years, various publications)

Additional insights regarding tourism flows by quarters are posted in Figure 2. Moreover, this figure presents number of tourists by quarters in 2011 in Macedonia, and in the World as well. One may visually conclude that Quarter 3 (comprised of summer months: July, August and September) encompasses the largest quantum of tourists and travelers, that representing the highest peak-point i.e. the high season. With regards to Macedonia this may be explained with fact that in Q3 tourism demand is the highest due to presence of multiple factors.

Namely, in these months the usage of holidays and ferries is the highest (institutional factor), there is hot and sunny weather particularly in lake resorts (natural factor) and there is a manifestation of personal preferences and attitudes of tourists and travelers (other factors). Consequently, one may note that these kind of supportive factors are not common only for Macedonia, but are rather noted in the world as well. Although at first glance this may seem as a seasonality pattern, yet further in-depth analysis leads us to opposite conclusion.

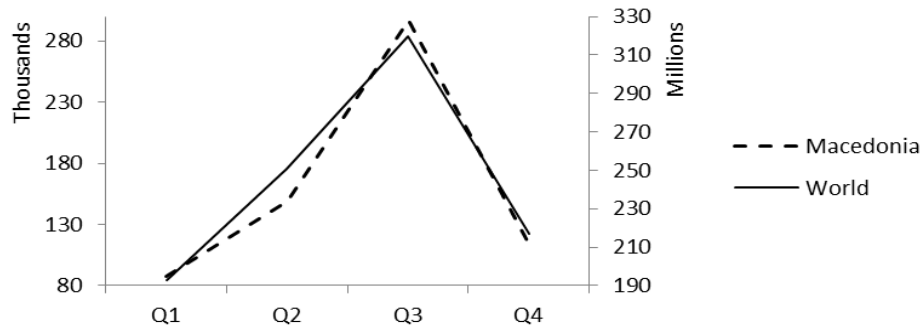


Figure 2. Number of tourists in 2011, Macedonia vs. World *Source:* Author’s calculations.

4. Research methodology

Based on the research question noted in the introductory part, the research attempts to meet the following aims:

- (a) To gain in-depth knowledge regarding seasonal patterns of tourism in Macedonia; and
- (b) To empirically test and analyze the strength of seasonality in tourism demand in Macedonia.

Hence, following research hypothesis is set: “Tourism demand in Macedonia has strong seasonality ($G > 0.5$)”.

The research is mainly covered by quantitative approach in order to meet the set objectives. In this respect, the analysis of seasonal concentration of tourism demand in Macedonia is done by computing the Gini coefficient (G). It is first developed and introduced in 1912, and since then it is one of the most commonly used coefficients for measuring inequality of revenues caused by temporary disorders. Moreover, the Gini coefficient is often applied as appropriate measure for expressing seasonality in tourism (Black, 2002; Fernández-Morales, 2003; Nadal et al, 2004; Lim and McAleer, 2008; Arnold, 2008; Bigovic, 2012). In

this respect, different approaches are noted for calculating the Gini coefficient (Xu, 2003). Its value spreads between 0 and 1, whereas bigger G represents bigger inequality i.e. seasonality in tourism, and vice versa.

The main variable applied in this research is the number of tourists on monthly basis during the period 1992-2012. Calculations are based on standard equation for Gini coefficient on yearly basis (Eq. 1).

$$G = \frac{2}{n} \sum_{i=1}^n (x_i - y_i) = \frac{2}{n} [(x_1 - y_1) + (x_2 - y_2) + \dots + (x_n - y_n)] = \frac{2}{n} [\sum_{i=1}^n x_i - \sum_{i=1}^n y_i] \quad (1)$$

Whereas:

n denotes number of months;

x_i denotes rank of the months (1/12, 2/12, ..., 12/12);

y_i denotes cumulative relative frequency of tourist arrivals in rank by ascending order.

5. Results, analysis and discussion

As noted in the methodological framework, the main aim is to calculate the Gini coefficient for tourism demand in Macedonia for the sample period. For that

purpose, some previous calculation must be undertaken. In this line, firstly the fractiles' rank i.e. months in a year, are computed (x_i). Due to their consistency ($\Sigma x_i = 6.5$) the obtained data are applied in further calculations.

Table 1 presents cumulative relative frequency of tourist arrivals by ascending order on yearly basis (y_i) and the difference between number of fractiles and the cumulative relative frequency in rank ($\Sigma x_i - \Sigma y_i$). The calculated values for Gini coefficient for the sample period are presented in the last row of Table 1. It is noticeable similarities in its value during the past two decades, spreading between 0.2042 and 0.3185. The average value of the Gini coefficient for the period 1992-2012 is 0.2774. The data show that seasonality in terms of intra-year monthly

variations in tourist arrivals is constant during the 21-year period.

Due to fact that research calculations referring Gini coefficient are far below the margin of 0.5, one may conclude the absence of seasonality in tourism. Namely, the low value of Gini coefficient shows that current distribution of tourism demand for the sample period, has no meaning to Macedonia. So, the concentration in terms of tourist arrivals in Macedonia points to relative balance and equality. Thus, high peaks in July and August have not sufficient capacity and strength for serious influence with an in-depth manner. Therefore, the research hypothesis is rejected pointing to conclusion that tourism demand in Macedonia has no seasonal patterns.

Table 1. Gini coefficient for tourism demand in Macedonia, 1992-2012

Year	Tourist arrivals	y_i	$\Sigma x_i - \Sigma y_i$	G
1992	585699	5.162265	1.337735	0.2230
1993	647728	4.688712	1.811288	0.3019
1994	613154	4.712432	1.787567	0.2979
1995	503837	4.942154	1.557846	0.2596
1996	476205	5.032522	1.467477	0.2446
1997	451871	4.980468	1.519532	0.2533
1998	575080	4.589051	1.910948	0.3185
1999	549630	4.632997	1.867002	0.3112
2000	632523	4.924533	1.575467	0.2626
2001	333308	5.274685	1.225315	0.2042
2002	441712	4.741342	1.758657	0.2931
2003	483151	4.655795	1.844205	0.3074
2004	465015	4.773329	1.726671	0.2878
2005	509706	4.818808	1.681192	0.2802

2006	499473	4.805113	1.694887	0.2825
2007	536212	4.704226	1.795774	0.2993
2008	605320	4.799811	1.700188	0.2834
2009	587770	4.844718	1.655282	0.2759
2010	586241	4.816294	1.683706	0.2806
2011	647568	4.790886	1.709114	0.2849
2012*	597481	4.132557	1.367443	0.2735
Average 1992-2012				0.2774

Source: Author's calculations

Note: *Data refer by the end of October.

From Figure 3 can be noted that all calculated values of Gini coefficient are similar and approximately constant with small neglectable variations. This refers to conclusion that during the entire sample covering a period over twenty years there was never any presence of seasonality in tourism in Macedonia. So, the belief for having high tourism seasonality in Macedonia with permanent characteristics, particularly in summer months, scientifically is proved to be groundless.

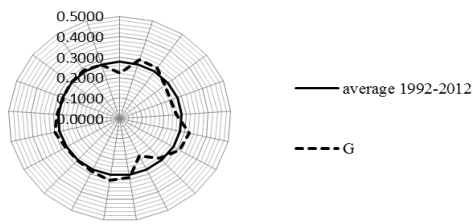


Figure 3. Comparing Gini coefficient, 1992-2012

Based on data visually presented in Figure 3, one may conclude that the values of Gini coefficient during 1992-2012 were almost identical, with certain exceptions (Gini coefficient has the lowest value in 2001 due to war conflict in Macedonia). Consequently, it can be concluded an absence of seasonality in tourism in Macedonia within the past twenty years, but rather modest results in tourism development. Yet, one may find positive impulse in increased presence of foreign tourists, particularly in the past two years, as well as in encouraging forecasted values. Namely, upon a medium-run estimation of foreign tourist demand, it is expected an increase of 17% until 2014 (Petrevska, 2012: 53).

6. Conclusion

This paper aims to recall the importance of seasonality as one of the major and profound limits for tourism development. In this respect, a brief overview is presented on reasons for the most examined negative effects of tourism seasonality. Additionally, some approaches referring positive impacts due to seasonality have been noted. In the same time, the research attempts to clarify the difference between registered peaks in third quarter in each year, and the presence of seasonality. Namely, statistical data

regarding tourist arrivals really do present largest figures, but it must not be generalized and interpreted as seasonality in tourism flows. On the contrary, this only indicates that in quarter 3 exist cumulative influence of all factors that provoke extended concentration and increased demand. Such situation includes: acceptable and favorable weather conditions; extensive insolated days; usage of vacations and ferries; personal preferences for summer season etc. Furthermore, this research notes that this kind of supportive factors are not common only for Macedonia, but are rather noted in the world as well.

The paper presents the research findings upon the main aim of the empirical investigation. So, in order to investigate seasonality in tourism demand in Macedonia, the basic variable used in the calculation is tourist arrivals on monthly basis. The sample spread over two decades, from 1992 to 2012. The research outcomes rejected the hypothesis and gave a scientific clarification for no presence of seasonality in tourism in Macedonia. Moreover, the findings point to fact that distribution i.e. concentration of tourism demand in terms of tourist arrivals, has no meaning to Macedonia. Since the sample period covers a time-frame of two decades, the research results indicate that seasonality in tourism never existed at all since the independence of Macedonia until today, but rather to talk about permanent modest tourism development.

Generally, this research found out that theoretical belief for existing seasonality with strong and permanent patterns, particularly in summer months, is groundless. Hence, this empirical analysis in a scientific manner rejects such attitude and disentangles the presence of seasonal concentration in tourism in Macedonia. So,

the up-to-date modest tourism results must not be addressed to seasonality as strong and limiting factor for tourism development in Macedonia, since there is no such. Although the use of simple technique can be helpful in some contexts, the research may be enhanced in future work by employing advanced methods. Due to fact that this is first attempt empirically to test seasonality in tourism demand in Macedonia, this paper gains additional importance and contribution.

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