Seasonality patterns of the Chinese outbound travelers: Evidence from eight leading tourist destinations in Asia

Ahmed Rabeeu [1*], Disney Leite Ramos [2]

[1,2] Tongji University, China

**Corresponding author's email: rabeeu@tongji.edu.cn*

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ABSTRACT

The Chinese outbound market has surpassed that of any country in the world in recent years. It specifically became the leading source market for many Asian countries. In this respect, this study uses a monthly dataset of tourist arrivals from 1995 to 2019 to investigate the seasonality patterns of Chinese outbound tourists in eight tourist destinations in Asia popular among Chinese tourists. The Gini coefficient and the Seasonal Index were used to examine the seasonality patterns. The results of this research reveal a generally consistent pattern across all destinations examined, confirming the occurrence of two distinct peaks (i.e., February and July to August) and off-peak (i.e., March to June and November to December) periods. The findings further show the expansion of the Chinese market has considerably softened the seasonality in the inbound tourism of the countries studied. Finally, key implications of the study findings are discussed, highlighting some practical insights that might help practitioners manage seasonality.

1. INTRODUCTION

Tourism is the world's fastest growing and single largest industry. By 2030, the number of international tourists is predicted to increase to 1.8 billion (UNWTO, 2017). The Chinese outbound tourism market has played a vital role in the exceptional growth in the inflow of tourists to many countries in the past two decades. It increased 55 times from 1995 to 2019, with an average annual growth rate of 11%. It has also retained its status as the world's biggest tourist source market since 2012 (UNWTO, 2019), with 251 million visitors in 2019. (The World Bank, 2021). Outbound travelers from the Chinese market made approximately 150 million

outbound trips and spent over USD 277 billion in 2018 (UNWTO, 2019). This market became the new promising target for many tourist destinations over the years, particularly the countries heavily relying on inbound tourism for their economic growth. It subsequently became the leading and single largest source market for many Asian countries overtaking the traditional markets. The rapid growth of the Chinese outbound market is essentially due to the economic liberalization policy of the Chinese government and the Approved Destination Status (ADS) scheme introduced in 1995. The amendments brought to the policies in recent years, including the relaxation of travel restrictions to overseas countries and the arrangement of annual paid leave, also contributed to this growth. The Chinese outbound tourism market has high growth potential and looks promising for tourism destinations across the globe largely due to its large population, increasing income of the Chinese people, an increasing number of Chinese passport holders, visa facilitation and tax refund policies (UNWTO, 2019).

The Chinese outbound market has received significant attention in recent years from tourism practitioners and scholars despite being a newcomer to international tourism. The academic attention is due to the increased interest in knowing Chinese outbound tourists' travel motivations, behavior, patterns and destination preferences. In these efforts, many researchers have concentrated on understanding the quantitative aspects of the Chinese outbound market. However, there has been a shortfall in profoundly understanding the seasonality patterns of Chinese tourists in Asian countries. Secondly, while some attempts were made to present a global comparative analysis of seasonality (Duro et al., 2019), existing seasonality studies primarily focused on Europe, Australia, and North America, with little research for other key regions such as Asia, Africa, and South America (Koc et al., 2007; Fernández-Morales et al., 2019; Amelung et al., 2007; Pegg et al., 2012; Hadwen et al., 2011; Tucker et al., 1988; Li et al., 2017). Existing literature identifies natural and institutional as the two major causes of seasonality (Connell et al., 2015; Higham et al., 2002). Recent research suggests the type of tourism product: the tourist destination offers (Cuccia et al., 2011; Martín et al., 2014), economic characteristics (Nadal et al., 2004), and the market structure (Fernández-Morales et al., 2016) are also some causes of tourism seasonality. Previous

research has explained the seasonality of tourism from the perspectives of the market, behavior, community and finance (Senbeto, 2019). Several studies have utilized financial portfolio theory to evaluate mechanisms that reduce seasonal fluctuations (Jang, 2004). Social exchange theory has been used to investigate locals' perspectives on tourism seasonality (e.g., Vargas-Sánchez et al., 2014). The spatial theory has been used to determine differences in the impact of seasonality across regions and areas (e.g., Vergori, 2012). Traditional pricing theory has been applied to developing pricing strategies to assist suppliers in addressing seasonality issues (Jeffrey& Barden, 1999). Psychological theories such as arousal and cognitive consistency theories (Timmermans, 1990) have been proposed to comprehend individual differences in behavior and decision-making. Furthermore, the theories of planned and realized behavior and reasoned action have been utilized in psychological and behavioral models to illustrate individual intentions and readiness to act (Oreg & Katz-Gerro, 2006; Webb & Sheeran, 2006). Additionally, the theory of reasoned action has been applied to examine situations that restrict behavioral intentions and associated variations in decision-making. Lastly, Senbeto et al. (2019) attempted to integrate approach-avoidance and regulatory focus theories as frameworks for understanding tourism seasonality. These theories share a common pattern in exploring human behaviors from the perspectives of motivation and intention (Senbeto, 2019).

Since there has been little research on the seasonality patterns of the Chinese outbound market, particularly in Asia, a study on this area is essential to uncover the seasonality patterns of the Chinese outbound travelers in the Asian tourist destinations popular among Chinese tourists. It is particularly important to examine the seasonality patterns among the tourist destinations in one region with relatively similar environments and tourism products. Yacoumis (1980) suggested that seasonality needs to be examined on three different levels (i.e., national, regional and sectoral). Similarly, it is vital to examine whether the inbound tourism in these countries presents a consistent pattern of Chinese arrivals in the long run. Therefore, this study seeks to address these knowledge gaps by considering some key tourist destinations in Asia. The main objective of this study is to examine the seasonality pattern of Chinese

travelers in eight Asian countries, specifically the Maldives, Malaysia, Japan, Singapore, Sri Lanka, Indonesia (Bali), Vietnam and the Philippines. This study will also look at how each country's overall seasonality has changed since the development of the Chinese outbound market in international tourism. We will employ the Gini coefficient and seasonality index technique on time series data in the present study to quantify seasonality patterns of Chinese tourists in the tourist destinations under investigation because they are the most commonly employed and acceptable inequality measures (e.g., Rabeeu et al., 2022). It is critical for tourism stakeholders to have a clearer understanding of the seasonality patterns of tourist generating markets. The results of this research are intended to be useful to policymakers and concerned authorities in focusing their attention on the influence of the Chinese market on Asian tourism. Particularly, the findings of this paper can be helpful for tourism stakeholders while formulating long-term policies, planning for effective marketing and destination promotion, and appropriate forecasting of the tourists from the Chinese market. Additionally, it can help travel agencies, tour operators and tourist establishments to increase the number of Chinese travelers during the off-peak period by formulating appropriate strategies. It may also protect against the unutilized resources in the tourism sector of these countries, which might have long-term implications for sustainable tourism development.

The remainder of the paper is organized as follows. The next section provides an overview of the Chinese outbound market and its significance in Asian inbound tourism, followed by a literature review on tourism seasonality. The study context, data, and techniques used to investigate the seasonality patterns of Chinese visitors in the eight destinations chosen for the current study are presented in Section 3. The findings and discussions are presented in Section 4. The concluding part includes the contributions, managerial implications, and limitations of the current study.

2. LITERATURE REVIEW

The Chinese Outbound Market and Its Significance in the Asian Tourism

Chinese outbound market has risen to become the world's biggest source market (UNWTO, 2019) and the dominant source market for several Asian countries due to the rapid development it experienced over the last two decades. It reached 251 million in 2019 from a mere 4.5 million in 1995 (see figure 1). The tourism expenditure from the Chinese outbound market also increased from USD 24 billion in 2006 to 277 billion in 2018 (UNWTO, 2017, 2019). The Asian region received the highest market share of the Chinese market, with 89.03% in 2018 (Statista, 2021). The growing trend and market spending power indicate its growth potential in international tourism. The Approved Destination Status (ADS) policy implemented in 1995 and improvements made to the labor laws in 2008, and other policies are projected to play a key role in the substantial improvement of the Chinese outbound travel market.

Many Asian tourist destinations, especially the neighboring short-haul destinations, benefited from the rise of the Chinese outbound market. Figure 2 illustrates the monthly arrivals of Chinese tourists in the eight Asian countries considered for this study, while table 1 shows the rankings of the Chinese market and the percentage of its market share in the respective countries. It shows the Chinese market at present is the number one tourist source market for the Maldives, Japan, Singapore, Vietnam and the Philippines. China ranks as the second largest source market for Sri Lanka, although it was in third place in 2019. China is likewise the second largest contributor to the inbound tourism of Bali Island of Indonesia, and it became the third largest contributor to the inbound tourism of Malaysian since 2011. The Compound Annual Growth Rate (CAGR) of the Chinese arrivals in the Maldives, Malaysia, Japan, Singapore, Sri Lanka, Bali (Indonesia), Vietnam and the Philippines is 17.1%, 10.1%, 17.4%, 6.3%, 5.59%, 12.74%, 23.46% and 16.64%, respectively. These countries received 18.11% of the total Chinese outbound tourists in 2019. Japan, with 6.2%, received the highest number of Chinese tourists in 2019, while Sri Lanka, with 0.11%, received the lowest share among the eight countries. However, the Chinese market share against the total inbound

tourists of respective countries shows an entirely different picture. The Chinese market contributed 38% to the inbound tourism of Vietnam in 2019, followed by Japan (30%), the Philippines (26%) and Singapore (24%). The Chinese arrivals to other destinations are equally high, with 18% in the Maldives, 12% in Malaysia and 9% in Sri Lanka in 2019, and 20% in Bali (Indonesia) in 2014 with respect to the total inbound arrivals of these countries. The monthly data of the Chinese arrivals in Bali (Indonesia) is available from 2002 to 2014; thus, the latest year in the dataset is chosen to estimate the market share of Chinese tourists on Bali Island. In the last two decades, China has made a significant contribution to the inbound tourism of these tourist destinations, and it continues to be the primary source market for many countries. The market share of Chinese tourists has also increased considerably. Japan received the highest number of Chinese tourists among these countries in 2019, with 9.6 million tourists. The lowest number of Chinese arrivals was recorded in the Maldives, with 0.3 million tourists in 2019. Figure 3 shows the Chinese arrivals in eight countries in 2019.

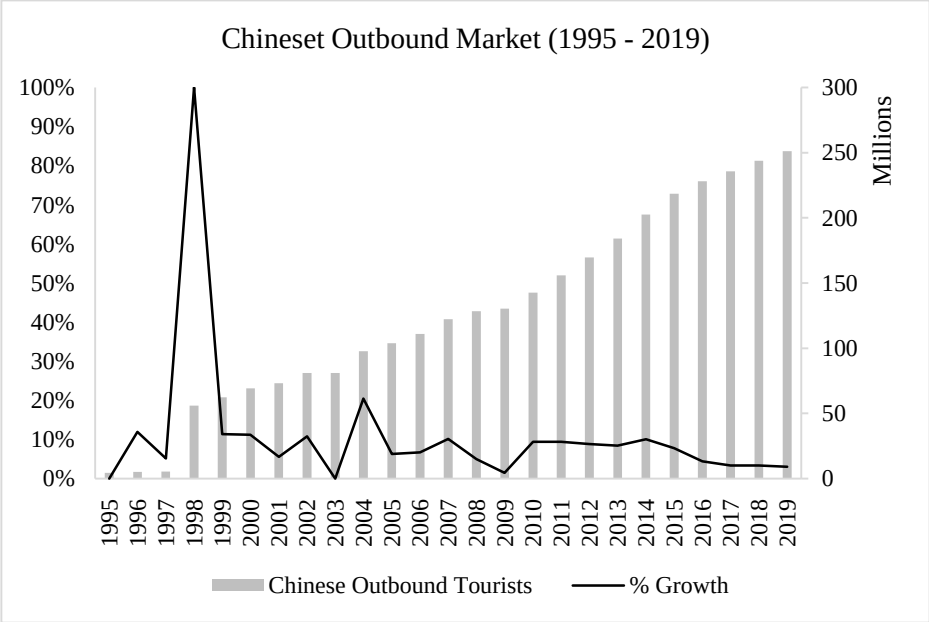
Seasonality in Tourism

Butler (1998) defined seasonality as a temporal imbalance in tourist phenomena such as visitor numbers, highway traffic, employment, and attraction admission. Seasonality can also be defined from the supply side. Bonilla et al. (2006) defined tourist seasonality as the temporary imbalance that occurs in tourism when the marketing of tourist products is concentrated in one or more periods, connecting marketing to the use of facilities, number of available beds, development of promotional campaigns, etc.

Despite tourism seasonality being widely researched and debated, it is one of tourism's least understood aspects (Higham et al., 2002). Seasonality analysis is complex because it requires determining causes and effects (Ferrante et al., 2018). One group of scholars studied the causes, impacts, and policy implications of seasonality in tourism (Koenig et al., 2004; Duro, 2016), while another group studied the differences in seasonality measures used in tourism research to understand their merits and pitfalls. Finally, many scholars suggested ways to overcome tourism's seasonality.

Table 1: The Rankings and Market Share of the Chinese Market (1995 – 2019)

Country	Maldives		Malaysia		Japan		Singapore		Sri Lanka		Indonesia		Vietnam		Philippines	
Year	Rank	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank	Share (%)	Rank	Share (%)
1995	10	0.03	-	-	-	-	2	0.15	-	-	-	-	-	-	-	-
1996	13	0.02	-	-	1	0.06	3	0.14	-	-	-	-	-	-	-	-
1997	-	-	-	-	1	0.06	3	0.14	-	-	-	-	-	-	-	-
1998	17	0.01	-	-	1	0.07	2	0.15	-	-	-	-	-	-	-	-
1999	17	0.01	-	-	1	0.07	2	0.14	-	-	-	-	-	-	-	-
2000	14	0.01	3	0.05	1	0.07	2	0.13	-	-	-	-	-	-	-	-
2001	9	0.02	3	0.05	1	0.08	2	0.13	-	-	-	-	-	-	-	-
2002	-	-	3	0.05	1	0.09	2	0.15	-	-	3	0.14	-	-	-	-
2003	8	0.03	4	0.04	1	0.09	2	0.15	-	-	2	0.18	-	-	-	-
2004	8	0.04	3	0.04	1	0.10	2	0.16	-	-	3	0.15	-	-	-	-
2005	9	0.03	4	0.03	1	0.10	2	0.15	-	-	3	0.11	-	-	-	-
2006	7	0.05	5	0.03	1	0.11	2	0.16	-	-	2	0.15	-	-	-	-
2007	6	0.06	5	0.04	1	0.11	2	0.16	-	-	2	0.12	-	-	-	-
2008	6	0.06	4	0.04	1	0.12	2	0.15	-	-	3	0.14	-	-	3	0.13
2009	4	0.10	4	0.04	1	0.15	2	0.14	-	-	2	0.15	1	0.22	3	0.13
2010	1	0.16	4	0.05	1	0.16	2	0.15	-	-	2	0.13	1	0.24	3	0.13
2011	1	0.22	3	0.05	1	0.17	2	0.18	-	-	2	0.14	1	0.29	3	0.14
2012	1	0.24	3	0.06	1	0.17	2	0.19	-	-	2	0.15	1	0.27	3	0.14
2013	1	0.30	3	0.07	1	0.13	1	0.20	-	-	2	0.17	1	0.31	2	0.15
2014	1	0.31	3	0.06	1	0.18	2	0.18	3	0.09	2	0.20	1	0.30	3	0.14
2015	1	0.30	3	0.07	1	0.25	1	0.21	2	0.12	-	-	1	0.28	2	0.15
2016	1	0.26	3	0.08	1	0.27	1	0.23	2	0.14	-	-	1	0.32	2	0.17
2017	1	0.23	3	0.09	1	0.26	1	0.24	2	0.13	-	-	1	0.36	2	0.20
2018	1	0.20	2	0.11	1	0.27	1	0.23	2	0.12	-	-	1	0.37	1	0.23
2019	1	0.18	3	0.12	1	0.30	1	0.24	3	0.09	-	-	1	0.38	1	0.26



Note: Includes Hong Kong (China), Macau (China) and Taiwan Province of China. The year-on-year growth rate is capped at 100 percent in order to make the data more presentable.

Figure 1. The Chinese Outbound Market (1995 – 2019)

Figure 2. Monthly Arrivals of Chinese Tourists in the Eight Countries (1995 – 2019)

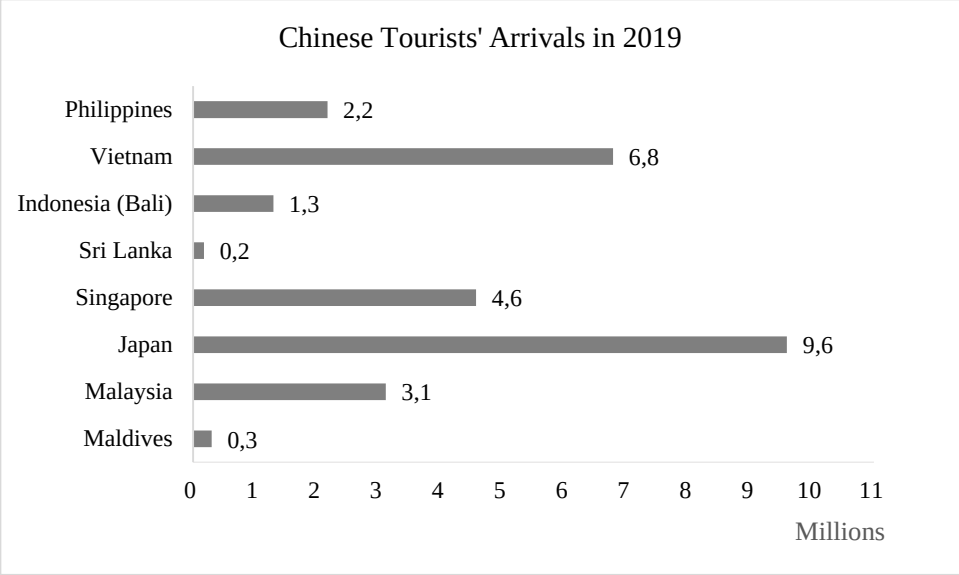


Figure 3. The Chinese Arrivals in the Eight Countries in 2019

Causes of Tourism Seasonality

The synthetic structure identifies natural and institutional classes (Connell et al., 2015; Higham et al., 2002). First, climate variables relate to sun, beach, and/or winter tourism. Some scholars say the climate attracts travelers who expect good weather at their vacation destination (Scott et al., 2004; Kulendran et al., 2010; Martín, 2005), while others say it keeps potential travelers at home (Hamilton, 2007). Seasonality is crucial in analyzing tourist behavior (Li et al., 2017; Scott et al., 2004; Li et al., 2018; Ridderstaat et al., 2014). The second category includes institutional elements related to school and work vacations, national holidays, and cultural events. Institutional seasonality from cultural, social, or ethnic factors determines tourist seasons (Hinch, 2000; Rudihartmann, 1986). Different religions celebrate religious events such as Ramadan, Easter, and Christmas in different ways and at different times. These holidays involve sightseeing and visiting. Butler (1998) also identified sporting calendars, fashion, social pressure, and inertia or tradition as seasonality causes. Conventions, trade shows, and sporting events like the World Cup, Olympics, and Commonwealth Games are held at specific times and locations. Recent research has emphasized additional causes. These include the destination's tourism product (Cuccia et al., 2011; Martín et al., 2014), economic characteristics (Nadal et al., 2004), and market structure

(Fernández-Morales et al., 2016). Martín et al. (2014) say destinations with a diversified product and less climate dependence are more stable. Recent research also categorized seasonality's causes into push and pull factors.

Patterns of Tourism Seasonality

Seasonality has a well-defined pattern, unlike random fluctuations, and seasonal fluctuations have well-defined causes of varying origin and intensity (Granger, 1978). In addition to its form, which is the distribution of the event over a well-defined time period, seasonal variation is characterized by its regularity. Using empirical data, researchers categorized seasonal patterns. Tourism seasonality literature presents four profiles. Single peak season is typical. For example, Mediterranean coastal countries with a high tourist peak in the summer have a single peak (Vergori, 2012; Fernández-Morales, 2003). A second profile shows a high and shoulder season or a modest peak between the high and low seasons. Specific tourist segments are more likely to visit tourist destinations outside the high season (Candela et al., 2012). The third profile has two peaks that correspond to summer and winter. This seasonality is typical of mountain resorts (Bonilla et al., 2006; Butler et al., 1997) and may indicate the destination's flexibility. A fourth profile identifies sites with low tourism-related time series fluctuations and no seasonal peaks. Several cultural cities have low tourism seasonality (Figini et al., 2012; Cuccia et al., 2011; Butler, 1998). Seasonal oscillations are influenced by the specific tourist goal being evaluated, the generating region, and the destination's features.

Literature on tourism seasonality describes how different scholars classify seasonal patterns in tourist destinations. Few authors have tried to classify seasonal patterns in tourism, despite Butler and Mao's (1997) classification being the primary reference (Vergori, 2017). Despite many methods for comparing and classifying time series, seasonal pattern classifications are rare. Croce et al. (2010) used Pearson's correlation coefficient and multidimensional scaling to compare and classify seasonal bed-night patterns for 20 European cities. Bonilla et al. (2006) categorized seasonal patterns in Spanish regions as one-peak,

two-peak, multiple-peak, or no-peak based on the distribution of seasonal elements. Koenig et al. (2003, 2004) used Principal Component Analysis to study Welsh occupancy data. The method identified groups with similar seasonal trends. Hadwen et al. (2011) evaluated the seasonal patterns of tourist visits to protected places according to different climatic zones and compared seasonal swings. Chen et al. (2012) analyzed the difference between monthly visitor arrivals and average monthly arrivals for five Asian countries from 2000 to 2006. Their method relies on a visual assessment of the seasonality pattern, and the reference categories may not be applicable in other spatial and temporal contexts.

Implications of Tourism Seasonality

Seasonality affects tourism because of capacity, congestion during peak seasons, and inefficient use of tourist resources during off-peak periods (Getz et al., 2004). Tourism's seasonality affects agriculture, fishing, forestry, and other industries. Existing research explores seasonality's impact on tourism in three main ways (i.e., socio-cultural, environmental and economic). The most significant economic effect of tourist seasonality is price increases during peak periods, labor market seasonality, and a negative impact on consumer perceptions of value, due to lack of quality services, slow traffic, and overcrowding (Lundmark, 2006; Ball, 1988; Ashworth et al., 1999; Lusseau et al., 2004; Cuccia et al., 2011; Martín et al., 2014; Ioannides et al., 2003). Inefficient use of facilities and resources during the off-season reduces tourism industry profits. Low off-season returns may force tourist destinations to lay off employees. Many businesses lose money during peak season due to increased training costs. Seasonality affects flora, fauna, water supply, and waste management (Lusseau et al., 2004; Cuccia et al., 2011; Martín et al., 2014; Ioannides et al., 2003). These issues may dissatisfy tourists and hurt tourism's viability. Seasonality affects overcrowding and resource use in tourist areas (Deery et al., 2012). Some scholars identified practical strategies for tackling tourism's seasonality (Weaver et al., 2000). On the demand side, strategies include increasing demand in off-peak periods, reducing tourism demand in peak periods, and redistributing demand. On the supply side, strategies include increasing supply

in off-peak periods, reducing supply in peak periods, and redistributing supply from peak to low-peak periods. Some scholars suggested learning to live with strong seasonality in tourism (Flognfeldt, 2001), while others pointed out off-peak benefits (Twining-Ward et al., 1996). Potential benefits include the environment, infrastructure, and well-being of tourist destinations' residents. Off-peak infrastructure repairs, renovations, and restoration allow the natural environment to recover. Locals can relax and resume a normal life. Cuccia et al. (2011) found that the environment and its inhabitants regain their luster during the off-season.

In summary, seasonality studies focused on quantifying and comparing seasonal patterns. Some studies focused on identifying seasonality's causes and patterns, while others discussed the positive and negative effects of tourism seasonality and possible strategies to eliminate the negative impacts or mitigate imbalances. These studies mainly focused on Europe, Australia, and North America, with little on Asia, Africa, and South America. Tourism researchers have focused on modeling tourism demand and understanding the seasonality patterns of major source markets in Asia (Chen et al., 2012; Untong et al., 2015), but the world's largest source market has not been thoroughly investigated. This study focuses on the Chinese outbound market to add to the literature. First, this study examines the seasonality of Chinese outbound travelers in Asia's top tourist destinations. Second, this study examines the Chinese outbound market's impact on destination seasonality.

3. METHODOLOGY

Some leading tourist destinations in international tourism have been chosen to examine the seasonality patterns of Chinese arrivals in Asia. Specifically, the Maldives, Malaysia, Japan, Singapore, Sri Lanka, Indonesia (Bali), Vietnam and the Philippines. These countries are selected for several reasons. Firstly, the choice was influenced by the need to choose Asian tourist destinations popular among Chinese tourists. Five of these eight countries are listed in the top ten destinations for Chinese outbound travel in 2018. They are Japan, Vietnam, Singapore, Malaysia and Indonesia with 9.06, 7.79, 2.55, 2.44 and 3.7 million tourists, respectively (UNWTO, 2019). The Chinese arrivals data for all regions of Indonesia was not

accessible at the time of conducting this study; thus, the data for Bali was considered for this study. Bali receives over 40% of the total international tourists arriving in Indonesia and is the most popular region in the country among international tourists. Secondly, tourism is a priority sector in the long-term economic development of these countries. Finally, due to accessible data of monthly inbound tourists from reliable sources. This study relied on secondary data of monthly inbound visitor arrivals from China to these relatively short-haul destinations. The inbound arrivals from other source markets and the Chinese outbound market data were also used in this study. The tourism data from the world bank and tourism related statistical reports published by the designated authority of each country have been considered the most reliable source for the quantitative data required for this study. The aim of this approach is mainly to obtain sufficient data to draw conclusions that are conclusive and statistically valid. Table 3 shows a statistical description of the data gathered from the eight official sources of the eight countries. Some countries in this study reported Greater China data in a combined format (i.e., Mainland China, Taiwan, Hong Kong and Macau), whereas others reported the data partly or entirely separately. Therefore, the arrival data from the three Special Administrative Regions of China was added to the arrival data of Mainland China to ensure consistency in the datasets. Although the data for 2020 was available for some countries, it was intentionally excluded from the present study. This is primarily due to COVID-19's impact on international tourism, especially on key tourist generating markets. According to Rabeeu et al. (2021), inbound tourist arrivals to the Maldives from several significant source markets, such as China, Japan, and Australia, remain below 1% due to border restrictions and the appearance of new variants of the virus.

Table 2: Statistical Description of the Data

Country	Period	Data source	Mean	SD	Min	Max	Observations
Maldives	1995 - 1996 1998 - 2001 2003 - 2019 (23 years)	Ministry of Tourism (2021) (https://tourism.gov.mv/)	11,384	12,642	38	44,247	276
		Maldives Bureau of Statistics (2021) (https://statisticsmaldives.gov.mv/)	67,782	34,979	16,643	171,348	276
Malaysia	2000 - 2019 (20 years)	Tourism Malaysia (2021) (http://mytourismdata.tourism.gov.my/)	108,604	69,595	6,016	310,380	240
			1,754,878	501,562	456,374	2,806,565	240
Japan	1996 - 2019 (24 years)	JTB Tourism Research & Consulting Co. (2021)	180,696	238,052	11,280	1,050,420	288
		(https://www.tourism.jp/en/)	912,408	742,790	276,086	2,991,189	288
Singapore	1995 - 2019 (25 years)	Department of Statistics Singapore (2021) (https://www.singstat.gov.sg/)	167,922	104,083	10,787	495,663	300
			924,989	352,213	177,808	1,802,593	300
Sri Lanka	2014 - 2019 (6 years)	Sri Lanka Tourism Development Authority (2019) (https://sltda.gov.lk/en/)	18,840	7,284	1,700	37,085	72
			163,059	46,891	37,802	253,169	72
Indonesia (Bali)	2002 - 2014 (13 years)	Statistics Indonesia (2021) (https://bali.bps.go.id/)	26,943	15,183	2,294	80,977	156
			175,862	74,280	31,497	361,066	156
Vietnam	2009 - 2019 (11 years)	Ministry of Culture, Sports and Tourism (2020) (https://vietnamtourism.gov.vn/)	249,552	159,919	55,445	759,016	132
			767,320	368,570	227,859	1,809,580	132
Philippines	2008 - 2019 (12 years)	Department of Tourism (2018) (http://tourism.gov.ph/)	74,234	46,130	24,739	215,276	144
			421,944	140,024	202,822	776,798	144
China	1995 – 2019 (25 years)	The World Bank (2021) https://data.worldbank.org/	126,555,120	75,635,936	4,520,000	251,112,000	25

Note: The first and second rows for each country, except China, present statistical descriptions of the Chinese arrivals and the total inbound arrivals, respectively. The data description for China relates to the total Chinese outbound market.

Researchers in tourism and other important sectors have employed various techniques to quantify seasonality. Time-series analysis (González et al., 1996), principal component analysis (Jeffrey et al., 1999), financial portfolio theory (Jang, 2004), seasonality ratio, similarity ratios, coefficients of seasonal variation amplitude ratios, seasonal range, coefficient of variation, peak seasonal factor, and concentration indices are some of the methods used in the literature (Koenig-Lewis et al., 2005). In recent years, several novel ways have been developed and employed (Ferrante et al., 2018; Magno et al., 2017). Numerous studies analyzing tourism seasonality are grounded in work with data series. These studies aim to improve forecasts of seasonality by analyzing its transient behavior and identifying the factors that influence its cycle. The Gini index is one of the most often utilized techniques in the literature (Lundtorp, 2001; Wanhill, 1980; Koenig-Lewis et al., 2005). The merits and pitfalls

of these methods are also discussed among scholars and highlighted in the existing literature. The Gini coefficient and seasonality index are performed in the current study as these are the most widely used measures of inequality (e.g., Rabeeu et al., 2022). It is an indicator that takes into account the skewness of the distribution (Wanhill, 1980) that may be used to demonstrate the relevance of concentrations and dispersions (Lundtorp, 2001). Additionally, an econometric approach to determine and visualize the seasonality of the data has been employed using R.

4. RESULTS AND DISCUSSION

This study looks at the seasonality patterns of Chinese arrivals in eight Asian countries that are popular with Chinese visitors. The Gini coefficient is the initial method for determining the seasonality pattern. In this study, the Gini coefficient is determined in two ways. The Gini coefficient fluctuates between 0 (i.e., perfect equality) and 1 (i.e., complete inequality) in the first method. The gap between the Lorenz curve and the line of equality is the Gini coefficient (Lundtorp, 2001, Weidner, 2009). To depict the distribution of Chinese visitors against the twelve months of the year, Lorenz curves were drawn for all eight countries using the first and final year in the datasets (see figure 4). The difference between the 45^{o} line and the curve suggests that Chinese arrivals are distributed unequally. For all destinations studied, arrivals are higher in some months than the rest of the year. For example, the number of Chinese arrivals to the Maldives during the first three quarters of 1995 consisted of 66% of the total Chinese arrivals to the country as opposed to 49% in the corresponding period of 2019. These findings suggest that the disparity of Chinese visitors across months is more significant in 2019 than in 1995.

In the second method, the Gini coefficient represents inequality as a ratio. The formula used in this study can be seen below (Lundtorp, 2001).

$$G = \frac{2}{n}\sum_{i=1}^{n}(x_i - y_i)$$

G is the Gini coefficient, *n* is the ratio value (i.e., 12 months), x_i is the ratio order (i.e., 1/12, 2/12....., 12/12), and y_i is the cumulative actual ratios in the Lorenz curve. Table 3 presents the Gini coefficients for all eight destinations. For instance, the Gini coefficient for Singapore was 0.11 in 1995 and 0.09 in 2019. These findings show that the monthly distribution of Chinese arrivals is more unequal in 2019 than in 1995. The level of seasonal concentration increases with the increase in the Gini coefficient (Frnández-Morales, 2003).

Table 3: The Gini Coefficients (1995 – 2019)

Country / Year	Maldives	Malaysia	Japan	Singapore	Sri Lanka	Indonesia	Vietnam	Philippines
1995	0.34	-	-	0.11	-	-	-	-
1996	0.26	-	0.07	0.08	-	-	-	-
1997	-	-	0.07	0.10	-	-	-	-
1998	0.15	-	0.07	0.08	-	-	-	-
1999	0.25	-	0.07	0.08	-	-	-	-
2000	0.25	0.24	0.06	0.08	-	-	-	-
2001	0.20	0.16	0.09	0.07	-	-	-	-
2002	-	0.16	0.10	0.08	-	0.19	-	-
2003	0.43	0.30	0.18	0.24	-	0.28	-	-
2004	0.27	0.10	0.08	0.09	-	0.13	-	-
2005	0.31	0.17	0.07	0.10	-	0.22	-	-
2006	0.12	0.14	0.09	0.08	-	0.08	-	-
2007	0.17	0.08	0.11	0.08	-	0.12	-	-
2008	0.15	0.06	0.10	0.09	-	0.07	-	0.07
2009	0.22	0.09	0.16	0.09	-	0.11	0.08	0.10
2010	0.17	0.08	0.16	0.10	-	0.13	0.07	0.12
2011	0.16	0.10	0.12	0.11	-	0.09	0.12	0.06
2012	0.20	0.06	0.22	0.08	-	0.12	0.10	0.09
2013	0.14	0.10	0.14	0.13	-	0.10	0.07	0.08
2014	0.12	0.11	0.12	0.12	0.13	0.09	0.11	0.12
2015	0.16	0.08	0.13	0.13	0.16	-	0.09	0.12
2016	0.13	0.07	0.08	0.11	0.12	-	0.08	0.09
2017	0.11	0.05	0.09	0.09	0.11	-	0.08	0.04
2018	0.17	0.07	0.07	0.10	0.12	-	0.03	0.08
2019	0.13	0.08	0.07	0.09	0.33	-	0.11	0.07

The second approach used in this study to identify the seasonality pattern is the seasonality index. The seasonality index is computed by using the moving average method. This approach is often used to separate monthly tourist arrivals into a trend, seasonal, cyclical, and irregular fluctuations (DeLurgio, 1998). Table 4 presents the summary of the calculations. For example, the results show that February has the highest index for the Philippines from 2008 to 2019, while December has the lowest value for the corresponding period.

The seasonal index has further been normalized to depict seasonal movements. The normalizing function is adopted from Agacevic et al. (2020), which reads as follows.

$$Z_i = \frac{X_i - min(X)}{max(X) - min(X)} - 0.5$$

The values in the dataset are limited to a range of -0.5 to 0.5, with 0 as the average. Positive numbers (i.e., 0 < X < 0.5) represent the peak period, whereas negative values (i.e., -0.5 < X < 0) represent the off-peak period. As seen in table 5, a significant spike is observed in the first and third quarters of the calendar year. In other words, the peak of Chinese arrivals is mainly observed in February and July to August. The significant increase in arrivals in these months can be explained by the Chinese spring festival holiday in February and the summer school holidays from July to August, when many parents travel with their children. This finding is in line with Wang et al. (2010), which shows that the seasonal patterns of the Chinese outbound market are strongly tied to the main holidays celebrated by its citizens. Chinese citizens enjoy seven official public holidays every year (see table 6), including two major public holidays that span a week each (The State Council, 2021). The Chinese New Year holiday is usually in January or February, and the national day holiday often referred to as "The Golden Week," is consistently marked in early October.

Table 4: The Seasonal Index (1995 – 2019)

Country / Month	Maldives	Malaysia	Japan	Singapore	Sri Lanka	Indonesia-Bali	Vietnam	Philippines
Jan	99.89	106.45	103.61	99.72	120.08	98.84	91.81	104.57
Feb	132.51	120.82	91.59	119.81	156.26	116.98	121.46	126.39
Mar	64.42	104.52	105.36	96.81	91.72	85.67	98.34	103.07
Apr	74.27	97.69	106.37	103.76	84.34	91.22	105.09	102.30
May	90.91	89.51	95.01	91.61	69.91	93.33	97.30	91.06
Jun	94.17	84.31	84.68	87.02	84.98	108.42	88.19	90.20
Jul	127.95	105.24	111.59	124.45	130.31	125.23	100.72	115.38
Aug	129.40	115.66	118.91	128.17	117.56	118.07	107.89	106.99
Sep	111.06	86.58	112.48	80.92	94.48	111.16	94.72	94.79
Oct	123.06	92.02	109.33	87.65	87.96	92.51	97.04	97.10
Nov	81.83	92.91	87.16	88.77	80.20	80.95	98.50	84.26
Dec	70.52	104.29	73.92	91.32	82.21	77.61	98.94	83.88

The peak period is consistent for all destinations except Japan and Vietnam. February and July show a negative value for Japan and Vietnam, respectively. Although it can be argued that pleasant weather and a warm climate are key pull factors for traveling overseas (Klenosky,

2002; Kozak, 2002), some of the tourist destinations covered in this study still attract many Chinese tourists during the wet monsoon. This can be due to low airfares, affordable room rates, and important cultural festivals observed in those destinations during the rainy season. For instance, Vietnam observes its national day festivals, one of its most important festivals during the wet season. On a national day, numerous contests, cultural activities, boat races, and splendid fireworks are held. North Vietnam's hiking and other recreational opportunities also become available during this period. The diversity of Vietnam's natural features and colorful cultures attracts a growing number of Chinese tourists, who are encouraged to visit the country by the simplified entrance requirements. The travel destination choice can be related to the duration of the holidays they receive. The holidays in February and July are relatively longer; thus, Chinese travelers seem to prefer long-haul destinations requiring longer travel time.

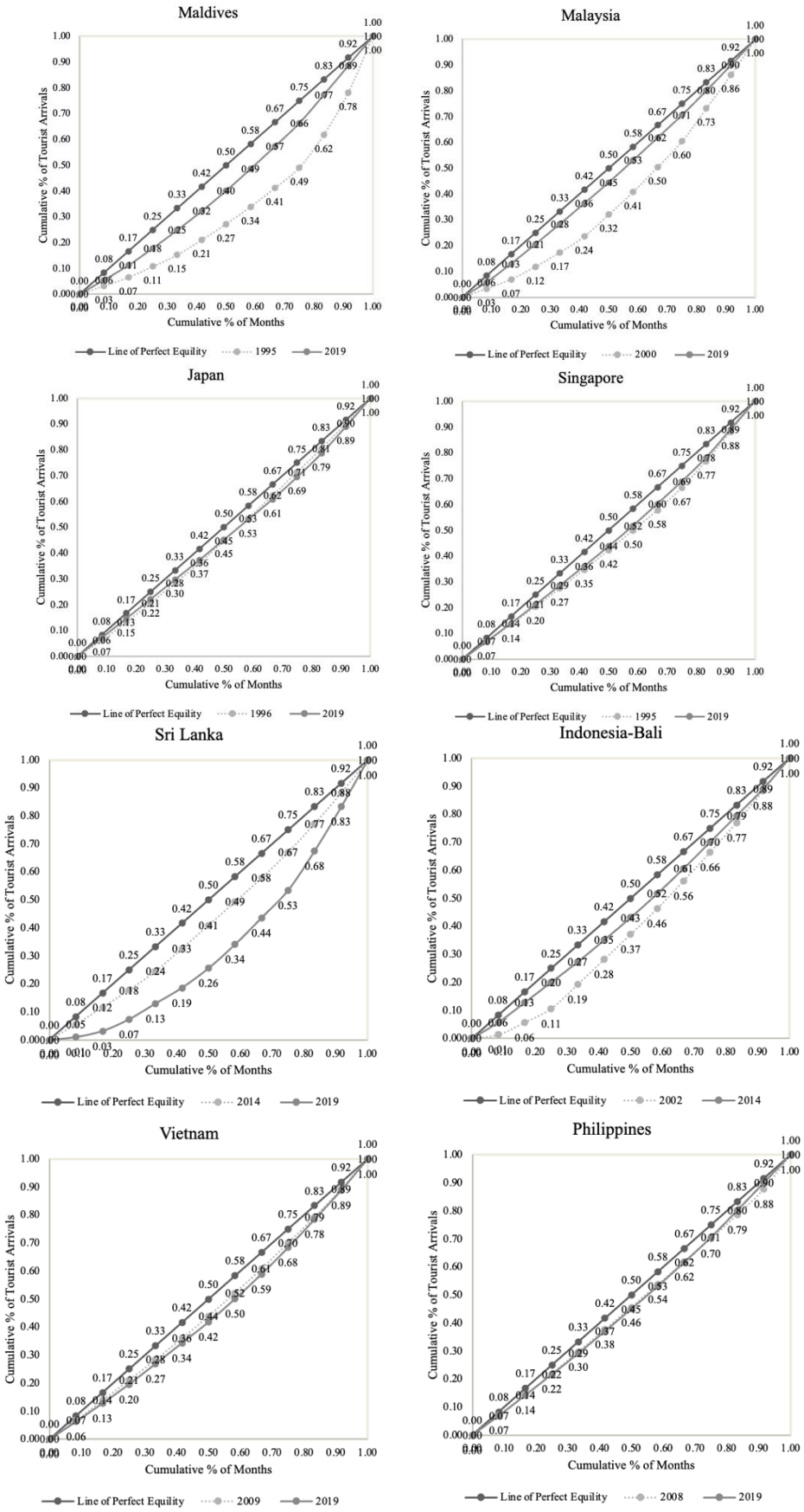


Figure 4. Lorenz Curves of Eight Countries (The First and Last Year of Each Dataset)

This argument is supported by the fact that the two countries are relatively close to China compared to other destinations considered for this study. The months from March to June and November to December appear to be the off-peak period for all destinations. The Chinese arrivals are considerably lower in these months for all destinations studied. However, some minor and significant differences are observed in some countries within this period. One of the differences is that Chinese arrivals in Japan are notably higher in March and April, while the arrivals in Bali in Indonesia are higher in June. These results can be ascribed to the Autumn season when many Chinese travelers visit Japan to see the cherry blossoms and the low room rates and promotions offered by tourist establishments in Bali to attract potential travelers during the off-peak periods. A study by Lin et al. (2017) shows Japan's natural and geographical environment is the second main attractive factor for Chinese tourists to visit Japan. On the other hand, market segmentation, product diversification, and differential pricing strategies are some of the methods tourism stakeholders generally use to minimize the negative impacts of tourism seasonality during off-peak periods (Duro et al., 2019). The differences observed in Malaysia in March and December and Vietnam in April are not statistically significant. On the other hand, the arrivals in January, September and October are above the average for some countries. This can be attributed to the winter school holidays, the Chinese spring festival holiday falling in January in some years, the mid-autumn festival in September, and the national holidays in early October. The findings of this research clearly show that Chinese arrivals in the eight countries are seasonal. This reinforces the notion that Chinese tourists have established their seasonal patterns, particularly in the Asian countries popular for international tourism. This finding is in line with the findings of Untong et al. (2015). Their study shows that Chinese arrivals in Thailand exhibited a similar pattern for 25 years (i.e., 1988 to 2013).

Table 5: Normalised Seasonal Index (1995 – 2019)

Month / Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maldives	0.02	0.50	-0.50	-0.36	-0.11	-0.06	0.43	0.45	0.19	0.36	-0.24	-0.41
Malaysia	0.11	0.50	0.05	-0.13	-0.36	-0.50	0.07	0.36	-0.44	-0.29	-0.26	0.05
Japan	0.16	-0.11	0.20	0.22	-0.03	-0.26	0.34	0.50	0.36	0.29	-0.21	-0.50
Singapore	-0.10	0.32	-0.16	-0.02	-0.27	-0.37	0.42	0.50	-0.50	-0.36	-0.33	-0.28
Sri Lanka	0.08	0.50	-0.25	-0.33	-0.50	-0.33	0.20	0.05	-0.22	-0.29	-0.38	-0.36
Indonesia-Bali	-0.05	0.33	-0.33	-0.21	-0.17	0.15	0.50	0.35	0.20	-0.19	-0.43	-0.50
Vietnam	-0.39	0.50	-0.20	0.01	-0.23	-0.50	-0.12	0.09	-0.30	-0.23	-0.19	-0.18
Philippines	-0.01	0.50	-0.05	-0.07	-0.33	-0.35	0.24	0.04	-0.24	-0.19	-0.49	-0.50

Note: The positive and negative values depict high and low seasons, respectively.

Table 6: Official Public Holidays in China

Name	Month	Duration
New Year's Day	January	3 days
Spring Festival	February	7 days
Qingming Festival	April	3 days
Labor Day	May	5 days
Dragon Boat Festival	June	3 days
Mid-Autumn Festival	September	3 days
National Day	October	7 days

Source: State Council of the PRC

Table 7: Major Ten Source Markets for the Eight Countries in 2019

Markets	Region	Tourist Destinations								
		Maldives	Malaysia	Japan	Singapore	Sri Lanka	Indonesia (Bali)	Vietnam	Philippines	Total Appearance
China	North East Asia	*	*	*	*	*	*	*	*	**8**
Japan	North East Asia	*	*		*		*	*	*	**6**
Korea	North East Asia		*	*	*			*	*	**5**
Singapore	South East Asia		*	*			*	*	*	**5**
Indonesia	South East Asia		*		*					**2**
Thailand	South East Asia		*	*				*		**3**
Brunei Darussalam	South East Asia		*							**1**
Philippines	South East Asia		*	*	*					**3**
Malaysia	South East Asia			*	*		*	*	*	**5**
Vietnam	South East Asia			*						**1**
India	South Asia	*	*		*	*	*		*	**6**
Maldives	South Asia					*				**1**
Canada	America					*			*	**2**
USA	America	*		*	*	*	*	*	*	**7**
United Kingdom	Northern Europe	*		*	*	*	*	*	*	**7**
Germany	Western Europe	*				*	*			**3**
France	Western Europe	*				*	*			**3**
Russia	Eastern Europe	*				*		*		**3**
Italy	Southern Europe	*								**1**
Australia	Oceania	*	*	*	*	*	*	*	*	**8**

This study further attempts to identify the major source markets for the inbound tourism of the eight destinations for further discussion. Table 7 presents the major ten source markets for the eight countries in 2019. Except for the Maldives and Sri Lanka, it clearly shows that neighboring Asian countries have a firm hold on all destinations. The countries from the European and American regions have a strong presence in the inbound tourism of these two countries compared to other destinations. However, the presence of other regions among the top ten markets, excluding Asia, is less pronounced for Malaysia. It further shows China and Australia are the only two markets that appeared in the top ten list for all eight destinations in 2019. This indicates the importance of considering other major source markets' arrival patterns and seasonality. The peak for the European markets is mainly from late November to early March every year. This period includes the winter months in Europe and the Christmas and New Year holidays. The first peak period (i.e., February) of Chinese arrivals coincides with the peak of European travelers. This is an interesting and significant result, as there is clear evidence that the Chinese outbound market has a promising future. The large influx of Chinese tourists and travelers from the European market in the coming years can become a huge constraint for many tourist destinations. This signals policymakers to devise appropriate strategies to attract more Chinese tourists or get Chinese travelers to extend their stay in these destinations during the off-peak period. This further indicates the decision makers to specifically focus on other tourist source markets for the long-term sustainability of the tourism sector. Increasing the volume of tourists in the peak period that coincides with other established key markets may not be an appealing strategy for these destinations. Increasing the lodging capacity may help minimize overcrowding during the peak period and cater to future tourism demand. However, such strategies can bring serious social impacts and environmental threats. Some scholars argue that sociocultural and ecological recovery typically occurs during the off-peak period (Rudihartmann,1986).

This study further examined the seasonality pattern of inbound arrivals to these countries from all source markets to see the impact of Chinese travelers on the overall seasonality. The same procedure that was applied to measure the seasonality pattern of

Chinese arrivals was followed to measure the effects of the Chinese market on overall seasonality. As seen in figure 5, the tourism sector of these countries tends to have highly distinct peak and off-peak seasons. The results indicate the strong presence of the Chinese market has softened the strong seasonality in the inbound tourism of all the destinations studied. Some significant improvements are specifically observed in the inbound tourism of the Maldives, Japan, Singapore, Vietnam and the Philippines.

5. CONCLUSION

Seasonality in tourism is considered a significant and profound limitation for tourism development. However, the tourism sector is rapidly growing in the Asian region, attracting more tourists. Most importantly, Chinese arrivals to Asian countries have steadily increased over the past two decades. On the one hand, the Chinese market has become a major international source market for the inbound tourism of many Asian countries. On the other hand, Chinese visitors are recognized for spending extensively on international tourism due to increased disposable incomes, the liberalization of international travel restrictions, and the appreciation of the Chinese yuan. In this regard, this study seeks to investigate the seasonality patterns of Chinese arrivals in Asia using data from eight renowned international tourist destinations.

Figure 5. Seasonal Factor (1995 – 2019)

The arrivals are observed generally to be higher during February and July to August, possibly due to the public holidays they receive and the favorable weather conditions in tourist destinations. On the contrary, Chinese arrivals are consistently lower between March to June, possibly due to pleasant weather conditions in China or unfavorable weather conditions in the

tourist destinations in Asia. These results confirm that the seasonality pattern ascribed to the Chinese market is distinctive compared to other major source markets in international tourism.

Another significant finding is the impact of the Chinese outbound market on international tourism, particularly on the tourism industry of the neighboring Asian countries. This study shows the rapid expansion of the Chinese outbound market has considerably softened the seasonality in the inbound tourism of the studied destinations. This study further indicates the issue of seasonality in inbound tourism can be reduced or become less of a concern with a surge of tourists from the Chinese outbound market. The inbound tourism of tourist destinations can largely benefit from such significant changes. However, Chinese domestic tourism is rapidly growing, and many potential tourists for international tourism are likely to be captured by the Chinese domestic tourism market.

Contribution and Implications

This research adds to the existing body of knowledge in a number of ways. Firstly, the main intention of the study is to examine the seasonality of Chinese outbound visitors across Asian countries, as well as the impact of the Chinese market on the overall seasonality of the destinations studied. This is accomplished by thoroughly examining Chinese arrival patterns in Asia's eight major popular tourist destinations. Secondly, this study has presented several well-established approaches for determining the seasonality patterns of Chinese outbound travelers in some of the leading tourist destinations in Asia. Finally, this study reveals the differences and similarities in the patterns of Chinese arrivals in Asian tourist destinations at various times throughout the year.

The findings of this research are beneficial for academics and may also be used as a guideline for future tourism policies. The findings of this research are also significant to key tourism players, such as tourism demand, supply, and destination management organizations, as they work to recover from the COVID-19 crisis. The tourism stakeholders can formulate their response, recovery and reset strategies in line with the findings of this study. Additionally, the rising trend in the Chinese outbound market signals the tourism stakeholders, including

airlines, travel agents, tour operators and lodging facilities, to remain prepared for a significant influx of Chinese tourists to tourist destinations worldwide in the coming years. The findings of this study indicate positive and significant changes. This signals tourism stakeholders to design effective counter seasonal measures with a focus on the Chinese and other key source markets and develop tourism products to ensure round the year tourist visits to the tourist destinations. Some important consideration can be given to sports tourism, eco-tourism, medical tourism and Meeting Incentives, Conferences and Exhibitions (MICE) tourism to mitigate the negative effects of the off-peak periods. Jeffrey et al. (1999) found that hotels that focused on conventions, business travelers and group tours showed significantly less seasonality. Additionally, market positioning, promotion, visa waiver policies, and visa-free access to these destinations can be a motivator to attract more tourists. According to the Henley Passport Index of 2021, Chinese nationals get visa-free access to merely three destinations (i.e., the Maldives, Indonesia and Sri Lanka) from the eight destinations studied (Henley & Partners, 2021). However, some counter seasonality measures or policies may be costly and impractical in some destinations and even increase the socio-cultural and ecological damage. Therefore, some specific tasks related to employee training and development, renovation or upgrading of the tourism-related facilities can be scheduled for the off-peak periods. Twining-Ward et al. (1996) pointed out that the infrastructure of tourist destinations can be repaired or improved during the low-demand seasons and can be regarded as a potential benefit.

Limitations and Further Research Directions

The following are some of the limitations of the current study. Firstly, each country's period of data used in this study is unique. However, there are some inconsistencies in the datasets, some countries with more extended periods, while others have relatively fewer periods. The SARS epidemic of 2003, the Indian Ocean tsunami of 2004, and the global financial crisis of 2007-2009 are all included in the datasets of some countries. The imbalances in the dataset and effects of the crises may have affected the results of this study to some

extent, as the impact of these crises had a huge impact on international tourism (Pine et al., 2004; Cooper, 2006; Birkland et al., 2006; Purwomarwanto et al., 2015). Secondly, the dataset used for Indonesia represents the Chinese arrivals in Bali and excludes other regions of the country. Therefore, the results of this study must be interpreted with caution. Thirdly, the seasonality patterns of the Chinese outbound travelers in other key tourist destinations in Asia, where the Chinese market has a strong presence, were not examined due to the inaccessibility of the monthly arrivals data. Therefore, it is imperative to examine the seasonality patterns of Chinese outbound travelers in other Asian countries, such as Thailand, Korea and Cambodia, and further extend the study to other continents to obtain more robust results. Such studies can be possible only with the availability of homogeneous monthly tourist arrivals data. Additionally, it is vital to generate analysis independently for all major source markets to capture a clear picture of the seasonal variations. Finally, it is required to consider aspects such as the cost and distance connected with travel, the average length of stay of Chinese visitors in Asian tourist destinations, and the causes that drive them to select their length of stay. This line of research can be enhanced by employing advanced methods such as machine learning techniques and econometric analysis.

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