

Analysis of trends in tourist behavior and a case study of tourism flows using mobile positioning data in Okinawa

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Abstract

Okinawa Prefecture is the most popular beach resort region in Japan. Having a unique culture, it is also an attractive tourist destination full of rich tourism resources, and thus the tourism industry plays a key role in the local economy. Accordingly, Okinawa Prefectural Government is one of Japan's local governments attaching the greatest importance to tourism statistics.

Okinawa Prefecture has started conducting a survey on domestic travel since 1972. Other surveys it performs on a regular basis include a survey on the ripple effect attributable to tourism in the economy and a factual survey of tourism-related industries. Moreover, in line with the increasing number of visitors from overseas in recent years, it launched a factual survey on foreign tourists in 2010.

Analysis of the data accumulated over the past ten years or so has found that tourism in Okinawa is supported by repeaters, particularly those who have visited the prefecture four times or more.

Okinawa Prefecture not only continues to implement existing methods of tourism statistics to understand the current status and challenges of tourism in Okinawa, but also strives to employ new statistical methods. It has recently conducted a survey on the flow of tourists using mobile positioning data provided by a mobile-phone operator, and estimated temporal changes in the number of tourists staying in respective areas as well as the number of visitors to various events.

1. System of Tourism Statistics in Okinawa

1-1 Outline of Okinawa Prefecture

Covering an extensive ocean area extending about 1,000 km from east to west and about 400 km from north to south, Okinawa Prefecture is the only prefecture in Japan that consists of islands: 49 inhabited islands and 111 uninhabited islands (Figure 1). With a total resident population of around 1.4 million, the prefecture is visited by approximately 6.6 million tourists every year.

Figure 1



Okinawa Prefecture has continued to collect data on tourism statistics since 1972, when the US government returned the prefecture to Japanese administration.

1-2 Quantitative data

As Okinawa Prefecture consists of islands, the number of tourists to Okinawa, a quantitative datum, can be obtained by counting the number of visitors at the gateways to the islands, namely airports, ports and harbors.

The number of domestic tourists is estimated by multiplying actual transportation data provided by airline companies by the mixture ratio (the ratio of passengers who

do not live in Okinawa Prefecture to the total airline passengers).

The number of international tourists is, on the other hand, estimated based on information from passport control at airports, ports and harbors provided by Naha District Immigration Office of the Ministry of Justice.

However, since the number of international tourists covers only those who directly come to Okinawa Prefecture, with those who come through other parts of Japan (transit tourists) counted as domestic tourists, it is required to establish a method for estimating the number of those transit tourists.

Meanwhile, with the help of municipal governments, Okinawa Prefecture investigates the number of accommodation facilities in the prefecture as well as the number of rooms they have and their capacity according to their type, such as hotel, dormitory, weekly rental condominium, etc. Taking into consideration that an increasing number of new hotels and other types of accommodation have been constructed in recent years backed by the increase in the number of tourists, it decided in 2002 to change the frequency of the survey on accommodation from biennial or triennial to annual to analyze trends on a yearly basis.

1-3 Qualitative data

Estimates of qualitative data such as the amount of tourism consumption and the length of stay are made based on questionnaire surveys.

Okinawa Prefecture distributes survey slips to some domestic tourists waiting for their flight at boarding areas in the airport and asks them to return the answer sheets by mail at a later date. The response rate stands at around 30%.

Previously, survey slips were placed at a hotel room for distribution or distributed to passengers while aboard an airplane. However, with the former unable to cover tourists who did not stay at the hotel, while the latter having caused some problems, including difficulty with airplane equipment arrangements and a heavier workload for flight attendants,

these methods have been replaced with the current distribution at boarding areas in the airport.

With regard to international tourists, interviews are conducted by researchers while tourists are waiting for their flight at a boarding area in the airport or before they board a ship for a cruise. A new survey launched in 2010, on international tourists, has been conducted with a slight revision to the survey methods and the design of the survey slip every year.

The average daily rate and occupancy rate of hotels are estimated by the Okinawa Development Finance Corporation, a government-affiliated financial institution, which carries out a sample survey based on the list of all accommodation facilities compiled by the prefectural government.

Okinawa Prefecture has newly introduced a general statistical survey on the tourism industry, the Factual Survey of the Tourism Industry, since 2014. The survey is comprised of a questionnaire survey (fixed point) and hearing survey (sampling) targeted at tourism-related business operators. Through the implementation of the survey, the prefecture aims to establish a system to collect information from the tourism industry as needed and develop basic materials that will lead to better understanding of the current status and challenges of the industry in order to formulate measures and policies better suited for the situation.

1-4 Data on evaluation indicators

In order to objectively show the degree of the impact of tourism on the local economy, people and the environment, Okinawa Prefecture has set up 40 tourism performance indicators centering on five axes (the economy, tourists, residents of the prefecture, the environment and management), thereby assessing the current status of tourism in Okinawa and progress towards its goal.

2. Analysis of Data from Questionnaire Survey on Domestic Tourists Conducted at Airports

As previously mentioned in Chapter 1, Okinawa Prefecture has annually carried out a questionnaire survey on domestic tourists at the airports. This chapter analyzes data from the questionnaire survey thus far implemented, focusing on trends and changes in domestic tourists.

Of all domestic tourists to Okinawa, the number of repeaters (those having visited Okinawa twice or more) has increased year by year. The number of repeaters surpassed that of first-timers in FY 1997, while the ratio of repeaters reached as high as 81.8% in FY 2012 (Table 1).

The estimates for the number of domestic tourists by the number of visits to Okinawa ever made, obtained by multiplying the number of domestic tourists to Okinawa by the rate of visitors according to the number of visits to Okinawa ever made, finds that the number of those having visited Okinawa three times or less peaked out in FY 2007; by contrast, that of those having visited it four times or more has been on an upward trend year by year (Table 2).

Table 1 Trend in Ratio of Repeaters

| FY | First-timer | Repeater |
|------|-------------|----------|
| 1983 | 80.4% | 19.6% |
| 1987 | 77.6% | 22.4% |
| 1991 | 60.3% | 39.7% |
| 1994 | 55.7% | 44.3% |
| 1997 | 49.3% | 50.7% |
| 2000 | 48.4% | 51.6% |
| 2003 | 38.1% | 61.9% |
| 2004 | 29.3% | 70.7% |
| 2005 | 30.2% | 69.8% |
| 2006 | 31.4% | 68.6% |
| 2007 | 28.2% | 71.8% |
| 2008 | 23.6% | 76.4% |
| 2009 | 21.6% | 78.4% |
| 2010 | 20.3% | 79.7% |
| 2011 | 20.6% | 79.4% |
| 2012 | 18.2% | 81.8% |

Source: “2012 Kanko Yoran (Tourism Directory)”, Okinawa Prefecture.
Note: Figures for FY 2000, FY 2003 and FY 2006 are based on large-scale on-board surveys.

Table 2 Trend in Number of Tourists According to Number of Visits to Okinawa Ever Made

(Thousand people)

| FY | No. of visits to Okinawa ever made | | | |
|------|------------------------------------|------------|------------|-------------------|
| | First time | 2-3 visits | 4-9 visits | 10 visits or more |
| 2003 | 1,954 | 1,575 | 887 | 713 |
| 2004 | 1,515 | 1,655 | 1,195 | 807 |
| 2005 | 1,683 | 1,928 | 1,226 | 735 |
| 2006 | 1,791 | 1,814 | 1,112 | 987 |
| 2007 | 1,662 | 2,068 | 1,290 | 872 |
| 2008 | 1,400 | 2,113 | 1,490 | 932 |
| 2009 | 1,229 | 1,918 | 1,593 | 956 |
| 2010 | 1,157 | 1,852 | 1,655 | 1,042 |
| 2011 | 1,141 | 1,711 | 1,581 | 1,095 |

Sources: Compiled based on “2012 Kanko Yoran (Tourism Directory)”, Okinawa Prefecture and data from factual surveys of tourism statistics by Okinawa Prefecture.

Next, a look at the periods during which repeaters' previous visit to Okinawa was made reveals that around 40% of the total repeaters visited less than a year ago (Table 3). If those who visited less than five years ago are included, such repeaters account for nearly 80% of the total repeaters. When it comes to repeaters who have visited Okinawa four times or more, those who visited less than a year ago account for the largest percentage of the total repeaters of their respective categories. The larger the number of visits to Okinawa ever made, the higher the percentage of repeaters who visited Okinawa less than a year ago.

Meanwhile, data on intention to revisit Okinawa within five years according to the number of visits to Okinawa ever made indicate that more than 90% of repeaters who have visited Okinawa three times or more have the intention to revisit it at least once within five years (Table 4). In particular, the comparative ratios for those who have visited Okinawa four times or more surpass 95%; almost all of such repeaters responded that they would revisit Okinawa. In addition, the trend shows that the larger the number of visits to Okinawa ever made, the larger the number of revisits intended to be made within five years.

Table 3 Repeaters' Previous Visit to Okinawa (Excluding Homecoming Visits and Visits on Business)

| | | No. of visits to Okinawa ever made | | | | | | |
|----------------|------------------------|------------------------------------|----------|----------|----------|------------|--------------|-------------------|
| | | Total | 2 visits | 3 visits | 4 visits | 5-9 visits | 10-19 visits | 20 visits or more |
| Previous visit | Less than a year ago | 39.2% | 11.7% | 23.6% | 36.5% | 55.6% | 78.6% | 89.5% |
| | Less than 3 years ago | 24.3% | 19.7% | 31.1% | 31.9% | 29.1% | 15.3% | 8.0% |
| | Less than 5 years ago | 12.7% | 15.7% | 19.1% | 15.4% | 9.9% | 3.3% | 0.7% |
| | Less than 10 years ago | 10.3% | 18.7% | 14.2% | 10.5% | 3.3% | 1.6% | 0.5% |
| | More than 10 years ago | 13.5% | 34.2% | 12.0% | 5.8% | 2.0% | 1.2% | 1.3% |

Source: Compiled based on data from FY 2008-11 factual surveys of tourism statistics by Okinawa Prefecture.

Table 4 Intention to Revisit Okinawa within Five Years According to Number of Visits to Okinawa Ever Made (Excluding Homecoming Visits and Visits on Business)

| | | Intention to re-visit Okinawa in next 5 years | | | | |
|------------------------------------|-------------------|---|-------|-----------|-----------------|--|
| | | Once | Twice | 3-5 times | 6 times or more | (Ratio of respondents who intend to visit Okinawa at least once in next 5 years) |
| No. of visits to Okinawa ever made | Total | 27.5% | 25.8% | 26.3% | 10.2% | 89.8% |
| | 1 visit | 41.1% | 26.9% | 12.9% | 0.7% | 81.7% |
| | 2 visits | 39.8% | 27.4% | 15.3% | 1.3% | 83.8% |
| | 3 visits | 32.8% | 34.1% | 22.2% | 1.7% | 90.9% |
| | 4 visits | 26.4% | 31.4% | 32.8% | 4.5% | 95.1% |
| | 5-9 visits | 10.6% | 26.4% | 49.0% | 11.6% | 97.5% |
| | 10-19 visits | 3.3% | 10.0% | 45.0% | 39.4% | 97.7% |
| | 20 visits or more | 1.3% | 4.6% | 22.5% | 69.6% | 98.0% |

Source: Compiled based on data from FY 2009-11 factual surveys of tourism statistics by Okinawa Prefecture.

Those who have visited Okinawa four times or more revisit it almost every year; almost all of such repeaters responded that they wanted to revisit it going forward. On the other hand, those who have visited Okinawa three times or less are less enthusiastic about revisiting than those who have visited it four times or more. Considering that a large portion of the former expressed their intention to revisit Okinawa once within five years, their loyalty to Okinawa cannot be said to have been firmly established. Accordingly, this article defines the former as "light repeaters" and the latter as "loyal repeaters".

Next, let us examine domestic tourists' intention to revisit Okinawa within five years according to the period during which their previous visit to Okinawa was made (Table 5). More than 90% of repeaters whose previous visit was made less than five years ago responded that they would revisit Okinawa within five years. Furthermore, as a large portion of those tourists were planning to visit Okinawa twice or more within five years, this article defines tourists who previously visited Okinawa less than five years ago as "active visitors" and those who have not visited Okinawa for five years as "sleeping visitors".

Table 5 Intention to Revisit Okinawa within Five Years According to Period during Which Previous Visit Was Made (Excluding Homecoming Visits and Visits on Business)

| | | No. of visits to Okinawa planned in next five years | | | | | |
|----------------|------------------------|---|--|---------|----------|------------|------------------|
| | | No plan to visit even after five years | No plan to visit, but may do so after five years | 1 visit | 2 visits | 3-5 visits | 6 visits or more |
| Previous visit | Less than a year ago | 1.1% | 1.1% | 6.1% | 14.4% | 46.9% | 30.4% |
| | Less than 3 years ago | 0.6% | 4.0% | 21.4% | 40.0% | 31.4% | 2.6% |
| | Less than 5 years ago | 1.8% | 8.0% | 39.7% | 34.7% | 15.1% | 0.7% |
| | Less than 10 years ago | 2.3% | 12.4% | 47.1% | 27.9% | 9.9% | 0.5% |
| | More than 10 years ago | 4.0% | 19.3% | 45.1% | 21.2% | 9.0% | 1.3% |

Source: Compiled based on data from FY 2009-11 factual surveys of tourism statistics by Okinawa Prefecture.

In order to understand the structure of the travel market in Okinawa by segment, Okinawa Prefecture carried out a survey on the experience of visiting Okinawa targeted at consumers nationwide (Table 6), through which it investigated whether they have ever been to Okinawa, whether they have visited over the past five years, and how many times they have visited so far.

The structure of the market by segment is estimated in the following ways: First, based on the results of the survey, the rate of people, excluding residents of Okinawa, with experience of visiting Okinawa (the experience rate of visiting Okinawa) by gender and age is computed. The multiplication of the experience rate of visiting Okinawa according to gender and age by the corresponding total

population (excluding residents of Okinawa) according to gender and age from the National Census produces the number of people with experience of visiting Okinawa according to gender. The combined total of the number of people with experience of visiting Okinawa according to gender and age is then divided by the total population (excluding residents of Okinawa) to calculate the overall experience rate of visiting Okinawa.

Next, the rate of people who have visited Okinawa over the past five years according to age is multiplied by the corresponding number of people with experience of visiting Okinawa according to age to obtain the percentages of active visitors and sleeping visitors according to age. The respective

combined totals represent estimates of the total numbers of active visitors and sleeping visitors.

Meanwhile, the number of active visitors-cum-loyal repeaters who have visited Okinawa four times or more according to age and that of active visitors-cum-light repeaters who have visited it three times or less according to age are calculated by multiplying the number of active visitors by the rate of visitors according to the number of visits to Okinawa ever made by age. The calculation of the number of sleeping visitors-cum-loyal repeaters according to age and that of sleeping visitors-cum-light repeaters according to age is made in the same manner. The respective combined totals represent estimates of the total numbers of active visitors and sleeping visitors according to the number of visits to Okinawa ever made.

As a result of these calculations, the experience rate of visiting Okinawa among Japanese people aged 15-79 years is

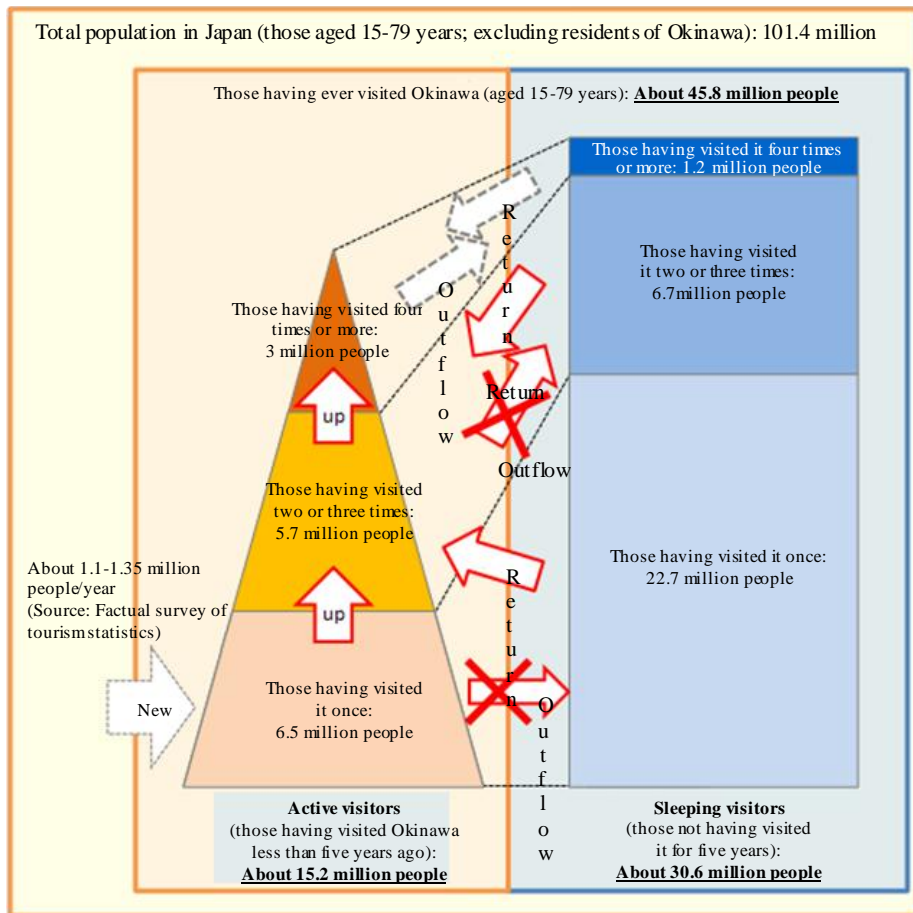
estimated at 5.1%, meaning that approximately 45.8 million people have been to Okinawa. Of these, around 15.2 million people are estimated to be active visitors having visited over the past five years, with the remaining 30.6 million being sleeping visitors (Figure 2).

Of the total active visitors, those having visited Okinawa three times or less account for as high as 80%; 40% are accounted for by those having visited once and the other 40% by those having visited 2-3 times. In other words, it is imperative, in order to expand the repeater base, to prevent light repeaters having visited Okinawa three times or less from becoming sleeping visitors and instead encourage those having visited Okinawa only once to visit it 2-3 times and those having visited it 2-3 times to revisit it four times or more to transform them into loyal repeaters.

Table 6 Outline of Survey on Experience of Visiting Okinawa

| | |
|------------------|---|
| Survey items | • No. of visits to Okinawa ever made |
| | • Intention to visit Okinawa going forward |
| | • Experience of visiting Okinawa by objective |
| | • Living place and scale of city in the place, |
| | Gender, age, occupation and household income |
| Survey period | September 2012 |
| Persons surveyed | Males and females from all over Japan aged 15-79 years; six persons per survey point × 200 points |
| Survey method | Select households from residential map database, from which individuals are assigned. |
| | Door-to-door questionnaire survey conducted by dedicated investigators |
| No. of responses | 1,200 responses |

Figure 2 Structure of Travel Market in Okinawa



On the other hand, about 96% of sleeping visitors not having visited Okinawa for the past five years are those having visited three times or less. In particular, taking into consideration that those who have visited Okinawa only once account for three quarters, it is essential to reach out to sleeping visitors.

A look at data on intention of light repeaters to revisit Okinawa according to activity during the recent visit finds that those who engaged in sightseeing are less motivated to revisit (Table 7).

Table 7 Intention of Light Repeaters to Revisit Okinawa (by Activity)

| | | Activities conducted | | | | | |
|--|---|----------------------|-------|-----------------------------------|--------|----------|---------------------------------|
| | | Sightseeing | Rest | Sea bathing/ marine leisure | Diving | Shopping | Enjoying Okinawan cuisine |
| No. of visits to Okinawa while on vacation planned in next 5 years | 6 visits or more | 0.7% | 1.0% | 0.2% | 6.1% | 0.5% | 1.2% |
| | 3-5 visits | 12.5% | 21.5% | 17.9% | 29.0% | 13.6% | 15.6% |
| | 2 visits | 28.6% | 33.3% | 32.3% | 32.1% | 30.0% | 30.9% |
| | 1 visit | 43.0% | 32.6% | 37.8% | 27.5% | 42.4% | 39.9% |
| | May visit it after 5 years onwards | 12.5% | 8.8% | 10.9% | 5.3% | 10.7% | 10.5% |
| | Unlikely to visit it even after 5 years onwards | 2.7% | 2.8% | 0.9% | 0.0% | 2.9% | 1.8% |

Note: Excluding visits to participate in conference and training sessions, visits on business, homecoming visits and visits to see relatives and others.
Source: Report on FY 2011 factual survey of tourism statistics.

The number of areas visited by activity (Table 8) shows that tourists who did some sightseeing or shopping or enjoyed Okinawan cuisine have visited more than three areas on average. By contrast, those who engaged in the above three types of activities tend to be short stayers; the average number of nights stayed by them is smaller than that by tourists engaged in other activities, whereas the average number of

areas visited per night stayed by the former is larger than that by the latter. A high percentage of light repeaters utilize group tours and packaged sightseeing tours. Since those tours encourage participants to visit many tourist attractions over the short term, they might have reduced tourist satisfaction, which made them less motivated to revisit the place.

Table 8 Areas Visited and Average Number of Nights Stayed by Activity (Only Light Repeaters Surveyed)

| Areas visited (multiple answers) | Activities during the recent visit (multiple answers) | | | | | |
|---|---|-------|---------------------------------|--------|-------------|---------------------------------|
| | Sightseeing | Rest | Sea bathing / marine leisure | Diving | Shopping | Enjoying Okinawan cuisine |
| Yanbaru (the northernmost part) | 8.1% | 7.8% | 5.1% | 6.8% | 7.5% | 8.0% |
| Motobu Peninsula | 64.0% | 55.4% | 56.9% | 45.5% | 66.3% | 63.1% |
| West coast region in the northern part | 48.7% | 41.1% | 49.0% | 36.4% | 52.4% | 48.2% |
| East coast region in the northern part | 8.8% | 6.8% | 6.9% | 3.8% | 9.4% | 8.8% |
| West coast region in the central part | 37.7% | 36.6% | 36.7% | 34.1% | 41.0% | 38.8% |
| East coast region in the central part | 17.6% | 12.0% | 11.2% | 8.3% | 18.7% | 17.7% |
| Naha City | 77.0% | 66.2% | 66.0% | 70.5% | 84.4% | 78.8% |
| The southern part | 45.9% | 34.3% | 32.0% | 33.3% | 45.7% | 44.6% |
| Kume Island | 0.7% | 1.3% | 1.5% | 3.0% | 0.4% | 0.6% |
| Remote islands surrounding Okinawa Main Island other than Kume Island | 1.4% | 1.5% | 5.1% | 11.4% | 1.8% | 2.3% |
| Miyako Island and neighboring remote islands | 3.6% | 5.5% | 5.5% | 6.8% | 2.4% | 3.9% |
| Ishigaki Island and neighboring remote islands | 15.5% | 19.8% | 17.9% | 18.9% | 12.6% | 14.6% |
| Average no. of areas visited | 3.29 | 2.88 | 2.94 | 2.79 | 3.43 | 3.29 |
| Average no. of nights stayed | 2.61 | 2.98 | 3.12 | 3.27 | 2.59 | 2.72 |
| Average no. of areas visited per night stayed | 1.26 | 0.97 | 0.94 | 0.85 | 1.32 | 1.21 |

Note: Excluding visits to participate in conference and training sessions, visits on business, homecoming visits and visits to see relatives and others.
Source: Report on FY 2011 factual survey of tourism statistics.

3. Pilot Implementation of Mobile Spatial Statistical Survey to Complement Existing Surveys

As mentioned earlier, Okinawa Prefecture has continued employing traditional survey methods to understand the current status and challenges of tourism in Okinawa. However, it has been considering introducing new statistics methods in recent years; between 2012 and 2013, it performed a survey on the flow of tourists, using mobile positioning data provided by a mobile-phone operator.

3-1 Survey on Tourists to Okinawa Prefecture

3-1-1 Objectives

As stated in Chapter 2, the repeat rate of tourists to Okinawa is about 80% at present, indicating that tourism in Okinawa is propped up by repeaters. In order to secure repeaters on a sustainable basis, it is crucial to understand tendencies, needs, etc. of repeaters. Through the use of Mobile Spatial Statistics, mobile phone network-based population statistics, the survey examines and analyzes trends in behavior of tourists in Okinawa, especially focusing on which part of Okinawa they visit, at what time they do so, and how many of them there are at the time.

3-1-2 Mobile Spatial Statistics

With the aim of carrying out objective and detailed investigation and analysis, the Survey uses Mobile Spatial Statistics (MSS) provided by NTT Docomo Inc.

MSS are population statistics that are generated from mobile terminal network operational data. MSS enable the understanding of population distribution by geographic area as well as population composition by gender, age and habitation area once every hour and on a continuous basis. As continuous estimation of the de facto population by month, day of the week, hour, gender, age and habitation area is possible, we are able to examine temporal and regional trends and changes in the population.

3-1-3 Survey outlines

(1) Survey on number of tourists

Defining people who do not live in Okinawa Prefecture as “tourists” as is the case with the mixture ratio used in the factual survey of tourism statistics, the survey estimates the number of tourists based on the population by habitation area obtained through MSS.

The areas where, and the periods during which, the survey was conducted are as follows:

| | |
|---------|---|
| Areas | Whole area of Okinawa Prefecture, wide-area blocs, and municipalities |
| Periods | October 2012 and January 2013 |

Because of space limitations, this article mainly focuses on the results of the October 2012 survey.

(2) Survey on number of visitors to events

The events covered by the survey are as follows:

| | |
|---------|--|
| Events | (1) Worldwide Eisa Festival (2) Professional baseball training camp |
| Periods | (1) October 6-7, 2012 (2) February 9-11, 2013 |

3-2 Survey on number of tourists

3-2-1 Tourists to whole area of Okinawa Prefecture

(1) Number of tourists by gender and age

Figures 3 and 4 show the number of tourists to the whole of Okinawa Prefecture by gender and age. The numbers of tourists shown in the figures represent the average numbers of tourists on weekdays (Wednesdays) and holidays (Saturdays) in each month at 13:00.

Figure 3 indicates that, in October, the numbers of tourists of all age groups excluding those aged 15-19 years are larger on holidays than on weekdays; with regard to male tourists, the largest number is recorded by those in their 30s, while for female tourists it is those in their 20s. The significantly larger number of tourists aged 15-19 years on weekdays than on holidays is likely due to the impact of school trips.

Meanwhile, the number of tourists aged 15-19 years decreased sharply in January from October. As is the case with October, there are many tourists in their 20s and 30s, but those in their 60s increased from October. It is also of note that the gap between weekdays and holidays is narrower in January than in October.

Figure 3 Okinawa Prefecture-Wide Tourists by Gender and Age (October)

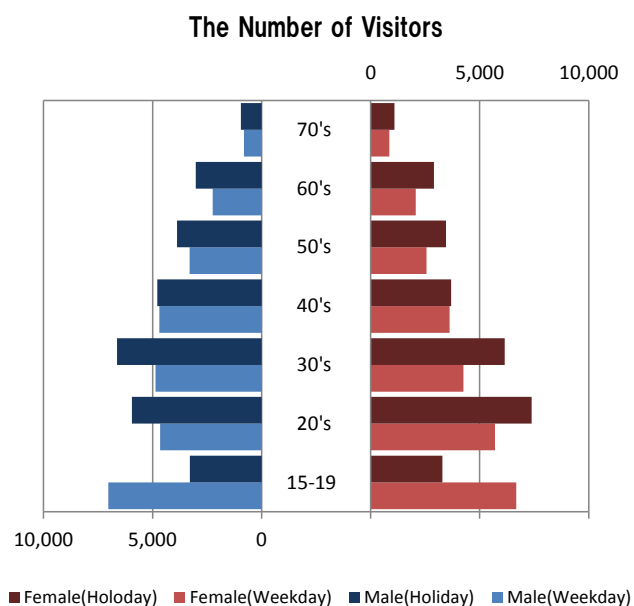


Figure 4 Okinawa Prefecture-Wide Tourists by Gender and Age (January)

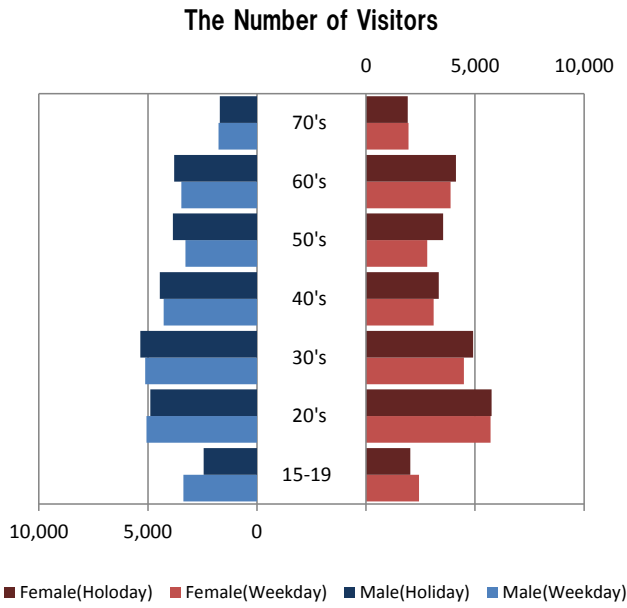
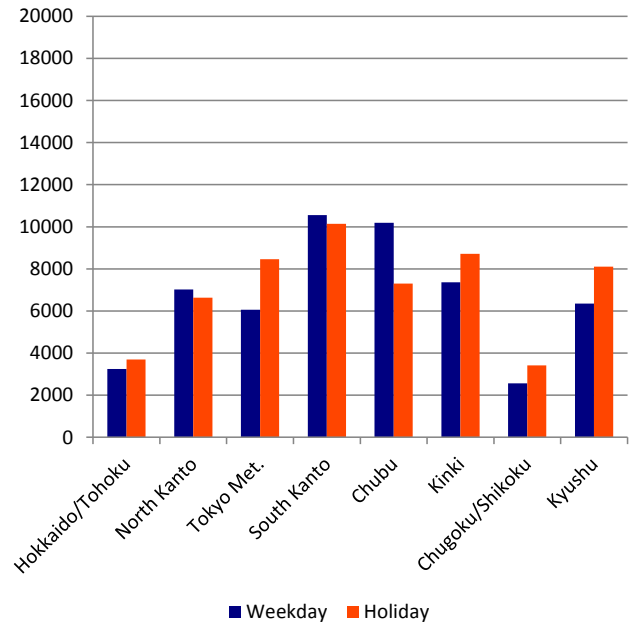


Figure 5 Okinawa Prefecture-Wide Tourists by Habitation Area (October)



(2) Number of tourists by habitation area

Figure 5 shows the number of tourists to the whole of Okinawa Prefecture by habitation area. The numbers of tourists shown in the figure represent the average numbers of tourists on weekdays (Wednesdays) and holidays (Saturdays) in October 2012 at 13:00. Since Okinawa receives an especially large number of tourists from Kanto region, it is divided into the following three areas:

| | |
|--------------|---|
| North Kanto: | Ibaraki Prefecture, Tochigi Prefecture, Gunma Prefecture and Saitama Prefecture |
| Tokyo: | Tokyo metropolitan area |
| South Kanto: | Chiba Prefecture and Kanagawa Prefecture |

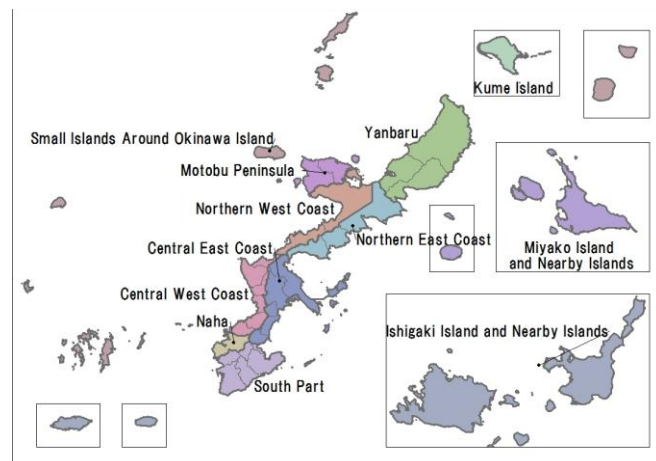
On weekdays, the largest number of tourists from South Kanto visit Okinawa, followed by those from Chubu and Kinki; on holidays, the largest number is recorded by those from South Kanto, followed by those from Kinki district and Tokyo. There is a big difference between weekdays and holidays in terms of the number of tourists by habitation area. In general, a larger number of tourists from western Japan are found on holidays than on weekdays.

3-2-2 Tourists to wide-area blocs

(1) Wide-area blocs

Okinawa Prefecture is divided into 12 wide-area blocs as shown in Figure 6 for examination and analysis. Of the 12 wide-area blocs, the three blocs, Naha City, the west coast region in the northern part and Ishigaki Island, each revealing a unique feature, are explored below.

Figure 6 Twelve Wide-Area Blocs of Okinawa Prefecture



(2) Number of tourists by gender and age

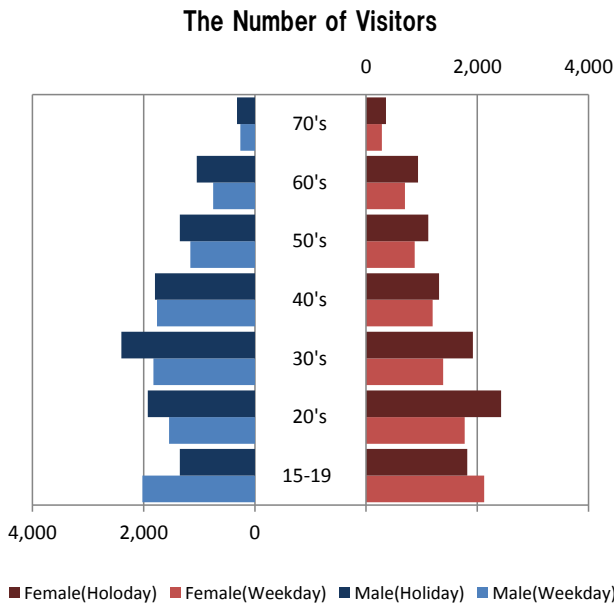
(a) Naha City

Figure 7 shows the number of tourists to Naha City by gender and age. Many tourists ranging from those aged 15-19 years to those in their 40s visit the city on weekdays. On holidays, the largest number of male tourists are those in their 30s and for female tourists, those in their 20s; the younger or older the age group, the fewer tourists found in the city. In addition, the city is visited by a larger number of tourists, excluding those aged 15-19 years, on holidays than on weekdays.

Tourists to Naha City show a similar trend to that of tourists to the whole area of Okinawa Prefecture as shown in

Figure 3. This is because approximately one third of prefecture-wide tourists are concentrated in Naha City.

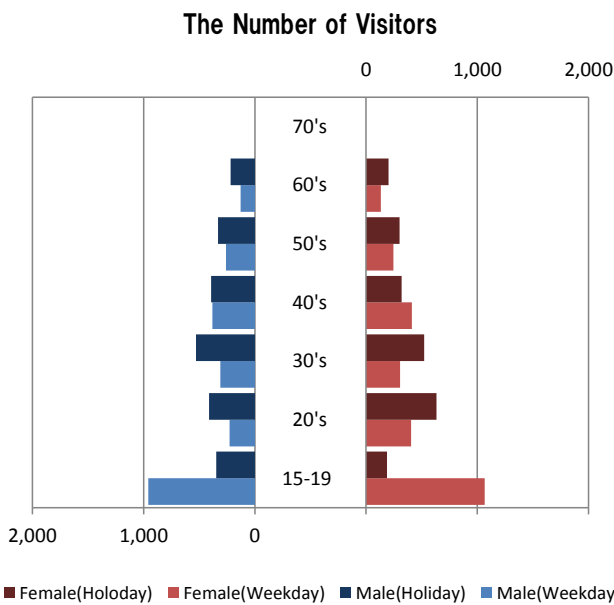
Figure 7 Naha City: By Gender and Age (October)



(b) West coast region in the northern part

Figure 8 shows the number of tourists to the west coast region in the northern part by gender and age. There is an overwhelming number of tourists aged 15-19 years on weekdays; the older the age group, the fewer tourists found in the region. The region is visited by a larger number of tourists, excluding those aged 15-19 years, on holidays than on weekdays.

Figure 8 West Coast Region in Northern Part: By Gender and Age (October)

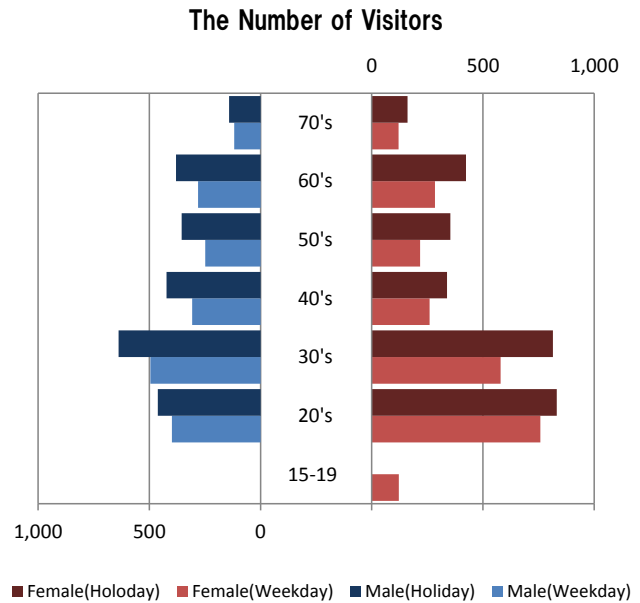


(c) Ishigaki Island

Figure 9 shows the number of tourists to Ishigaki Island by gender and age. Unlike Naha City and the west coast region in the northern part, there are few tourists aged 15-19

years. This may be due to the fact that few schools choose Ishigaki Island as a destination for their school trips. Meanwhile, the island receives a large number of tourists in their 20s and 30s, women in particular. A significantly larger number of tourists are found there on holidays than on weekdays.

Figure 9 Ishigaki Island: By Gender and Age (October)



3-2-3 Tourists by municipality

(1) Temporal changes in number of tourists

The understanding of temporal changes in the number of tourists to an area using MSS enables identification of the features of the area. In concrete terms, the number of tourists increases at night-time in an area where there is a lot of accommodation; whereas it increases in the daytime in an area where there are many tourist facilities.

(2) Municipalities where the number of tourists increases in the daytime

The population increases in the daytime in Itoman City (Figure 10) and Motobu-cho (Figure 11). This is believed to be due to the fact that both municipalities are rich in tourist facilities; there are the Okinawa Prefectural Peace Memorial Museum, the Tower of Himeyuri and other facilities in Itoman City, while there is the Ocean Expo Park (Okinawa Churaumi Aquarium) in Motobu-cho. Meanwhile, the reason behind a considerably larger number of tourists to Itoman City on weekdays than on holidays is considered to be the impact of school trips.

Figure 10 Itoman City: Temporal Change (October)

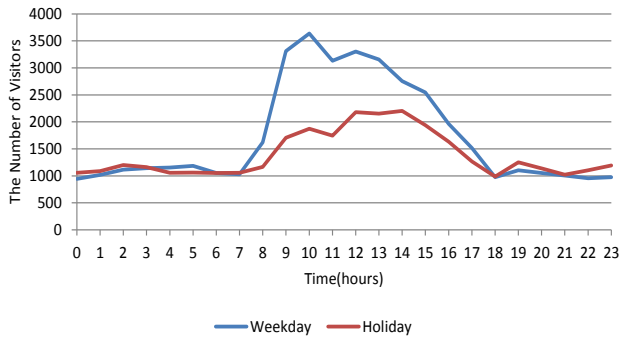
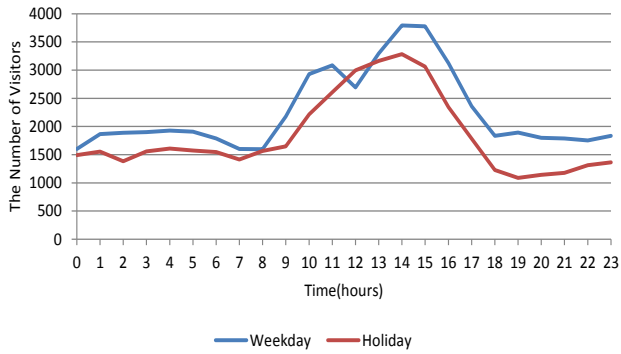


Figure 11 Motobu-cho: Temporal Change (October)



(3) Municipalities where the number of tourists increases at night-time

By contrast, the population increases in the night-time in Onna-son (Figure 12) and Naha City (excluding Naha Airport) (Figure 13). This is believed to be due to the fact that both municipalities are rich in facilities used at night-time; there are many resort hotels in Onna-son, while there are many accommodation facilities together with shopping and entertainment districts in Naha City.

Figure 12 Onna-son: Temporal Change (October)

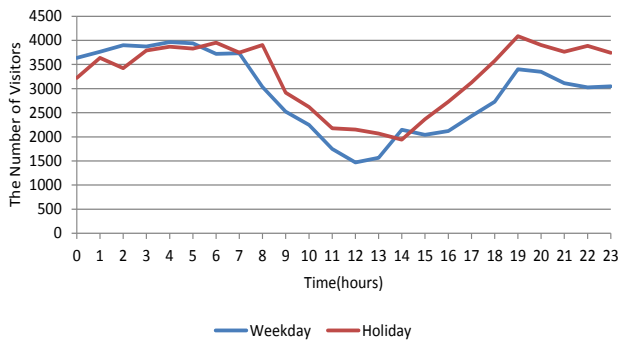
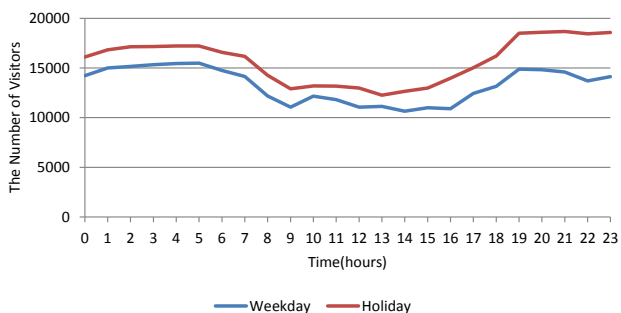


Figure 13 Naha City (Excluding Naha Airport): Temporal Change (October)



3-3 Survey on events

3-3-1 Worldwide Eisa Festival

(1) Event outline

Eisa is a traditional Okinawan dance. A lot of Eisa-related events are held in Okinawa throughout the year. The Worldwide Eisa Festival is a large-scale event attracting a number of Eisa dance groups from in and out of the prefecture.

(2) Survey outline

(a) Survey area

The Worldwide Eisa Festival was held at Okinawa Cellular Stadium, Okinawa Prefectural Hall of Martial Arts and neighboring areas in the western part of Onoyama Sports Park in Naha. Accordingly, the survey mainly examines the number of stayers in the western part of the park.

(b) Survey period

The survey was conducted on Saturday, October 6, 2012 and Sunday, October 7, 2012 when the Worldwide Eisa Festival took place.

(3) Survey results

Figure 14 shows trends in the number of stayers by the hour of the day on which the Worldwide Eisa Festival took place. As it peaked at around 18:00 and 19:00 on the first and second day of the festival, respectively, it is estimated that the largest number of people visited the festival venue during those periods of time. Furthermore, taking into account that a larger number of stayers was recorded at almost every hour of the second day than at the corresponding hour of the first day, the number of visitors to the festival is believed to have been larger on the second day.

Figure 14 Worldwide Eisa Festival: Trends in Number of Stayers by Hour of Day

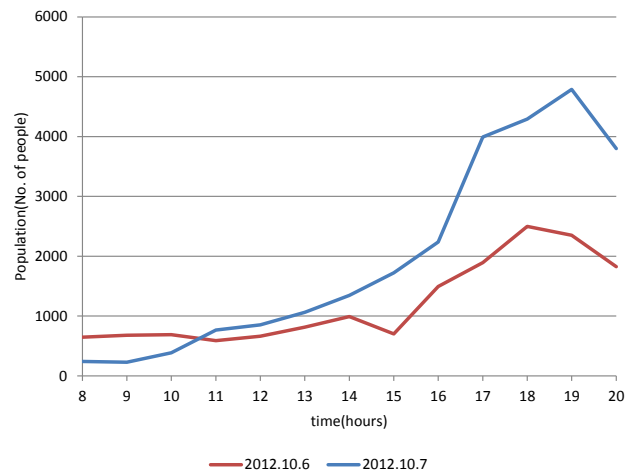
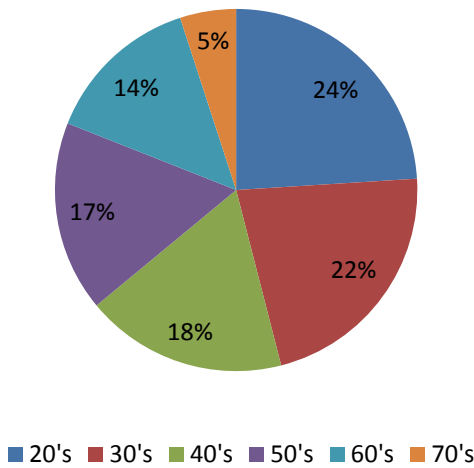


Figure 15 shows the breakdown of visitors to the Worldwide Eisa Festival by age group. With those in their 20s and 30s accounting for 46% of all visitors, it is found that the festival attracted many young people.

Figure 15 Worldwide Eisa Festival: Breakdown by Age Group



3-3-2 Professional baseball training camp

(1) Event outline

A questionnaire survey conducted in FY 2012 revealed that of all events that take place in Okinawa Prefecture, the professional baseball spring training camp is the most well-known event having the highest participation rate (the Department of Culture, Tourism and Sports of the Okinawa Prefectural Government, 2013). Consequently, the survey examined the number of visitors to a professional baseball training camp.

(2) Survey outline

Nine Japanese Major League Baseball teams migrated to Okinawa for baseball camps in 2013. This article looks at the results of the survey on the Hanshin Tigers' camp held at the beginning of February on the Okinawa Main Island.

Although professional baseball camps are typically held during the month of February, the three consecutive holidays, on which the number of tourists was expected to increase, namely Saturday, February 9; Sunday, February 10; and Monday / Public Holiday, February 11, were chosen as the survey period.

(3) Survey results

Figure 16 shows that during the three days, the number of stayers peaked on Monday, February 11 at around 12:00-13:00, reaching about 1,900, an increase of about 500 from the peak on Saturday, February 9. This may be due to the impact of the practice game carried out on Monday, February 11 from 13:00. The reason why the number of stayers was slightly smaller on Sunday, February 10 than on the other days is believed to be the impact of the practice game that the Hanshin Tigers had with the Hokkaido Nippon-Ham Fighters at Nago Municipal Baseball Stadium.

Figure 16 Ginoza Municipal Baseball Stadium: Trends in Number of Stayers

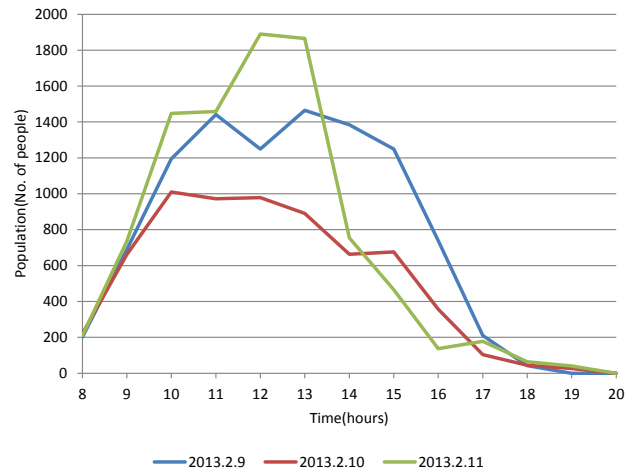
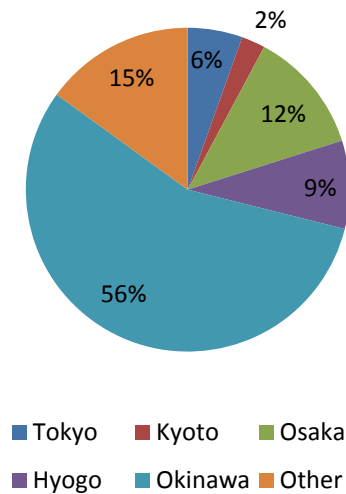


Figure 17 shows the number of visitors to the baseball camp by habitation area. Visitors from Okinawa Prefecture account for the largest proportion, followed by those from Osaka Prefecture and Hyogo Prefecture. One of the factors contributing to the ranking is thought to be the fact that the home field of the Hanshin Tigers is Hanshin Koshien Stadium.

Figure 17 Ginoza Municipal Baseball Stadium: Breakdown by Prefecture



4. Reference

Factual survey of tourism statistics by Okinawa Prefecture (2005-2012), the Department of Culture, Tourism and Sports of the Okinawa Prefectural Government.

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