



Measuring the Seasonality within Tourism Industry of Rajasthan

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Abstract:

Almost all of the tourism countries are suffering from seasonality. Like any other destinations Rajasthan Tourism industry has traditionally been characterized by strong seasonality with large differences between winter and summer season. The study proposes to measure seasonality in Rajasthan's tourism industry. The study based on the secondary data acquired from Department of Tourism, Rajasthan. The paper provides methodological approach to analyze seasonality by Seasonal Indices, Seasonal Ratio, Seasonal Indicator and Gini-Coefficient. The findings reveal that a combination of different methods is the best way for analyzing seasonality.

Key Words: Seasonality, Seasonal Indices, Seasonal Ratio, Seasonal Indicator and Gini-Coefficient.

1. Introduction

Season means present weather conditions in a particular area for a short period of time and seasonally a year can be divided into four main periods are spring, summer, autumn and winter. Seasons are important in view of the climatic changes associated with them and their impact on all forms of life and seasonal variations also make significant impact on travel and tourism.

Although seasonality is a universally recognized global tourism phenomenon, however there is no unique and precise definition of it. Hylleberg (1992) defines seasonality as the systematic, although not necessarily regular, intra-year movement caused by changes in the weather, the calendar and timing of decisions made by the agents of the economy. A regular cited definition provided by Butler (1994) who defines the concept of tourism seasonality as temporal imbalance in the phenomenon of tourism, which can be expressed in the terms of different indicators. An example of quantifiable definition of the appearance of tourist seasons is given by Lim and McAleer (2001) who defines tourist seasons as months for which the corresponding average indices exceeds 1.0 which means that the seasonal factors increases tourist numbers above the trend and cyclical component.

Seasonality occurs due to multiple reasons but literature mostly makes distinction between natural and institutional class natural seasonality as the name implies is predominantly related to climatic conditions where as institutional related to the religious cultural social ethnic and Organization factors such as school holidays state holidays religious events celebration of various events and festivals and so on. From this discussion it can be concluded that seasonality has been recognized as one of the key characteristics of tourist activities and important to exam in since it creates economic and social problems as well as negative effects on service quality in the tourism industry.

Seasonality is problematic for the industry in many ways it is not only reduces profitability and reduce human resource management difficult it also causes temporal variations in the capacity utilization of facilities and hence their productivity.

Despite of wealth of research there is a General feeling of lack of knowledge of the phenomena a good understanding of concept is essential of the efficient operation of tourism facilities and infrastructure because less seasonality means more stable all year employment which is considerable desirably. To ensure a more profitable and stable industry there is a wish to decrease seasonality everywhere and distribute visitors more evenly around the destination.

The majority of tourism destinations are characterized with fluctuation in tourism activities throughout the year. Like any other destinations Rajasthan Tourism industry has traditionally been characterized by strong is relative with large differences between winter and summer season.

2. Research Area

Rajasthan is a vibrant state richly and out with tourism resources the state not only has the most beautiful desert in the world but the entire land escape is dotted with reverse to distractions experience and products. The built heritage of reflecting the states Royal passed as a unique appeal and attraction as seen through its Grand Forts places temples and other heritage properties. With all its natural advantages, Rajasthan has been a pioneer in evolving a unique tourism product is it the launch of the Palace on Wheels luxury train or creation of festival experience like Pushkar fair or adaptive reuse of the heritage properties as tourist destination. The state granted the tourism sector the status of industry in 1989 and has since extended many fiscal incentive for the sector beginning with the capital investment subsidies in 1993.

3. Review of Literature

Goran (2018) evaluates the literature available on seasonality and pointed out about the lack of theoretical framework of tourism seasonality.

Gyoa and Rogvaldur (2017) analyzed seasonality in the number of tourists at nature destinations in south and west ice lands. He used Gini-coefficient to analyze the seasonality in tourism of ice lands.

Fernandez- Morales, Cisneros- Martinez and McCabe (2016) point out that there are few tourism destinations that are not affected adversely in some way or another way by the effect of seasonality.

Koc and Altinay (2007) suggested that although in general the main concern is about seasonality focuses on the effective planning and use of resources during the off- peak period, the peak period which is taken as granted also needs particular attention because the facilities during the peak period may become too crowded and this may cause difficulties in terms of maintaining service quality and satisfying tourist.

Like most of the researchers Goeldner and Ritchie (2003) stressed out seasonal patterns in demand cannot be eliminated, they can be reduced only.

Lundtorp et al. (1999) summarized all causes of seasonality and characterized with them into pull and push factor.

Butler and Mao (1997) analyzed that destinations with well-established tourism industries are the most successful in the attempt to reduce seasonality.

Butler (1994) summarized in the peak season many facilities might be closed and the full range of services may not be available. Therefore he stressed out strategies to lengthen the main season or to attract more visitors outside the season need the full support of host communities.

Tourist demand fluctuations may lead to a shortage of hotel rooms in the peak season while tourism resources all those have high risk of underutilization in off season.(Sutcliffe and Sinclair 1980; Butler 1994; Jang 2004; Koenig and Bischoff 2005; Chung 2009).

Visitors enjoyment and satisfaction might be reduced due to overcrowding at attraction sites, lack of capacities during the peak demand periods, pressure on the infrastructure, perceived price gouging in peak season with a negative impact on consumer perceptions of value, lack of quality as a result of overcrowd.(Jang 2004; Common and Page 2001; Krakover 2000).

Most of the authors tried to compare different seasonality measures by emphasizing their merits and pitfalls and analyzed seasonality by means of decomposing the time series with aim of quantifying cyclic variation magnitude by various methods, such as methods of seasonal ratio, seasonal indicator, seasonal indices and Gini-coefficient.(Baron R.R.V. 1975; Sutcliffe C.S.M. 1980; Lundtorp S.2001; Nadal 2004; Koc E.A.G. 2007).

4. Methodology

The paper aims at evaluating the degree of tourism in Rajasthan which certainly possesses a problem. A desk research was conducted to analyze the problem the study works with secondary data provided by Department of Tourism, Rajasthan, a government organization that collects monthly tourism data which we took as reference to analyze the level of seasonality from 2012 to 2018. The focus will be on monthly basis a wide range of measures has been used to analyze seasonal variation in tourism. Following measures are used to analyze a seasonality patterns:

1. Seasonal Index
2. Seasonal Ratio
3. Seasonal Indicator
4. Gini Coefficient

5. Data analysis

Seasonality has become one of the most distinctive and determinative feature of global tourism industry. Despite the fact that seasonality is one of the most prominent features of tourism, paradoxically, it is also one of the least understood. A wide range of measures has been used to analyze seasonal variation in tourism. The paper describes the seasonality by the following measures:

Table: 1

Foreign Tourist Arrivals (2012-2018)													
Year/ Month	Jan	Feb	Mar	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
2012	1551 56	1755 74	1678 96	1109 21	523 78	432 72	706 13	1016 19	8535 9	1416 10	1980 36	1489 36	1209 48
2013	1461 60	1760 62	1758 37	1112 09	481 16	402 18	644 49	9199 8	8472 4	1401 36	1950 17	1632 36	1197 64
2014	1556 40	1766 50	1900 09	1248 88	611 83	451 39	712 85	1047 11	9087 4	1512 21	1837 66	1702 08	1271 31
2015	1596 13	1850 49	1789 10	1193 47	547 23	432 41	686 33	9386 3	7660 7	1449 43	1854 79	1649 03	1229 43
2016	1515 43	1917 77	1893 09	1024 73	530 46	374 89	782 80	9815 0	9278 8	1564 17	2055 34	1569 23	1261 44
2017	1761 02	2035 84	1984 41	1144 17	512 76	380 50	686 96	1025 63	1021 86	1826 91	2074 52	1645 05	1341 64
2018	1764 27	2271 46	2223 06	1191 16	626 47	447 10	754 20	1147 95	1157 65	1783 93	2376 88	1799 35	1461 96

Table 1 shows the number of tourists' arrivals from 2012 to 2018. The all measurements have been done based on these FTAs.

Fig: 1

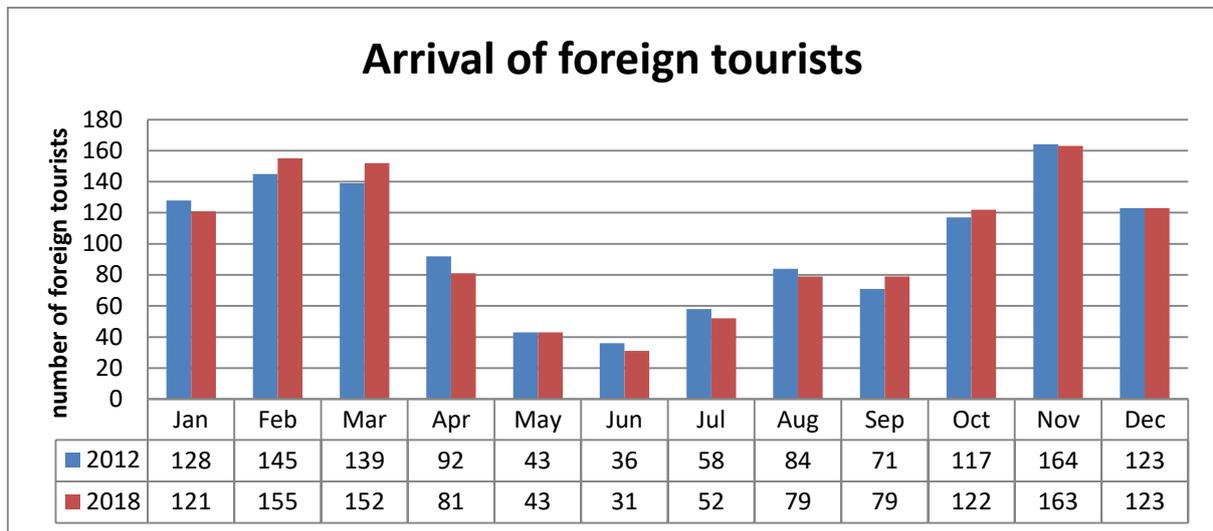


Figure 1 represents arrival of foreign tourists of two different years. By reviewing the table 1 and figure 1 we can see that Rajasthan’s tourism industry is showing high seasonality.

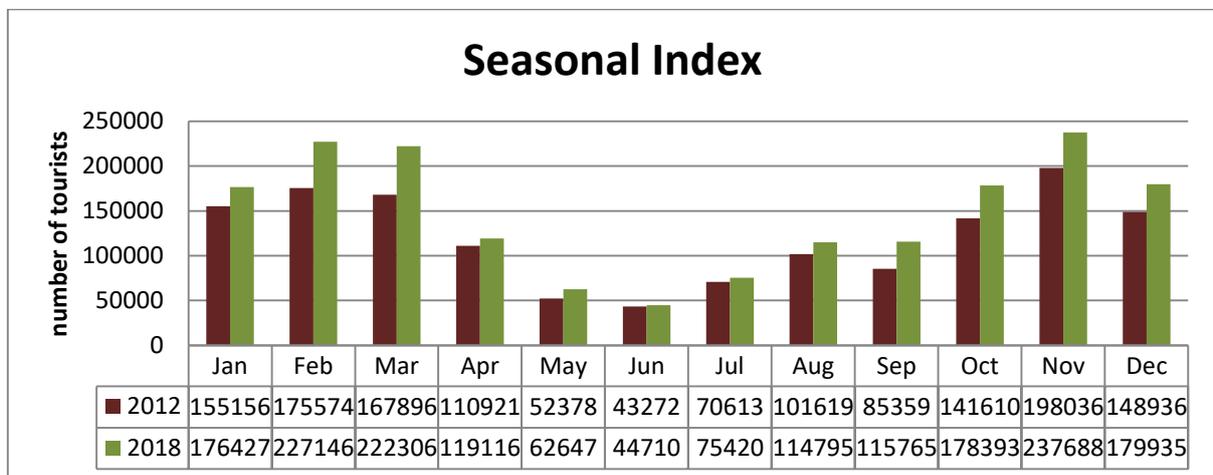
5.1 Seasonal Index

To determine the peak-, shoulder- and off- peak seasonal months for the destination, seasonal indices can be a good measurement. Seasonal indices have been determined by dividing the number of tourist arrivals by average number of tourist arrival.

Table: 2

Seasonal Index Months Wise												
Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	128	145	139	92	43	36	58	84	71	117	164	123
2013	122	147	147	93	40	34	54	77	71	117	163	136
2014	122	139	149	98	48	36	56	82	71	119	145	134
2015	130	151	146	97	45	35	56	76	62	118	151	134
2016	120	152	150	81	42	30	62	78	74	124	163	124
2017	131	152	148	85	38	28	51	76	76	136	155	123
2018	121	155	152	81	43	31	52	79	79	122	163	123

Fig: 2



As can be noticed from table 2 and figure 2 that some of the seasonal indices are higher than the average, which are peak seasons like January, February, march, October, November, and December. For some months they are close to the averages which are shoulder seasons like April, August, and September and for some months they are below the average which are off-peak seasons like May, June, July.

5.2 Seasonal Ratio

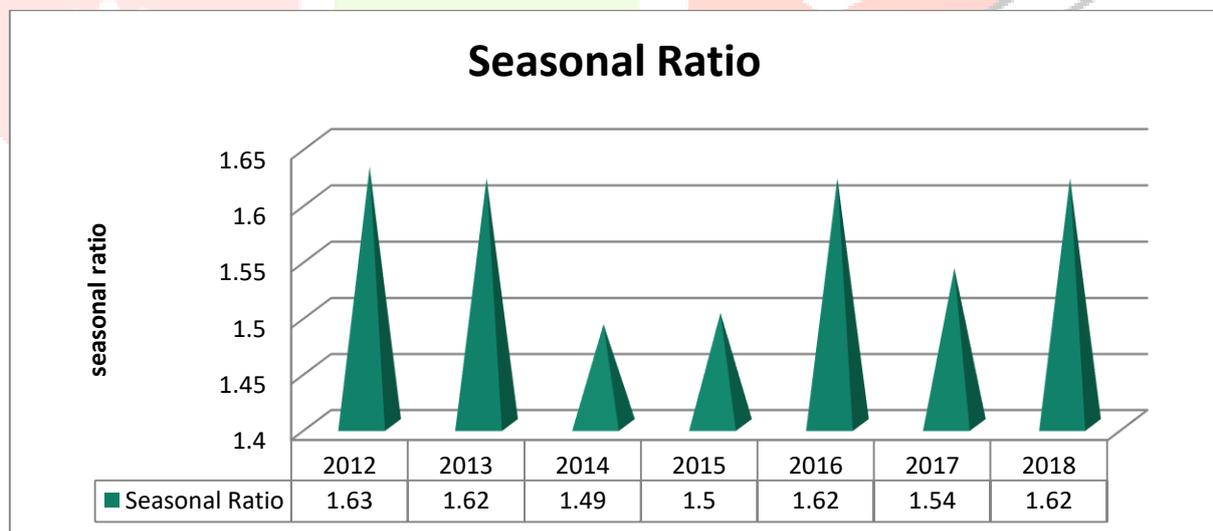
Seasonality ratio is calculated by taking the highest number of visitors and dividing them by the average number of visitors. This ratio increases with the degree of seasonal variation.

Theoretically, the seasonal Ratio can vary from 1 to 12. If the number of visitors arriving is constant for every month, then the seasonality ratio will be 1. If visitors arriving are concentrated on a month, then the seasonality ratio will be 12. This is to say that when the seasonality increases the seasonality ratio increases. By using this calculation, Rajasthan's tourism seasonality ratios are calculated, which are given in following table:

Table: 3

Year	Seasonal Ratio
2012	1.63
2013	1.62
2014	1.49
2015	1.5
2016	1.62
2017	1.54
2018	1.62

Fig: 3



Rajasthan's calculated tourism seasonality Ratios have been represented in table 3 and figure 3. The table and the figure reveal high Coeffient values ranging from 1.5 to 1.63; meaning that for instance in 2012 Rajasthan had in month with the highest value of tourist overnight stays 1.63 times more overnights then the annual average.

5.3 Seasonal indicator

Seasonal indicator, which is inverse version of this seasonality ratio, can be used to measure seasonality. The seasonality indicator is calculated by dividing the average seasonality index to the highest seasonal index.

Theoretically the seasonality indicator can vary from 1/12 to 1 if the number of visitors arriving is constant for every month then the seasonal indicator will be 1 and if the number of visitors arriving concentrate on one month then the seasonality ratio will be 1/12 this is to say that which is the decrease in the variation, the ratio increases. The seasonality indicator implies the average occupancy rate since it refers to the average stays in the accommodation establishments within the whole capacity. In this respect, the seasonality indicator is 0.5; this means that only 50 percent of the accommodation capacity is used. Calculated seasonal indicator for Rajasthan has been given in following table:

Table: 4

Year	Seasonal Indicator
2012	0.61
2013	0.61
2014	0.66
2015	0.66
2016	0.61
2017	0.64
2018	0.61

Fig: 4



Table 4 and figure 4 shows the seasonal indicator for 2012 to 2018. Since Seasonal Indication is presenting the utilization of available accommodation capacities. In this case the month wise the largest numbers of overnight stays stand for the maximum capacity. The value for the year 2015 presented in table is 0.66 meaning that 66% of available capacities are occupied.

5.4 Gini Coefficient

The Gini coefficient is most used to analyze seasonality. Graphically, the Gini Coefficient can easily be represented by the area between the Lorenz curve and the line of equality. The Gini coefficient implies the inequality as the ratio. The Ratio is directly proportionate to the unequal monthly distribution of tourist arrivals. A zero ratio indicates a perfect equality and the value of one for the Gini Coefficient means that there is a full unequal distribution of number of tourist arrivals by months.

Fig: 5

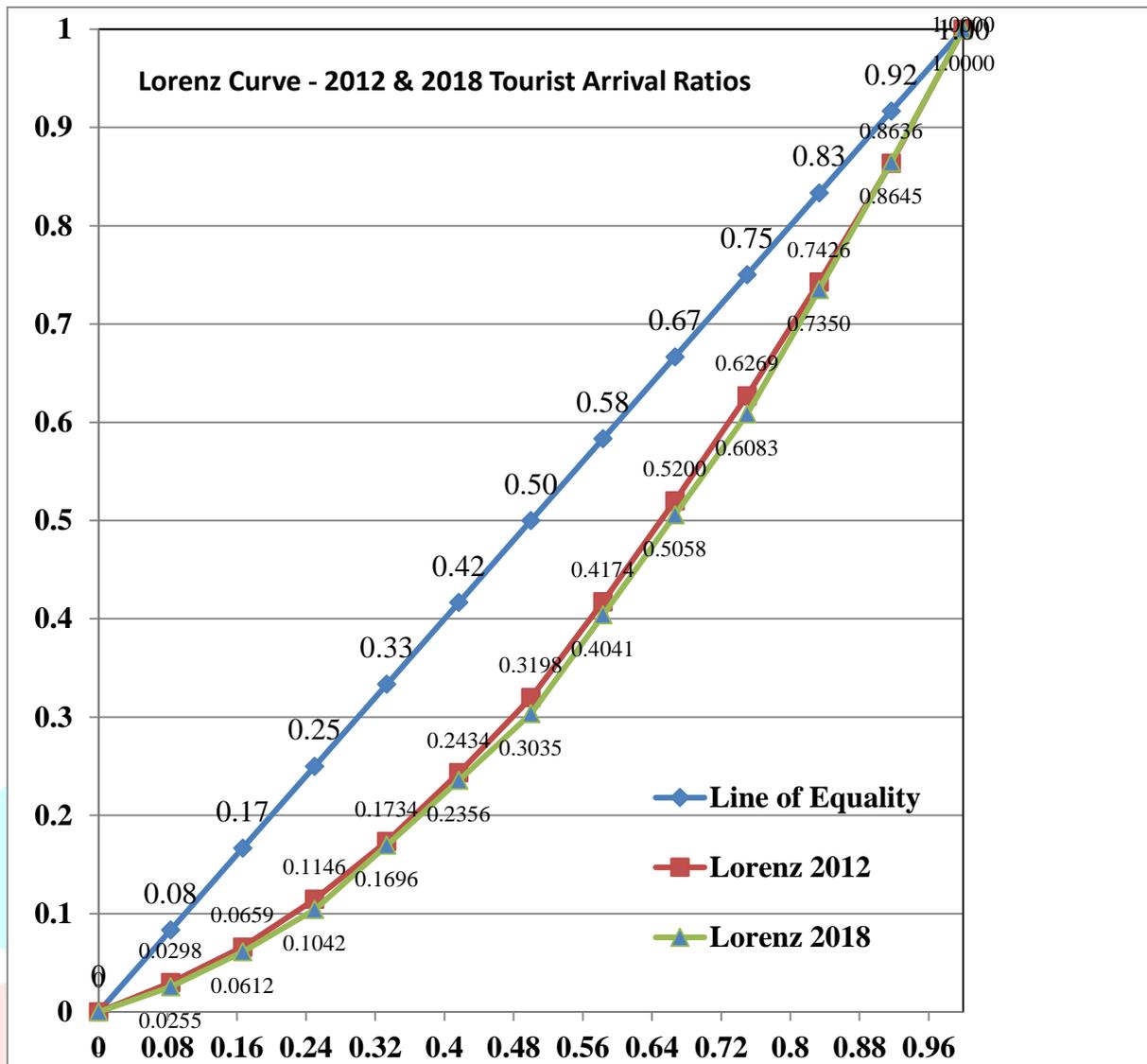


Figure 5 provides the Lorenz Curve of 2012 and 2018. To find out the Lorenz Curve the monthly tourist arrival ratios of 2012 and 2018 have been calculated. These ratios have been ranked from low to high value, and then the cumulative values of these ratios have been calculated. Lorenz curve presented in figure 5 has been drawn depending on these ratios.

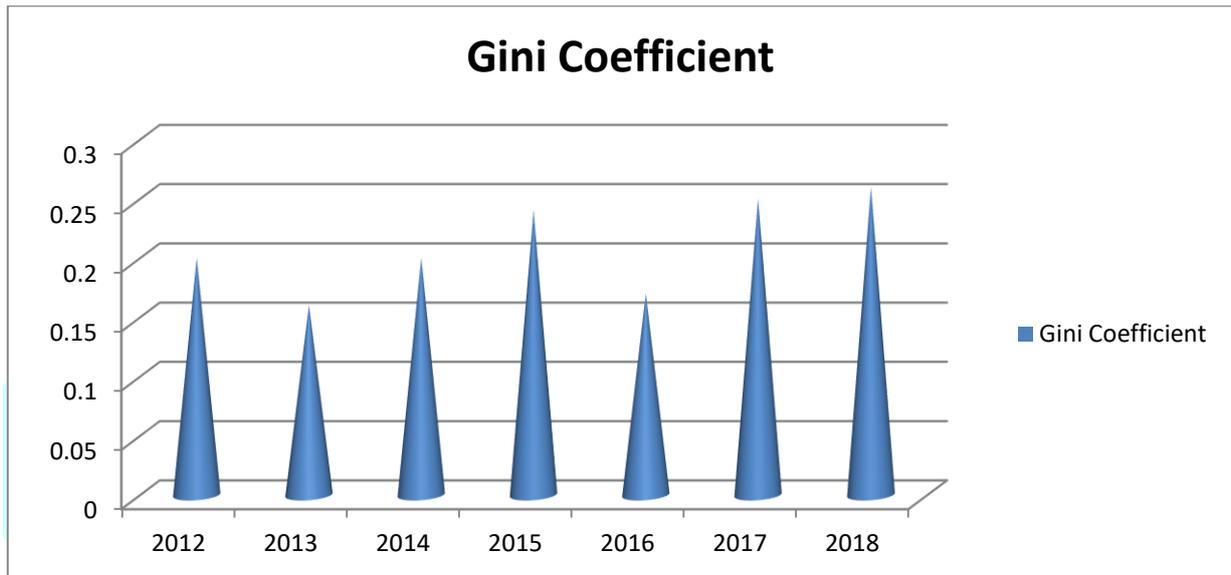
In the given Lorenz curve if the distribution of tourist arrival numbers were equal, the plot would show a 45 degree straight line. Unequal distribution of tourists has yielded a curve. The gap between the curve and the 45 degrees straight line is the inequality gap because the number of the tourist arrivals of each month is not equal. The unequal distribution of the number of tourist arrivals can be understood from the distance of the curve and the 45 degree straight line. As can be seen from the above figure, the curve of 2018 has yielded more than the curve of 2012.

The Gini coefficient is the proportion of the area left between the 45 degree straight line and the curve to the total area above and below the curve. If the area between the Lorenz curve and 45 degree straight line is area A and the remaining area is the area B. The Gini coefficient can be found out by the formula: $G = A / (A+B)$.

Table: 5

Year	Gini Coefficient
2012	0.2
2013	0.16
2014	0.2
2015	0.24
2016	0.17
2017	0.25
2018	0.26

Fig: 6



By using the formula, Gini coefficient have been calculated from 2012 to 2018 as in table 5. It indicates that the inequality of the monthly distribution of number of tourist arrivals is higher in 2018 compared to that of 2012. All coefficients have been fluctuating but what is clear here is that as the Gini Coefficient increases, the level of seasonal concentration increases.

6. Suggestions

The problem of seasonality is extremely Complex resulting in challenges in finding solutions to seasonal stagnation which can be declared as one of the most important priorities in the development of global tourism. As there is an element of predictability associated with a seasonal fluctuation of tourist demand, it is possible for managers to anticipate impacts and to implement strategies to adjust business operation to any negative effect. Necessary attempts should be taken into account to eliminate the negative effects of seasonality. Even though seasonality will never be totally eliminated there are numerous ways to even out the peak and troughs. In this respect, to overcome seasonality and to reduce its negative efforts the following can be done:

- The Prerequisite for a successful strategy implementation is the matching of tourist market segment needs and destination product.
- Establishing alternative of season marketing strategies matching seasonal motivation with tourism product and services offered is needed to increase the number of tourist in off peak season.
- There is need of mutual accusation from private and public bodies. Private subject complaints about the lack of public initiative aiming at reducing seasonality of demand, on the other hand public initiative aiming at reducing seasonality of demand.
- Remote and peripheral destinations may encounter difficulties when trying to develop off season tourism product, due to the dependency on physical constraints or on rigidity in supply patterns.

Facilitation by the state through investment in infrastructure such as transportation to increase accessibility to the location does help make any location more attractive to the visitors.

- There are many strategies that are used to address the effect of seasonality. The most common strategy is diversification of the product and market. Diversification of product means development of new products for new market segments while market diversification means new segments for new or existing products.
- Promotion activities and facilitation by the state are seen as supporting measures have to meet diversified market needs. Effective market diversification into shoulder and off season periods must be accompanied by the recognition that different seasons create demand for different products with alternative presentation and packaging.
- In the efforts to mitigate seasonal influences it is necessary to better understand the periods beyond the main season followed by better planning and more effective use of resources in tourism sector.
- Tourism expansion often means an expansion of the main season. Attention should be focused on off peak season and strategies to spread tourism as even as possible throughout the year.
- Discounted prices should be offered during the off peak season while high price in peak season.
- Encouraging domestic tourism in half season and providing off season activities such as festivals, conferences can be a better one mean to address the effect of seasonality.
- It is necessary to understand tourist specific benefit needs within each season and fully satisfy them during the period when destination marketers want to attract more tourists.
- Traditional and artificial created events, festivals; special celebrations are required in order to boost demand during off- peak season.
- Meetings, incentives, conferences and exhibitions should be boost up since business travellers are usually not influenced by seasonal patterns.

7. Conclusion

To ensure more profitable and stable industry there is a wish to decrease season everywhere but the review clearly indicated the lack of theoretical framework of tourism seasonality. A true attempt has been done to analyze seasonality in the distribution of tourists. As can be seen with findings of the research, Rajasthan Tourism is highly seasonal with the concentration of tourist arrivals in the winter season. Necessary attempt should be taken into account to eliminate the negative effects of seasonality. Although none of the seasonal measurement methods are superior to one another but the Gini coefficient is a good measurement for deeper understanding of seasonality in tourism. Studies of these kinds may provide clear understanding of the structure of seasonality in the given destinations. The analysis is expected to be useful for the government when making a comprehensive management plan for the destination.

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