Trend Analysis of Domestic Tourist Travel in Japan Based on Individual Data from Tourism Statistics

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Abstract: In Japan, tourism is becoming an important industry due to the aging society and the government is implementing policies to promote Japan as a tourism nation. However, few studies on quantitative data analysis have been conducted on nationwide tourism activities. This study examines past trends on domestic tourism in Japan. The authors investigate trends on domestic tourism and examine primary factors influencing number of overnight stays through a time-series analysis on individual level data from tourism statistics. The analysis produces valuable results offering useful insights for tourism policies.

Key Words: domestic tourist travel, tourism statistics, tourist activity, individual data, number of overnight stays, time-series analysis

1. INTRODUCTION

Japan is now facing the rapid aging population with low birth rates in a scale not witnessed elsewhere in the world and the effect is becoming a serious problem especially in rural areas. Maintaining and improving energies in rural area for the future is an important issue for the country, and hopes of revitalization of local area by promoting the development of tourism industry are getting high. The government places the realization of the tourism nation as an important national policy and various approaches to materialize this are underway. “Tourism Nation Promotion Basic Plan (hereinafter referred as “Basic Plan”)”, a master plan for tourism nation-building that the government created based on the “Tourism Nation Promotion Basic Law”, is one of the approaches and five numerical targets shown in Table 1 are provided.

In recent years, number of foreign travelers visiting Japan, especially Chinese travelers, is increasing. Promoting inbound tourism from overseas is emphasized in order to enhance domestic consumption market. However, the ratio of foreigners’ travel is not more than 7% of the total domestic tourism consumption actually. Moreover, most of foreign travelers generally visit big cities, such as Tokyo and Osaka, so the effects don’t reach to rural areas. Therefore, it is very important for rural areas to aim at promoting domestic tourist travel in their local revitalization (Mannami et al. 2007; Tsukai et al. 2009). In the Basic Plan, there is a target to increase annual number of overnight stays of domestic tourist travel per capita to 4
nights by 2010. However, the actual number in 2007 is 2.42 nights, 11% less than that of the previous year. There is a big gap between this target value and the current state. It is questionable whether the target was set by grasping the actual condition of tourist behavior. This is what motivated us to initiate the study. Regarding implementation of the Basic Plan, accomplishment of this target value is more difficult but important than any other goals. It is difficult to increase the country income from tourism industry without increasing the number of overnight stays. Therefore, we focus on the number of overnight stays of domestic tourist travel in the study.

<table>
<thead>
<tr>
<th>Table 1 Five basic goals of the “Tourism Nation Promotion Basic Plan”</th>
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<tbody>
<tr>
<td><strong>Target items</strong></td>
</tr>
<tr>
<td>Number of foreign travelers visiting Japan</td>
</tr>
<tr>
<td>Number of Japanese overseas travelers</td>
</tr>
<tr>
<td>Domestic travel spending</td>
</tr>
<tr>
<td>Number of overnight stays of domestic tourist travel per capita</td>
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<tr>
<td>Number of international conferences held in Japan</td>
</tr>
</tbody>
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Source: Japan Tourism Agency

In order to implement tourism policies effectively in the upcoming years, it is necessary to state policy targets based on the detailed analysis of characteristics and trends of tourist behavior (Dauglas, 1996). There are several studies on domestic tourist behavior by generation (Hibino and Morichi, 2006; Hibino, 2006) and analyses on tourism behavior based on individual data (Hibino and Akanuma, 2008; Odaka et al. 2009a and 2009b; Suganuma et al. 2010) and tourist survey data (Sato et al. 2009) have been conducted in Japan so far. However, existing studies on nationwide tourist behavior based on quantitative analysis using tourism statistics data are still not sufficient in number. In this study, a time-series analysis is conducted using the individual data from a large-scale statistics survey on nationwide tourist behavior with a sufficiently large sample.

Three factors are specially focused on in the study; 1) total number of overnight stay, 2) inter-regional tourists’ flow and 3) accommodation fee. It is understandable that tourists who travel far or stay in a cheap accommodation tend to make a long stay. These three factors are strongly linked each other, therefore, it is important to prove relationship among these factors in order to understand the tourists’ behavior.

The purposes of the study are 1) to grasp past trends of tourist behavior on domestic overnight travel, 2) to analyze main causes which influence the number of overnight stays, 3) to show the policy targets to increase the number of overnight stays and 4) to obtain basic findings that can be references for the tourism policy making.
2. DATA

An individual data of "Trend survey concerning the people's sightseeing" published by the Japan Tourist Association is analyzed in the study. The Japan Tourist Association has been conducting the survey to grasp the realities and people’s intentions for domestic tourist travel since 1964. It has been done annually since 2000, although it had been done every two years during 1964 to 1998 period. Detailed information of the 28th survey which was conducted in fiscal year 2009 is shown in Table 2. The survey covers 4,500 people from the whole country. A main feature of the survey is that almost the same items have been investigated consistently since its commencement. A time-series analysis for a past quarter of a century during 1985 to 2009 period is conducted using the data of the 11th, 14th, 16th, 19th, 25th and 28th survey. Data of the 11th survey (1984) is used as that of 1985 and so is 16th (1994) as 1995, because the survey wasn’t conducted in both 1985 and 1995. Therefore, data of the 11th survey is set as a basic year and other survey results are selected at five-year intervals as shown in Table 3. Population in the age range of 20 to 79 years is analyzed in the analysis.

Table 2 Summary of the 28th survey (conducted in fiscal year 2009)

<table>
<thead>
<tr>
<th>Purpose</th>
<th>to make trends of domestic travel clear</th>
<th>to make basic material for implementing tourism policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object person</td>
<td>the whole nation (over 1 year old) : proxy entry by parent in case of under 15 years old</td>
<td></td>
</tr>
<tr>
<td>Number of sample</td>
<td>4,500 (valid collection numbers 3,216 (collection rate 71.5%))</td>
<td></td>
</tr>
<tr>
<td>Way of sampling</td>
<td>Random sampling method (number of spots: 150)</td>
<td></td>
</tr>
<tr>
<td>Term</td>
<td>from 28/05/2009 to 14/06/2009</td>
<td></td>
</tr>
<tr>
<td>Items</td>
<td>Outline of domestic travel during the last year (04/2008 ~ 03/2009)</td>
<td></td>
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</table>

Intention of the future domestic travel etc.

Source: The Japan Tourist Association

Table 3 Survey data for the analysis

<table>
<thead>
<tr>
<th>Year</th>
<th>11th</th>
<th>14th</th>
<th>16th</th>
<th>19th</th>
<th>24th</th>
<th>28th</th>
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3. TIME-SERIES ANALYSIS ON THE NUMBER OF OVERNIGHT STAYS OF DOMESTIC TOURIST TRAVEL

3.1 Trends in total number of overnight stays of entire domestic tourist travel

Trends in total number of overnight stays of the entire domestic tourist travel during 1985 to 2009 period are illustrated in Figure 1. It decreased after a peak of 1995 through 2005, though it was increasing during 1985 to 1995 period. It has hardly changed in the past quarter-century though some increase is observed in 2009. Further analysis is conducted by resolving the total number of overnight stays into three parts, number of participants, number of travel per participant and average number of overnight stays per trip. Meaning of “participant” isn’t the same as “tourist”. For example, in case that someone stays in a tourist site for two nights, the number of tourists in the site is two, while the number of participant is one. Figure 2 shows growth of total number of overnight stays compared with value of 1985. Increase-decrease of total number of overnight stays is related to both number of participants and number of travels per participant, and strongly with the latter one. On the other hand, average number of overnight stays keeps on with continuous gentle decrease after 1985.
Trends in total number of overnight stays and annual number of overnight stays per capita by age interval are illustrated in Figure 3. Young generation in the age of 20s was travelling most until 1995, and sudden drop in the number of stays is observed after 1995. And number of stays of the 60s and 70s is increasing continuously and it projects in 2009 compared with other ages, while the number of other ages decreases after 1995. In the study, a detailed analysis is conducted focusing on total number of overnight stays of the travelers in the 20s, 60s and 70s which show distinctive trends.
3.2 Trends in total number of overnight stays of the 20s

Trends in total number of overnight stays of the 20s are illustrated in Figure 4. A sharp drop of the total number of overnight stays of this group is seen after 1995 because of decrease of the number of participants is a conspicuous feature of the 20s. This result indicates young people’s estrangement from traveling. Figure 5 shows trends in total number of overnight stays focusing on main activities during a travel. Total number of overnight stays decreases in almost all activities after 1995, especially in sports trip. Ski trips decrease most of all sport activities, and the influence of decrease in trips with stays longer than three days is remarkable. Next, the authors focus on ski trips of the people who were in their 20s at the time of 1995 (born in during 1966 to 1975 period) and analyze the trend after 1995. Ski trips with their friends are the highest in the age of 20s, while weight of family travel is increasing with aging. According to our analysis, family travel accounts for not less than 95% of all ski trips in 2009.

![Figure 4 Resolution of total number of overnight stays (20s)](image1)

![Figure 5 Breakdown of total number of overnight stays (20s)](image2)

Figure 6 shows how traveling companion in the age of 20s changes as time goes on during 1985 to 2009 period. The tendency can be perceived to divide clearly into three travel forms, "Solo travel", "Family travel" and "Travel with friends" in 2009. The number of travel with friends decreases sharply after the peak of 1995, while the one of family travel keeps almost same level as 1985 up to 2009. Increase of solo travel after 2000 is remarkable and it accounts for about 14% of total number of overnight stays in 2009. From this result, progress of an individual acting among current young generation can be perceived.
3.3 Trends in total number of overnight stays of the age group in the 60s and 70s

Figure 7 shows trends in total number of overnight stays of the travelers in the age of 60s and 70s. A characteristic of this age group is that total number of their overnight stays increase due to the increase of number of participants. The reason is that their participation rate in domestic travel also increases with the increase of senior citizens’ population as an aging of society progresses. On the other hand, it is also a feature that the average number of overnight stays per trip has kept decreasing gradually since 1985.

Trends in average number of overnight stays by age intervals are shown in Figure 8. Decrease of the average number of overnight stays of the age groups in the 60s and 70s is more remarkable than any other ages though it has decreased for all age groups since 1985. Figure 9 shows trends in total number of overnight stays by the number of stays per trip. The number of one night trip increases significantly after 1985, while that of three nights or more trip decreases a little. Increase-decrease rate of total number of overnight stay by main activity during travel from 1985 to 2009 is shown in Figure 10. Increase of "Natural and Historical attractions" and "Hot spring" greatly contributes to the increase of total number of overnight stays of one night trips; however, they result in decrease of number of longer-stay trips of more than three nights at the same time. According to our analysis, total number of overnight stays of “Outdoor” increases regardless of number of stays. This is mainly due to increase in the number of participants in "Climbing" and "Hiking" increases specially.
Figure 8 Trends in average number of overnight stays per trip by age bracket

Figure 9 Trends in total number of overnight stays by the number of stay per trip

Figure 10 Increase-decrease rate of total number of overnight stay by main activity (between 1985 and 2009)
4. TIME-SERIES ANALYSIS ON INTER-REGIONAL TOURISTS’ FLOW

4.1 Nationwide trends

The authors divide whole country into 10 regional blocks as shown in Figure 11 and analyze how travelers’ flow among blocks changes as the times passes. Trends of total number of travelers by origin and destination are shown in Figure 12. Based on the origin for the travelers, there is a big regional gap because of variation in the population. The number of tourists from populated regions, such as the Tokyo Metropolitan Area (TMA), the Kansai region and the Chubu region is higher. On the other hand, it is less in the number of visitors by destination compared with that of travelers by origin.

Number of visitors to TMA is small for the big residential population, therefore, the number of tourists intake per resident is small. On the contrary, number of visitors to the Kosinnetsu region is big for the small residential population, therefore, importance of tourism is relatively higher for this region. And when people’s flow occurs from populated areas to less populated areas due to tourism, regional disparities of residential population shall be erased practically.

Figure 11 Map of Japan showing regional blocks

Figure 12 Trends in total number of travelers by regional block
Figure 13 shows inflow and outflow of travelers at five years intervals after 1985. Firstly, the figure in the left shows that number of arrows which indicate the flow of travelers increases from 1985 to 1990 period (only OD arrows with more than two million people per year are shown). It means that choices of travel destination expand in all over the country. During 1990 to 1995 period, number of arrows itself doesn’t change but the amount of specific OD pairs, such as from the TMA to the Koshinetsu region, from the TMA to the Chubu region and internal travel in both the Chubu region and the Kansai region, increases. After 1995, both numbers and amounts of OD trips decreases and the decrease of travelers to the Koshinetsu region is especially remarkable.

Next, it is realized from the right figure that the size of the pie charts which indicate the amounts of number of visitors increases in almost all regions nationwide during 1985 to 1995 period. However, the degree of decrease after 1995 is not in the same and large regional variation is observed. For example, the degree of decrease of number of travelers visiting Hokkaido, the TMA and the Shikoku region is small, while that to the Koshinetsu region and the Chubu region is big. There is imbalance among regional blocks.
Figure 13 Inflow and outflow of travelers among regional blocks
4.2 Change of tourist behavior of the Koshinetsu visitors

Figure 14 and 15 show past trends of tourist behavior of the Koshinetsu visitors. Trends in number of overnight stays of the Koshinetsu visitors are shown in Figure 14. A main feature here is a remarkable decrease of total number of overnight stays after 1995 due to the high decrease in the number of visitors. Figure 15 shows the primary factor of the decrease, focusing on differences of both age intervals and main activity during travel. It is clear that influence of a decrease in ski trips of the travels in the 20s is extremely large. By analyzing both spatial concept and traveler’s attributes simultaneously, it is proved that the Koshinetsu region suffers most due to decrease in ski trips of the young generation in the 20s which is made clear in the previous chapter.

Figure 14 Resolution of total number of overnight stays (Koshinetsu visitor)

Figure 15 Breakdown of total number of overnight stays (Koshinetsu visitor)

4.3 Change of tourist behavior of the Hokkaido visitors

Figure 16 and 17 show past trends of tourist behavior of the Hokkaido visitors. Trends in number of overnight stays of the Hokkaido visitors are shown in Figure 16. One of the main features here is that the number of visitors to Hokkaido keeps increasing after 1990, while average number of overnight stays per trip keeps decreasing. As a result, decrease of number of overnight stays is observed. Next, Figure 17 shows trends in total number of visitors by their origination and number of nights per trip. Number of one night trip by Hokkaido residents increases remarkably, on the other hand, number of longer-stay trips with more than
four nights decreases because of decrease of round-tour sightseeing. This has led to a decrease in the average number of overnight stays per trip.

![Graph](image1.png)

**Figure 16** Resolution of total number of overnight stays (Hokkaido visitor)

![Graph](image2.png)

**Figure 17** Breakdown of total number of overnight stays (Hokkaido visitor)

### 5. TIME-SERIES ANALYSIS ON ACCOMMODATION FEE

Trends in average accommodation fee based on 2005 price are shown in Figure 18. It decreases gradually after the peak of 1990 in the bubble period until 2000, and after that, it levels off until 2006. In recent years, it is on the increase again and recovers to be the same level as that of the bubble period. Figure 19 shows trends in average accommodation fee by age interval. Although the average accommodation fee is uneven by age interval during 1990 to 1995 period, its gaps become small as of 2007 because average accommodation fee of elderly people has decreased after 1995, while that of the 20s and 30s has increased. The gap of expense between elderly people over 50 years old and young people under 50 years old expands after 2007 because the former increases greatly while the latter decreases. This fact has caused a progress in bipolarization.

Trends in accommodation fee by sex and age interval are shown in Figure 20. As mentioned above, the fee of older age interval has been increasing while that of younger age has been
decreasing since 2007 for both sexes. However, comparing average accommodation fee by sex in 2009, that of the male is higher than that of the female among elderly people, while that of the female is higher than that of the male among young people. This is especially remarkable in the accommodation fee of the young generation in the 20s in 2009: the fee is 9,300 yen per night per person for males and 11,200 yen per night for females. It is clear that there is a big difference by sex.

![Figure 18 Trends in average accommodation fee (based on price in 2005)](image18)

![Figure 19 Trends in average accommodation fee by age bracket](image19)

Figure 21 shows a difference of travel form between elderly and young people whose accommodation fee is more than 20,000 yen/night. The feature of young people under fifty years old is that weight of family travel is the highest and it tends to continue to increase in recently years. From this fact, permeation of value of emphasizing spending time with their family is one of the backgrounds of increase of accommodation fee of family travel. Number of expensive travel for elderly people is narrow margin among that of married couple travel, family travel and travel with friends, though that of married couple travel is increasing recently. This feature differs from a trend of “Recurrence to a family” which is seen among young people.
6. CONCLUSION

A time-series analysis which especially focuses on the number of overnight stays of domestic tourist travel is conducted in the study by using data from a nationwide tourism statistics. The purpose of the analysis is to grasp past trends of tourists’ behavior on domestic travel quantitatively and main causes which influence the number of overnight stays. The study emphasizes that using an individual data is important to analyze the tourism behavior of each participant in detail. Tourists’ behavior which has not been clear in proceeding studies based on aggregate data can be clear by using an individual data.

6.1 Result of analysis

Regarding increase-decrease of total number of overnight stays, it is proved that it is greatly influenced by the number of participants, and average number of overnight stays per trip continues to decrease after 1985. The total number of overnight stays is resolved into three parts in the analysis based on the number of participants, number of travels per participant and average number of overnight stays per trip. The time-series analysis on the total number of overnight stays by generation makes it clear that ski trip with friends has dramatically decreased for the young generation in the 20s since 1995. The average number of overnight
stays of the elderly in the 60s and 70s decreases greater than any other ages, though total number of overnight stays is increasing. Regarding inter-regional tourists’ flow, degree of decrease of tourist numbers is unbalanced among regional blocks after 1995, though it increased all over the country in the same way until 1995. Regarding average accommodation fee, it has been increasing for the elderly people over fifty years old since 2007, while that of young people less than fifty years old has been decreasing. Moreover, the accommodation fee of males is higher than that of females among elderly people. On the contrary, the accommodation fee is higher for females than males among young people. In conclusion, it is necessary to increase the number of young participants and promote expensive travel for elderly people in order to promote domestic tourist travel. So, way of tourism policy implementation should be different for every target.

6.2 Extraction of targets for tourism policies
From the results of the analysis mentioned above, it becomes clear that trends of domestic tourist travel are different by tourist attributes such as age, sex, residence, and destination. When a tourism policy is to be implemented, it is important to decide the target taking into account of these differences and carry out a suitable policy. For example, when the promotion of ski trips is attempted, it is better to aim at increase of number of family travel for the generation which was in the 20s in 1995 (people who were born in between 1966 and 1975) rather than aiming at those who are currently in the 20s in the same way as before. Because potential which leads to development of their future ski trips can be expected, including possibilities of their children’s trips. And when the promotion of expensive travel is attempted, it is important for elderly people to aim at increase of travel by married couple, on the contrary, family travel for young people.

It is an obvious fact that elderly people including baby boomers who were born between 1947 and 1949 are currently supporting domestic travel market. Therefore, it is needless to say that they continue to be very important targets when the tourism policies will be implemented. However, it is also necessary to implement policies for young generation, especially to the second baby boomers (baby boomers’ children born in the 1970’s) who will support the future tourism market. From now on, implementation of both short-term and long-term marketing is important, and efficient tourism policies can be made by combining them.

6.3 Effective use of tourism statistics data
As mentioned above, developing tourism industry is important for our country in order to achieve local revitalization. For tourism promotion, there is no optimum solution which can be applied to all age intervals and regions. Using tourism statistics data effectively is essential to grasp tourist behavior and regional characteristics in order to extract policy targets. Moreover, it is necessary to verify the impact after implementing policies based on authoritative statistics. As a result, thrust for the tourism nation can be enhanced. However, there are various fragmentary tourism statistics surveys which are insufficient in terms of continuity and comprehensiveness in Japan. So, some useful data are not in practical use for policy planning. Visualizing these data will help local official to formulate a regional tourism policy. It is important to enrich the content of tourism statistics survey and settle the use of data at the initiative of the government.

The methodology used in this study can be applied only in countries where data from a large-scale statistics survey on nationwide tourist behavior is available. It is recommended for Asian countries, in which tourism statistics data is poor, to start the statistics data collection or
develop existing surveys in order to implement tourism policies by their government effectively.

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