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Analysis of Seasonality - Inbound Tourist Demand in Croatia

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Abstract. Tourism, as Croatia's largest industry, plays a crucial role in the economic development, but a major problem in the development of this crucial activity is seasonality. Seasonality has become one of the most distinctive and determinative features of global tourism industry, caused by mainly natural and institutional factors, implying numerous economical, employment, environmental and social problems. The research is focused on analysing the structure of seasonality in inbound tourist demand, due to their contribution to overall arrivals and overnight stays, in Adriatic Croatia, Croatia's leading receiving touristic area. Seasonal fluctuations are analysed using seasonality ratio, identifying monthly deviations from annual average and Lorenz curve, identifying seasonal concentration of tourist flows. Annual data on arrivals and overnight stays is used from Croatian Bureau of Statistics. Seasonality of demand is examined in terms of county, nationality and organization of tourist arrivals to identify differences in seasonal structure between counties, between generating markets and market segments. Research results indicate extreme seasonality in observed counties of Adriatic Croatia with high concentration of tourist demand in peak season. Croatia's leading generating markets are primary concentrated on arrivals and overnight stays in peak season months, whereby only Germany, France and Austria tend to have an extended summer season. Tourists arriving by individual arrangement have a higher degree of seasonality comparing to organized trips. The obtained data confirms Croatia's position as sun, sand and sea destination. Actions need to be done by public and private sector to examine solutions to mitigate seasonal pattern in Croatian tourism. The research paper represents first effort to analyse monthly seasonal fluctuations and annual concentration of inbound tourist demand in region of Adriatic Croatia. Used methodology and approach are identifying, so far undetermined, differences between the seasonal structures of counties, nationality of generating markets and organization of tourist arrivals. Findings are a guide the further development of Croatian tourism, which is characterised by extreme seasonality.

Keywords: seasonality, inbound tourist demand, Adriatic Croatia, seasonality ratio, Lorenz curve.

1. Introduction

International tourism is of great importance to the economies of Mediterranean countries, with its creation of foreign exchange earnings, employment, generation of income and regional development effects.

As one of country's largest industries, tourism plays a crucial role in the economic development of Croatia. With the growth of tourism flows the importance of tourisms contribution to the national economy was growing. The importance of tourism in Croatian economy represent the following data which state that tourism revenues grow from 28.681 bn HRK in 2001 to 62.740 bn HRK in 2012 (WTTC, Country Reports), whereby 11,8% of national GDP in 2012 is contributed by direct travel and tourism (WTTC, Country Reports). Another major characteristic of tourism, for Croatia, is its opportunity to provide national export. The contribution of tourism export to overall Croatian export in 2012 was 44,3%

(WTTC, Country Reports). Growth of tourism industry can affect the growth of variety of industries ranging from food and beverage, furniture, constructions, transportation etc. As tourism is a labor-intensive industry it can create employment. In 2012 the direct contribution of travel and tourism to employment was 13,1% (WTTC, Country Reports).

Given that 87,6% of Croatian overall arrivals and 91,7% of overnight stays in 2012 make inbound tourists (Croatian Bureau of Statistics), with respect to their overall contribution to Croatian tourism it is important to analyze their touristic flows. Furthermore, 88,67% of overall tourist arrivals and 96,11% of overall overnight stays in 2012 are generated on the Adriatic Croatia (Croatian Bureau of Statistics), therefore primary focus of seasonality research is put on this dominating tourism area of Croatia.

Table 1 Distribution of foreign tourist arrivals and nights by county

	arrivals			nights		
	2001.	2012.	indices 2012./2001.	2001.	2012.	indices 2012./2001.
VIII	1.517.206	2.331.844	153,69	8.783.296	11.867.052	135,11
IX	150.677	459.816	305,17	676.307	1.802.928	266,58
XIII	491.717	1.063.979	216,38	2.763.911	6.725.572	243,34
XV	438.933	659.217	150,19	1.985.119	4.127.956	207,95
XVII	881.605	1.822.705	206,75	5.316.001	10.462.698	196,82
XVIII	2.223.217	2.927.707	131,69	15.451.503	19.580.389	126,72
XIX	459.350	1.106.670	240,92	2.737.232	5.123.876	187,19

Notes: VIII - County of Primorje-Gorski kotar; IX - County of Lika-Senj, XIII - County of Zadar, XV - County of Šibenik-Knin, XVII - County of Split-Dalmatia, XVIII - County of Istria, XIX - County of Dubrovnik-Neretva

Source: Author´s calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – cumulative data January – December 2001 and 2012.

The number of foreign tourist arrivals grew from 6.544.217 in 2001 to 10.234.315 in 2012 (Croatian Bureau of Statistics). As shown in Table 1 the largest share in overall Croatian tourist arrivals in 2012 have the counties Istria (2.927.707 arrivals) , Primorje-Gorski kotar (2.331.844 arrivals) and Split-Dalmatia (1.822.705 arrivals), whereby Istria and Primorje-Gorski kotar suffer a slower growth trend then all other coastal counties. County of Lika-Senj tripled their tourist arrivals in 2012 comparing to 2001 (+205,17%), highly significant growth of tourist arrivals in 2012 had also the county of Dubrovnik-Neretva (+140,92%). The foreign overnight stays grew from 38.383.677 in 2001 to 56.874.113 in 2012 (Croatian Bureau of Statistics). The absolutely larges contribution to overall foreign overnights stay had the county of Istria with 19.580.389, followed by County of Primorje-Gorski kotar with 11.867.052 and County of Split-Dalmatia with 10.462.698. As well as in tourist arrivals all counties recorded an upward trend by overnight stays, which is the most significant in County of Lika-Senj (+166,58%), County of Zadar (+143,34%) and County of Šibenik-Knin (+107.95%).

Table 2 Distribution of foreign tourist arrivals and nights by country of residence

	arrivals			nights		
	2001.	2012.	indices 2012./2001.	2001.	2012.	indices 2012./2001.
IT	1.059.810	1.050.514	99,12	4.724.313	4.534.564	95,98
AT	686.844	945.578	137,67	3.600.881	5.103.762	141,74
SI	876.987	1.053.553	120,13	5.119.205	6.239.493	121,88
DE	1.299.729	1.852.731	142,55	9.685.991	13.946.703	143,99
FR	74.719	418.412	559,98	224.510	1.538.457	685,25
HU	279.825	307.912	110,04	1.553.600	1.628.915	104,85
PL	391.809	544.134	138,88	2.514.311	3.407.685	135,53
NL	125.087	335.266	268,03	1.058.838	2.574.673	243,16
CZ	742.485	647.211	87,17	4.921.354	4.519.489	91,83
SK	202.905	337.429	166,30	1.335.005	2.294.100	171,84

Source: Author's calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – cumulative data January – December 2001 and 2012.

Table 2 gives insight into Croatian leading generating markets. The structure of the top five generating markets by arrivals and overnight stays didn't change in 2012 considering 2001. Croatian tourism is still most dependent on tourism flows from Germany, Slovenia, Italy, Austria and Czech Republic. However, regarding the trend, it is possible to conclude that changes in the demand structure occurred. The globalisation and dispersion in tourism resulted in changes of traditional tourist flows. Croatia has become a well-known world destination and is target by new generating countries. One of the most significant changes can be seen by the French tourist demand that had a growth of +459,98% by arrivals and +585,25% by overnight stays since 2001, but this is just one example of the changing demand structure in Croatia. Italy has stagnated in the observed period by arrivals and overnight stays, while Czech Republic decreased by arrivals and overnight stays.

Tourism as an integral part of global business is highly dependent on seasonal changes in climatic conditions, economic activities as well as human behavior and the society in general (Kolomiets, 2010). Seasonality has become one of the most distinctive and determinative features of global tourism industry (Baum and Lundtrop, 2001), and so of Croatian tourism. Croatian tourism is most affect by seasonality comparing to other European Union countries. Seasonal variation in occupancy of collective tourism accommodation measured by seasonal ratio peak/bottom at European Union level is 3.8, while Croatia has a ratio of 35.2 (Eurostat 53/210). The relevance of seasonality pattern in Croatian tourism was also highlighted in research by Kožić, Krešić and Boranić-Živode (2013). Already 1975, BarOn stated that seasonality generates cost losses called "seasonal loss". Seasonality contributes to destinations problem of maximizing the efficient operation of tourism facilities and infrastructures, and results in unnecessary excess capacity for most of the year in most destinations (Butler, 1994). The concept of seasonality may be perceived to be familiar to many, however, there is no unique and precise definition of it (Koc and Altinay, 2007). As a universally accepted definition of seasonality is taken the definition by Hylleberg (1992) who indicates that seasonality is the systematic, although not necessarily regular, intra-year movement caused by changes in the weather, the calendar, and timing of decisions, directly or indirectly thorough the production and consumption decisions made by the agents of the economy. While Butler (1994) describe seasonality in tourism as a temporal imbalance in the phenomenon of tourism, which may be expressed in terms of dimensions of such elements as

number of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment and admissions to attractions. Most definitions and general concepts of seasonality describe the phenomenon only in general terms or relate to its causes. There is a lack of quantifiable definitions stating when tourism seasonality occurs, how tourism seasons can be differentiated, and how seasonality can be compared between different regions or years (Koenig and Bischoff, 2005).

It can be stated that seasonality is caused by two basic elements, natural and institutional (BarOn, 1975; Hartman, 1986; Butler, 1994). The first, as the name implies, relates to regular temporal variations in natural phenomena, at a particular destination, mostly those associated with climate (air and water temperature, sunlight, rainfall, daylight, wind). Natural seasonality associates with annual seasons and especially affects remote and peripheral destinations with big temperature differences between the seasons (Kolomiets, 2010). Even they are out of the control of decision-makers, Hartman (1986) states that, seasonal variations caused by natural factors are predictable as they are relatively stable in a particular destination, and recur with small changes. Tourist destinations suffer a higher degree of seasonality, caused by natural factors, if they rely on predominant outdoor facilities. Therefore, climate is an important attraction factor but at the same time it limits the business period and should be considered as a constraint to tourism development. The second category of seasonality depends on social, religious, cultural and/or ethnic factors, caused by human actions and decisions, which are often enshrined in legislation (Butler, 1994). Most influencing institutional causes of seasonality are school holidays, industrial holidays and calendar effects through Easter and public holidays. Those causes of seasonality are partially under the control of the decision makers. Social pressure, sporting season and inertia of travelers can be considered as additional causes of seasonality (Butler, 1994). The causes of seasonality in academic literature and by tourism operators are well known, but, the question is, are they well understood. Hylleberg (1992) points out that some causes are stable over long periods (e.g. the timing of Christmas), some change at discrete intervals (e.g. vacations), some vary continuously but predictably (e.g. the timing of Easter), while others are unpredictable (e.g. weather).

Seasonality causes numerous negative implications, which are mostly reflected on the receiving area is the location of the suppliers of tourism activity (tourism operators, employees and residents) (Lee et al., 2008). One of the most serious problems of seasonality is its negative effect on the economy through low annual return on investments due to the instability of year-round revenues. Tourism resources have always high risk of under-utilization, especially physical facilities with high fixed cost and tangible products are affected by seasonal variations in tourism demand (Butler, 1994; Jang, 2004). Unused capacity and related inefficiencies tend to result in difficulty in attracting investors and lenders. Another serious problem of seasonality is its demand for seasonal employment (Kolomiets, 2010). Seasonality business makes it difficult for employers to hire full-time employees, resulting in higher welfare costs, transient workforce, lower retention and development of employees (Getz and Nilsson, 2004; Commons and Page, 2001). Overuse of tourism resources during main season end up with environmental problems as air pollution, water consumption, sewage disposal problems, wildlife disturbance, resulting in ecological carrying capacity problems (Butler, 1994). Imbalance in tourism demand may also have a negative impact on local culture and society. Problems for local people include congestions, crowded streets, slower traffic, lack of parking, queues for services, and significant increase in the cost of community services, due to the dramatic increases in population during the summer months (Koenig and Bischoff, 2005).

The effects of seasonality vary depending on the location and nature of destination and its attractions (Baum and Hagen, 1994). The increasing number of tourism enterprises and their

expanding in size reduce the ability to adapt the growing changes in tourism demand and to control seasonal fluctuations. Numerous strategies to extend the summer season and overcome the problem of seasonality where defined by authors and researchers. They can be categorized in three groups: price diversification, attraction diversification and market segmentation. Differential pricing is used to attract tourist demand outside the main season with group booking offers or promotional pricing. Diversifying attraction as method of expanding summer season and attracting demand in off-season implies introduction of festivals and events, development of wet-weather facilities, business travel including international meetings, conferences and exhibitions (Lundtrop et al., 2001). Baum and Hagen (1999) discuss the identification of new market segments as another strategy to increase demand outside the peak season. It is important to match seasonal motivation with tourist product or local attraction. Better understanding of market segmentation and the motivations of tourists can assist in the development of a product or marketing approach that will encourage greater visitation during the low season (Baum & Hagen 1999). The ability to adopt a strategy and to extend the season or to introduce a second season is largely dependent on the location and competitiveness of the destination, whereby remote and peripheral areas may encounter difficulties to develop all-season tourism product. With regard to the relevance and topicality of seasonal patterns, it is necessary to analyze seasonality in tourist demand. Obtained data are used as a guide for future action in efforts to combat seasonality.

2. Methodology

Seasonality is a measurable feature of tourism. It can be expressed in the number of visitors, their expenditures, admission to attraction, supply volume etc., although the basic unit to measure seasonality is in number of visitors (Kolomiets, 2010). An appropriate measuring method is required in order to analyze and describe the seasonal concentration of tourist demand. Researching the problem of seasonality it is necessary to ensure the ability to quantify the degree of seasonality. Relatively few authors have closely examined ways of quantifying and comparing empirical patterns (Koenig and Bischoff, 2005). Several static measures are well known in the academic literature such as: "Seasonal range" (difference between highest and lowest monthly indices), the "Seasonality ratio" (highest seasonal value divided by lowest) or (highest seasonal value divided by the average number of monthly guests), "Seasonality intensity" (the highest value minus the lowest seasonal value), the "Coefficient of seasonal variation" (standard deviation from average number of guest). These statistics are relatively easy to compute and to extend to a sample of N years, but they are also affected by shocks that have nothing to do with seasonality. The Gini coefficient is possibly the most widely used measure of seasonality. It is a measure of statistical dispersion which was, and is still, commonly used in an economics context as a measure of inequality and in tourism context as a measure of seasonal concentration (Fernandez-Morales, 2003). The Gini index possesses useful statistical properties, including that Gini is less dependent on the highest fractile and thus more sensitive to variations outside the peak season. Major negative property is the fact that Gini is an annual seasonality indicator and it doesn't give information about monthly seasonal fluctuation. Lorenz curve is used as a graphical representation of inequality to describe the seasonal concentration within a year. If complete equality of tourist demand would occur, with the same numbers of tourists' arrivals or overnight stays every month, the Lorenz curve would be a straight line (i.e., represents 45° equality line). The more unequal the seasonal distribution of tourist demand, the larger will be the area between the Lorenz curve and the line of equality. The Lorenz curve in tourism industry shows the cumulate frequencies in rank with the lowest frequency to the left and the month with the highest number of demand to the right. Representing the distribution of tourist flows through four quarters it gives information about concentration of tourist demand in each quarter.

While the variety of approaches for measuring seasonal fluctuations in tourist demand is wide, only a few studies make the attempt of comparing these measures regarding their limitations, providing guidelines for analyzing seasonal fluctuations. Compares of different seasonality measures are provided in studies by Lundtorp (2001) and Karamustafa and Ulama (2010). No general guidelines exist of how seasonality of tourist demand can and should be measured and which input data should be used. Regarding the lack of standards in quantification methods, comparisons of demand fluctuations between destinations is limited. Each of these measures could be used on their own, or simultaneously, to identify extreme seasonality between destinations. A combination of different approaches is suggested to be the most adequately way for analyzing seasonal demand fluctuation at national level (Koenig and Bischoff, 2005).

With the purpose to describe the seasonal fluctuation and seasonal concentration of Adriatic Croatian inbound tourism a combination of two measurement approaches is used. First, seasonality ratio, monthly data is divided by annual average to identify monthly demand fluctuations, and then dividing highest seasonal value by the average number of monthly guests indicates the annual degree of seasonality. Application of seasonality ratio indicates fluctuations of monthly tourist arrivals and overnight stays from the annual average, providing insight into the intro year movement of demand and identifying positive and negative fluctuations from the annual average. Second, Lorenz curve is used to represent graphically the inequality of demand concentration through the year. Thereby focus is put on demand concentration in the last quarter, which displays the three top performing annual months. Seasonality is analyzed within a year at county level, at nationality level and by organisation of tourist arrivals, using overall arrivals and overnight stays data provided by Croatian Bureau of statistics. The intent is to analyze seasonality by county to identify the differences and possibly positive tendencies, by nation to identify those who contribute to higher overall seasonality and those who show signs of lower seasonality and extended summer season, by organization of arrangement to identify the ability of tour agents to disperse evenly demand through seasons.

3. Results

Table 3 represents the seasonal ratio of foreign tourist arrivals and nights by county. Results indicate extreme seasonality in whole Adriatic Croatia. County of Dubrovnik-Neretva has the lowest value but with a seasonality ratio of 2,72 for tourist arrivals and 3,33 for overnight stays, meaning that the month with the highest arrival and overnight stay has 2,72 time more arrivals and 3,33 times more overnight stays then the counties annual average, therefore it still suffers extreme seasonal concentration of tourism demand. Regarding the monthly distribution of tourist arrivals it can be clearly stated that August is the top performing month. County of Dubrovnik-Neretva is also the county with the most acceptable arrival and overnight stay distribution through the year, with the best preseason and shoulder season. Most pronounced seasonality has the County of Zadar and County of Šibenik-Knin. Furthermore, it can be concluded that overnight stays have a higher seasonal ratio than arrivals. Finally, there is no evident demand deviation by seasons by county, except County of Dubrovnik-Neretva.

Table 3 Seasonality Ratio of foreign tourist arrivals and overnight stays by county

	Arrivals						
	VIII	IX	XIII	XV	XVII	XVIII	XIX
01/12	12	8	5	4	7	5	9
02/12	10	5	5	4	7	7	8
03/12	24	14	11	13	15	19	22
04/12	59	54	37	39	42	66	69
05/12	75	74	61	74	70	80	104
06/12	169	165	154	149	157	186	168
07/12	295	314	371	357	337	309	251
08/12	334	355	377	361	339	320	272
09/12	141	136	127	147	157	155	173
10/12	53	54	35	42	49	35	91
11/12	17	15	11	6	12	10	19
12/12	13	7	6	5	8	9	14
Seasonality Ratio	3,34	3,55	3,77	3,61	3,39	3,20	2,72
	Nights						
	VIII	IX	XIII	XV	XVII	XVIII	XIX
01/12	6	3	2	2	3	3	6
02/12	5	2	2	2	3	4	4
03/12	11	5	4	5	6	9	12
04/12	32	25	15	19	20	35	46
05/12	47	36	30	38	43	54	78
06/12	150	138	131	121	134	163	161
07/12	352	384	420	411	380	354	297
08/12	416	462	461	444	414	393	333
09/12	135	113	112	128	156	155	171
10/12	32	23	17	25	32	22	73
11/12	8	6	4	3	6	5	11
12/12	6	3	2	2	4	4	8
Seasonality Ratio	4,16	4,62	4,61	4,44	4,14	3,93	3,33

Notes: VIII - County of Primorje-Gorski kotar; IX - County of Lika-Senj, XIII - County of Zadar, XV - County of Šibenik-Knin, XVII - County of Split-Dalmatia, XVIII - County of Istria, XIX - County of Dubrovnik-Neretva

Source: Author´s calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – different issue

Lorenz curve in Chart 1 presents the seasonal concentration of tourist arrivals by county. This seasonality indicator indicates the same seasonal structure as does the seasonality ratio. County of Dubrovnik-Neretva has the lowest seasonal concentration of tourist arrival achieving approx. 35% of overall arrivals in the first three quarters, and approx. 65% in the last quarter. The highest concentration of tourist arrivals has the County of Zadar and County of Šibenik-Knin, concentrating approx. 85% of their overall arrivals in the last quarter.

Seasonal concentration of tourist overnight stays by county has the same structure as arrivals, and, as the slope is more curved, with an even higher degree of high season concentration. County of Dubrovnik-Neretva has pronouncedly the most acceptable concentration curve, but still with more than 75% of total overnight stays concentrated in the high season months, what indicates extreme seasonal concentration. The county of Zadar has the highest seasonal concentration, contributing more than 90% of their overall overnight stays in the last quarter.
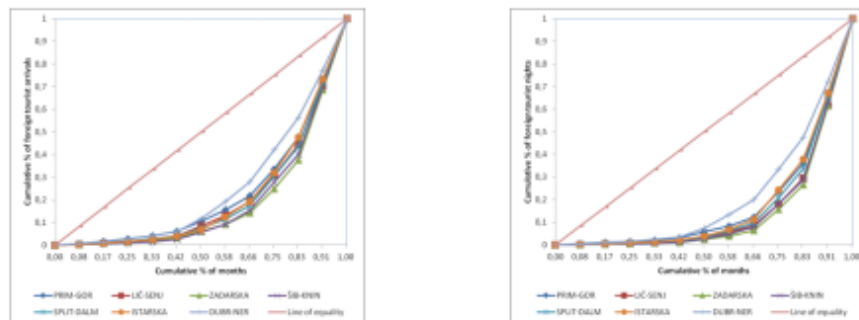

Chart 1 Lorenz curves - comparison of the concentration of foreign tourist arrivals and overnight stays by county in 2012 (Source: Author's calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – different issue)

Analyzing seasonality of foreign tourist arrivals and overnight stays by country of residence in Table 4 provide interesting conclusions. Italy, as one of Croatian leading generating markets, has the highest degree of seasonality with a seasonal ratio 5 in arrivals and 6,51 in overnight stays. All generating countries have a very high and significant seasonal ratio which confirms the seasonality pattern. The lowest seasonal ratio by arrivals has Austria (2,78) and by overnight stays France (2,77). Germany, France and Austria indicate to have an extended summer season by arrivals, France as the only country also by overnight stays, while Slovenia has as only country over average arrivals in April. Italy and Austria tend to have the best off-season period by arrivals and overnight stays. Seasonality ratio is in general higher by overnight stay than arrivals suggesting longer stay of demand in peak season. Deviations from regular seasonal structure most be identified and interpreted for further actions.

Table 4 Seasonality Ratio of foreign tourist arrivals and overnight stays by country of residence

	Arrivals									
	IT	AT	SI	DE	FR	HU	PL	NL	CZ	SK
01/12	12	6	6	2	4	4	1	2	1	2
02/12	9	8	9	3	6	6	1	3	1	2
03/12	24	28	15	13	11	11	3	4	3	4
04/12	74	57	103	45	69	24	36	24	5	9
05/12	56	116	65	124	140	41	55	95	19	12
06/12	141	189	204	147	136	142	116	143	233	126
07/12	204	268	372	247	235	379	394	527	417	504
08/12	500	278	270	359	365	431	403	262	367	455
09/12	104	166	103	194	171	120	174	110	148	76
10/12	35	54	31	56	48	29	12	25	5	5

	IT	AT	SI	DE	FR	HU	PL	NL	CZ	SK
11/12	20	19	11	5	8	8	3	3	2	3
12/12	21	12	11	5	6	5	1	2	1	1
Seasonality Ratio	5,00	2,78	3,72	3,59	3,65	4,31	4,03	5,27	4,17	5,04
Nights										
	IT	AT	SI	DE	FR	HU	PL	NL	CZ	SK
01/12	7	18	3	2	3	3	2	1	1	0
02/12	4	12	4	4	5	4	3	1	1	1
03/12	9	20	13	6	13	7	5	2	1	2
04/12	36	32	38	51	27	58	12	13	10	2
05/12	28	43	84	43	118	122	24	36	60	13
06/12	115	113	177	150	197	122	121	97	112	178
07/12	238	437	316	468	220	260	413	419	522	452
08/12	651	389	343	365	277	431	486	463	392	398
09/12	78	89	172	88	241	145	113	159	82	149
10/12	15	21	35	13	88	38	16	7	18	3
11/12	9	13	9	5	8	6	3	2	1	1
12/12	10	13	6	4	4	4	2	1	1	0
Seasonality Ratio	6,51	4,37	3,43	4,68	2,77	4,31	4,86	4,63	5,22	4,52

Source: Author´s calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – different issue

Both Lorenz curves in Chart 3 indicate a very high concentration of tourist demand, arrivals and overnight stays, by country of residence. Austria, France, Germany are those countries which have a concentration of 70% of overall arrivals and 80% by overnight stays in the last quarter, and with it they are the best performing three generating markets. Slovakia has the highest concentration of arrivals and overnight stays and overnight stays, approx. 95% in the last quarter, contributing significantly to Croatian overall high degree of seasonality in tourism.
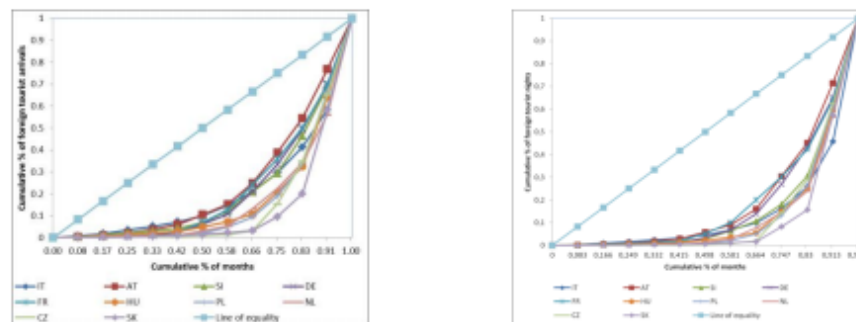

Chart 3 Lorenz curves - comparison of the concentration of foreign tourist arrivals and overnight stays by country of residence in 2012 (Source: Author's calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – different issue)

Table 5 presents the seasonality ratio of foreign tourist arrivals and overnight stays by organisation of tourist arrivals. Results indicate a higher degree of seasonality by individual arrangements by arrivals (3,85) and overnight stays (4,56) comparing to seasonal ratio of organized arrangements by arrivals (2,48) and overnight stays (3,25). Furthermore, organized arrangements have a more extended summer season with preseason and shoulder season lasting from April to October, while individual arrangements indicate a better performance in the off-season period.

Table 5 Seasonality Ratio of foreign tourist arrivals and overnight stays by organisation of tourist arrivals

	arrivals		nights	
	individual arrangement	organised trip	individual arrangement	organised trip
01/12	7	6	3	3
02/12	7	8	2	4
03/12	12	25	4	13
04/12	38	82	17	50
05/12	53	107	30	76
06/12	155	187	133	175
07/12	359	240	401	302
08/12	385	248	456	325
09/12	134	189	128	186
10/12	31	79	17	53
11/12	11	16	5	8
12/12	8	13	3	6
Seasonality Ratio	3,85	2,48	4,56	3,25

Source: Author´s calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – different issue
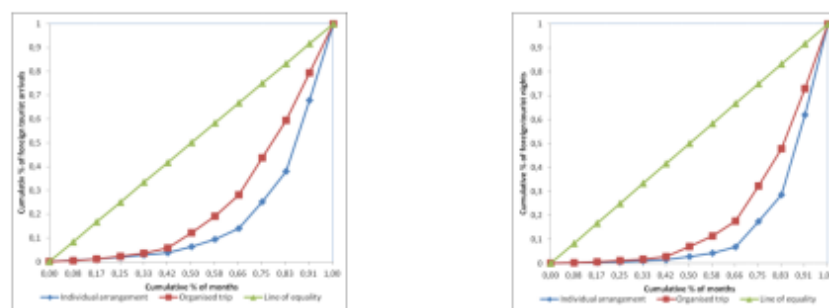

Chart 5 Lorenz curves - comparison of the concentration of foreign tourist arrivals and overnight stays by organisation tourist arrivals in 2012 (Source: Author´s calculations based on data obtained from Croatian Bureau of statistics, First Release, Tourism – different issue)

Chart 5 show better performances of organized arrangements by arrivals (approx. 60% in the last quarter) and overnight stays (approx. 70% in the last quarter). The slope of organized

arrivals and overnight stay is less curved and therefore has a lower degree of seasonality. Tourist arrivals indicate by individual and organised arrangement a lower degree of seasonal concentration of tourist demand than tourist overnight stays.

4. Discussion

Regarding all observed indicators Adriatic Croatia is suffering extreme seasonality. Slight differences of seasonality degree can be seen between counties, but even the better performing areas of Croatia are extreme seasonal characterized. Primary motivation of Croatian tourist demand is still sun, sand and sea with bathing as main activity. These tourist structures causes seasonality, imply negative effects and slow down the tourism development. Tourist flows are concentrated in high season months July and August, supported by June and September. The level of demand in other months is insignificant and clearly under the annuals average. High concentration of arrivals in peak season and an even higher concentration of overnight stays, what can be attributed to the tendency extended stay by peak season demand, contribute to unsustainability of Adriatic Croatian tourism. Taking into account the fact that the leading generating markets, as Italy or Czech Republic, are also the most seasonal affected, increases the relevance of seasonal pattern. Considering that Germany, France and Austria tend to have an extended season, and Italy and Austria tend to have the best off-season period, further actions have to be done to identify their motivations of traveling in low and off season to develop the grow of this intentions. Information about pronounced arrivals in April by Slovenian generating market should also be researched with the purpose to identify the motive of travel and to possibly adopt those findings in attracting other tourist segments. Any irregularity of demand in intra year movement should be focus of future research with intend to find solutions to combat seasonality. How obtained data confirm, one way to mitigate seasonality is the use of tour agents. Their ability is to organize arrangements in low season period and to attract tourist demand. It is necessary to identify those market segments who intend to travel outside the peak season and who are not affected by the institutional causes of seasonality. Climate in Adriatic Croatia, as one of the main causes of seasonality in tourism, is predictive and stable. Planning of wide ranged tourist activities in different seasons is possible dues to the stable and favourable weather conditions. Given the numerous natural and cultural resources Adriatic Croatia has all potentials to develop whole year tourism, attracting diverse tourist needs. Targeting specific markets with diversified tourist offer is for sure one direction Adriatic Croatia should take on their way to prolong the summer season and increase demand in off-season period. Furthermore, the well-known and widely used strategy of price diversification should be concerned as an option to tackle the seasonality issue.

5. Conclusion

Adriatic Croatia suffers extreme seasonality in tourist demand. The current seasonality structure doesn't indicate any potential solution to overcome seasonality of demand. Seasonality rations and Lorenz concentrations curves are very homogeny by county, generating market and organisation of tourist arrivals. Further researches are very important for tourism development of Croatia. Dynamic, multi-year, analysis of seasonality structure might provide a deeper insight into seasonality pattern of tourism. Business, primary focused on highs season, is unsustainable and with the growth of tourism negative implication, arising from high seasonality, will increase. Those implications affect destinations economy, employment, environment and social community. Developing such tourism the survival of tourism operators is under question. Actions need to be done to mitigate negative implications. Due to the relevance of seasonality pattern, joint activities by government, tourist social organisation, local community and tourist operators have to be mobilized with

the aim to adapt strategies to combat seasonality. Selective forms of tourism might be a way to attract low and off-season demand. Reduced seasonal concentration of tourism demand, motivated by ecological and cultural selective tourism, was already identified in research Ćorluka, Matošević Radić, Geić (2013). Based on the attractiveness of Croatian heritage, in a climatically favourable surrounding, numerous open air activities could be organized and offered, specialized for each tourist segment for each annual season. Potential strategies have to be tested by public and private sector to identify their ability to extend summer season in Adriatic Croatia.

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