

Tourism Statistics System in Japan

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Since the beginning of the 21st century, the development of tourism statistics has been steadily progressing, guided mainly by the Japan Tourism Agency. The purpose of this paper is to explain the content of the Japanese tourism statistics system from the perspective of both government and regional statistics, and to demonstrate the high standards by which these statistics were compiled. In order to clarify these standards, the author has performed principal component analysis (a multivariate analysis technique) using Japanese accommodation survey and conducted a regional comparison of the tourist accommodation sector. Government statistics include surveys of accommodation, tourist arrivals, tourism expenditure and foreign tourist expenditure. A statistical system has also been built in order to make comparisons both over time and between regions possible. There is a long history of regional tourism statistics centred on tourist arrival numbers. These surveys not only identify the number of visitors by year but also make detailed classifications regarding factors such as the number of visitors by municipality, region, purpose, major tourist facility and time period. The Japan Tourism Agency is working towards the development of common standards, thereby resolving issues such as data reliability and inter-regional comparison. Japanese tourism statistics are currently compiled by close government and regional collaboration.

Keywords: Tourism Statistics, Accommodation Survey, Tourist Arrival Survey, Tourism Expenditure Survey, Foreign Tourist Expenditure Survey

1. Introduction

Since the beginning of the 'Visit Japan' project in 2003, several numerical targets have been set in order for Japan to become a tourism-oriented nation. One of these is the '30 million foreign tourists program', which has set a short-term goal of attracting 15 million foreign tourists annually by 2013 and a long-term goal of attracting 30 million foreign visitors annually. In addition, the 'Tourism Nation Promotion Basic Law', enacted in 2007, set targets of 20 million annual Japanese overseas travellers and 30 trillion yen (375 billion US dollar¹⁾ in annual domestic tourism consumption by 2010. As a result of the economic downturn, however, these numerical targets were not able to be achieved.

Tourism statistics are essential for determining whether or not tourism targets have been fulfilled. However, if the procedures are inadequate or inaccurate, the results are worthless. Statistical surveys must be carried out based on scientific methods and yield reliable results. Some developing and emerging nations that are considered to be tourism-oriented clearly over-

calculate their tourism GDP, leading to a decrease in confidence in tourism statistics. Therefore, improvement in the standards of tourism statistics is not only an urgent issue in Japan but also across the globe. Japanese statistical systems are of the highest global standard. The same can be said of Japanese tourism statistics, whose recent improvement has put Japan in a position to become a world leader in the field of tourism statistics.

The purpose of this paper is to explain the content of the Japanese tourism statistics system from both governmental and regional perspectives, as well as to demonstrate their high quality and standards. The author has additionally sought to exemplify the high level by conducting a principal component analysis (a multivariate analysis technique) on Japanese accommodation statistics and comparing the movements of the regional tourist accommodation sector. Although the development of tourism statistics in Japan has been progressing rapidly, the high levels of these surveys have not been disseminated beyond the borders of Japan, and this progress has consequently gone virtually unrecognized throughout the world. The author hopes, therefore, that this paper will

bring global attention to the superior content of Japanese tourism statistics worldwide, in addition to ensuring that in future, we will see improvement in both the quality of empirical analysis based on reliable statistics, which will contribute to information useful for tourism policies.

2. Tourism statistics as government statistics

In Western countries, tourism statistics are considered a critical part of the infrastructure of tourism policy. The Japanese government considers the development of tourism statistics to be a pressing issue and therefore recognises the need for highly accurate statistics in order for Japan to be acknowledged as a tourism-oriented nation. Japan has a long history of tourism statistics, and the central government, local governments and private sector organizations have published several survey results. However, previously, there was no comprehensive system nor unified standards that allowed for regional comparison, and sample sizes were too small to permit the kind of precision

necessary for thorough and accurate analysis.

These problems were neglected for many years until, in 2005, a committee of experts was established. Their proposals for the development of tourism statistics have been summarised in reports issued by the Ministry of Land, Infrastructure, and Transport and are further discussed below (Tourism Planning Division, Policy Bureau, Ministry of Land, Infrastructure and Transport, 2005). After clearly defining the major issues and the aim of tourism statistics, as seen in Figure 1, the committee made reference to four tourism statistics in need of urgent attention: accommodation survey, tourist arrival survey, foreign tourist survey, and tourism expenditure survey. The issues with each of these statistical surveys are identified below.

First, in order to conduct a regional comparative analysis of accommodation survey, one must have an understanding of both the total number of overnight visitors (the actual number of overnight visitors and the total number of overnight stays) and the accommodation occupancy rate by

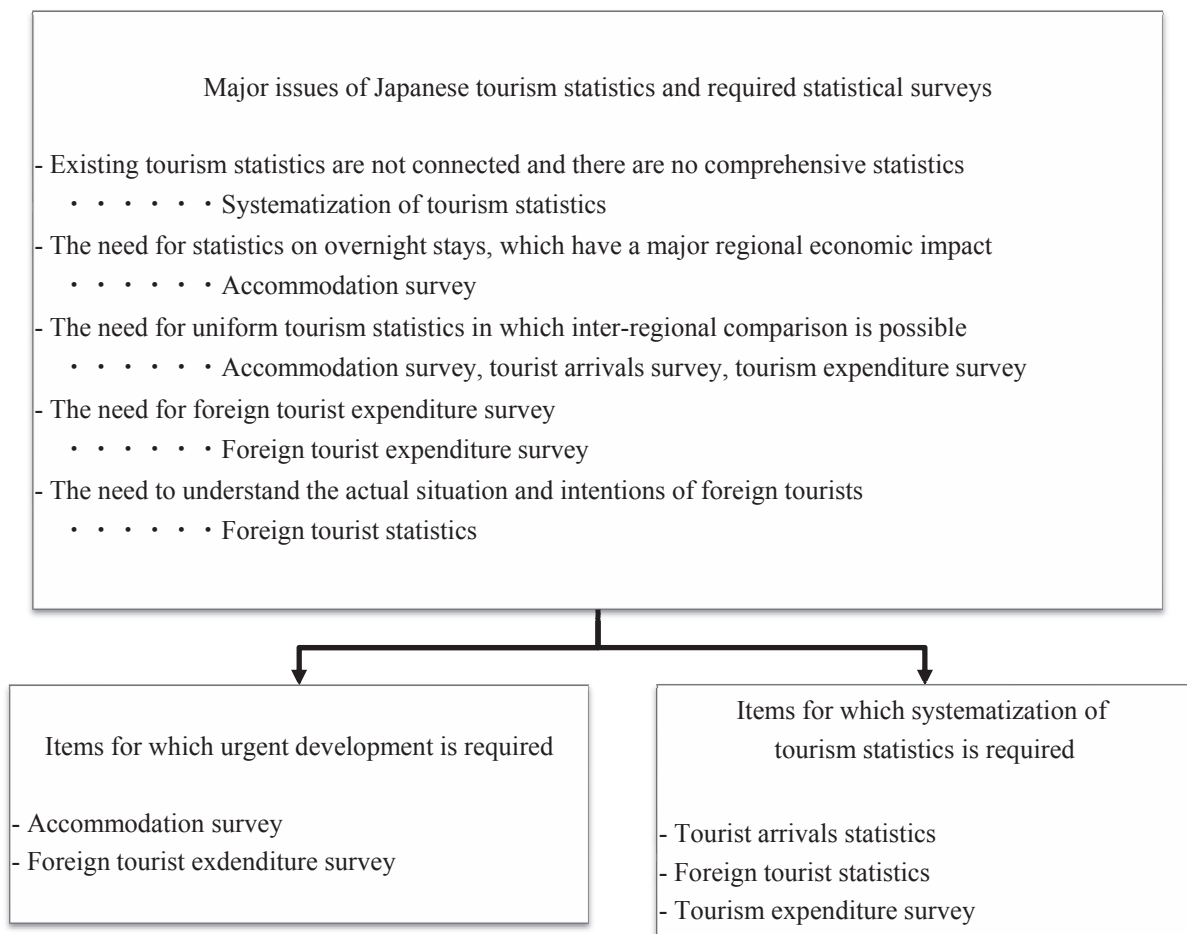


Figure 1: Major issues and the aim of tourism statistics

(Source: Tourism Planning Division, Policy Bureau, Ministry of Land, Infrastructure and Transport, 2005: v)

prefecture. Furthermore, accommodation statistics play a central role in tourism statistics and can be used to estimate the amount of tourism consumption and its economic effects. Additionally, they improve the accuracy of other tourism statistics such as the number of visitor arrivals, number of foreign tourists to Japan and net flow of travellers. It is necessary to work together with prefectures to determine the specific content of accommodation survey, which include the extent of coverage of the surveys, their extraction methods, survey periods, items of the survey and survey framework.

For many years, prefectures have been primarily responsible for compiling tourist arrivals survey; however, only a few prefectures have adopted the national tourism statistics standards set by the Japan Tourism Association, making inter-regional comparison difficult. It is therefore necessary to insist that many prefectures implement surveys based on the national tourism statistics standards and to discuss the development of new standards.

Many problems and issues have arisen regarding foreign tourist statistics, which is conducted with a questionnaire survey to foreign visitors to Japan. First, priority should be given to understand the travel situations and consumption of inbound foreign visitors. It is thus necessary to obtain data that contains information that domestic surveys are unable to provide, such as the number of times that foreign visitors travel outside of Japan, the proportion of travel to Japan constituted by this number, traveller's needs and the market environment. However, there are issues regarding the collection of foreign visitor data from abroad, which makes immediate development difficult, such as the method and frequency of data updates and the compensation of survey participants.

Tourism expenditure survey is aimed at estimating the amount of consumption and its economic effects. The most feasible way to achieve this survey is to develop a method aligned closely with accommodation survey. It is thus necessary to examine the way in which these statistics correspond to existing surveys, framework and periods, as well as the validity and accuracy of the survey method itself. It is also important to make efforts to reduce the time and cost involved in the survey.

After mentioning the issues involved in

conducting the four statistical surveys detailed above, the committee stated the need for the urgent development of an accommodation survey; conformity with the World Tourism Organization (UNWTO)-centred international standard for tourism statistics; implementation of tourist arrival survey based on uniform national standards; the need to estimate the amount of tourism expenditure and the economic ripple effect by prefecture; and the implementation of a foreign tourist expenditure survey, etc. in their proposals concerning the tourism statistics system. In addition, the Tourism Nation Promotion Basic Law set the necessary measures for the development of tourism statistics and established 2007 as the goal for the implementation of each survey. After these proposals and several committee meetings, the following four surveys have become the current foundation for Japanese tourism statistics.

(1) Accommodation survey

Accommodation survey is implemented in order to grasp the situation of overnight stays nationwide and target all accommodation establishments, which are part of the lodging industry in Japan, including hotels, ryokans (Japanese-style inns), simple lodgings and company/organisation lodgings. In other words, this survey focuses on the nights spent by tourists in so-called collective accommodation. Quarterly accommodation survey is performed in addition to stratified random sampling as per the prefecture and the number of employees of the accommodation facility. All accommodation establishments with 10 or more employees, one in three accommodation establishments with between five and nine employees, and one in nine accommodation establishments with less than five employees are extracted.

Although survey items differ according to the scale (number of employees) of the accommodation establishments, they are wide ranging and include the name, location, number of rooms, capacity, number of employees, total number of overnight stays and actual number of tourists. A survey procedure has been implemented whereby the Japan Tourism Agency distributes questionnaires to target accommodation facilities, which the respondent then fills out and returns to the agency.

The 2010 accommodation survey results indicate that as of December 2010, there are a total of 54,297 accommodation facilities, including hotels, ryokans and simple lodgings in Japan, of which 12,278 (22.6%) are establishments with 10 or more employees and 42,019 (77.4%) are establishments with less than 10 employees. The total number of overnight stays recorded in 2010 was 348,820,000, of which 80,180,000 (23.0%) are by overnight visitors from inside the prefecture; 224,240,000 (64.3%) by overnight visitors from other prefectures in Japan; 26,020,000 (7.5%) by foreign tourists and 18,380,000 (5.3%) for which the details are unknown. The actual number of tourists was 275,240,000 of which 17,040,000 were foreigners.

In terms of the total number of overnight stays recorded by prefecture, the Tokyo Metropolitan Government was ranked first with 41,910,000 (12.0%) recorded stays; Hokkaido was ranked second (23,280,000, 6.7%); and Osaka ranked third (19,620,000, 5.6%) These top three ranked prefectures accounted for approximately 25% of the total number in Japan in 2010. On the other hand, looking at the total number of overnight stays by foreigners in terms of country or region of origin, China was ranked first with 4,510,000 (17.3%) recorded stays, followed by South Korea (4,150,000, 15.9%), Taiwan (3,360,000, 12.9%), USA (2,770,000, 10.6%) and Hong Kong (1,910,000, 7.4%). These top five ranked countries or regions accounted for over 60% of the total number of overnight stays in Japan by foreign tourists .

(2) Tourist arrival survey according to common standards

The Tourism Nation Promotion Basic Plan approved by the cabinet in 2007 aimed at formulating nationwide common standards for tourist arrivals survey. These standards were required to be adopted by local governments while taking into account the survey methods being implemented by each prefecture at that time. This plan was designed to implement surveys based on the new common standards in 2010. In accordance with the new standards set in December 2009, the implementation of tourist arrival survey based on these standards began to be promoted in each prefecture. By the end of October 2011, 45 prefectures, excluding Osaka and Fukuoka, had

adopted the new common standards.

The new standards prescribe the detailed procedures (question items of the survey, survey methods, estimation methods, etc.) in order to allow each prefecture to create reliable statistics in view of regional comparability. The primary purpose of the tourist arrival survey is to gain an understanding of the number of visitors (tourist and excursionist), tourism consumption per person and total tourism consumption at a prefectural level.

The number of visitors means the number of excursionists and tourists who visited tourist attractions within a prefecture each quarter, according to a breakdown of their attributes (purpose of visit, place of residence, same-day trip/overnight trip). This number is then categorised into the total number of visitors from inside or outside the prefecture and the number of visitors on same-day trips or overnight trip from inside or outside the prefecture. Each visit by a visitor is counted as one unit.

The tourism expenditure per visitor expresses the average amount of consumption for each visitor who visited tourist attractions within a prefecture each quarter, according to their attributes. Tourism expenditure per visitor is divided into the following categories: tourism expenditure per visitor from inside or outside the prefecture; tourism expenditure per tourist or excursionist from inside or outside the prefecture. The expenditure of a visitor outside the surveying prefecture is not included in that prefecture's tourism consumption per visitor.

Total tourism expenditure is the aggregate consumption of visitors who visited tourist attractions within a prefecture each quarter, according to a breakdown of their attributes (purpose of visit, place of residence, same-day trip/overnight trip). Total tourism consumption of visitors from inside or outside the prefecture, total tourism consumption of overnight visitors from inside or outside the prefecture and total tourism consumption of same-day visitors are calculated by multiplying the respective number of visitors with their average consumption.

Table 1 shows the figures from the Tokyo Metropolitan Government, the biggest tourism market in Japan. According to tourist arrivals survey in the October/December 2010 quarter, the

Table 1: Tokyo Metropolitan Government: actual number of visitors, tourism consumption per visitor and total tourism consumption

Tokyo Metropolitan Government	(1) Number of visitors (1,000 visits)				(2) Tourism consumption per visitor (yen/visit)				(3) Total tourism consumption (one million yen)			
	Residents		Non-residents		Residents		Non-residents		Residents		Non-residents	
	tourist	excursionist	tourist	excursionist	tourist	excursionist	tourist	excursionist	tourist	excursionist	tourist	excursionist
Japanese/leisure, recreation, etc.	671	55,071	1,567	44,211	28,660	4,263	31,384	8,450	19,241	234,784	48,873	373,564
Japanese/business	1,375	3,911	2,719	2,190	-	4,052	71,794	7,981	-	15,847	195,208	17,480

(Source: Japan Tourism Agency, Tourist arrivals survey results according to common standards from October to December 2010, <http://www.mlit.go.jp/kankocho/siryou/toukei/irikomi.html>)

number of Japanese tourists to Tokyo Metropolitan Government for the purpose of leisure, recreation, and so on was about 2,238,000. Among them, Tokyo residents were about 671,000 and Tokyo non-residents were about 1,567,000. In the case of tourism consumption per visitor (yen/visit), the average amount of Tokyo resident tourists for the purpose of leisure, recreation etc. was 28,660 yen (US\$358) and that of Tokyo non-resident tourists was 31,384 yen (US\$392). Finally, total consumption by Tokyo resident tourists for the purpose of leisure, recreation etc. was 19,241 million yen (240.5 million US dollar). Compared with other prefectures, a relatively large proportion of people visit Tokyo for business purposes. The detailed survey process for compiling tourist arrivals survey by common standards are described in detail in the next section of this paper.

(3) Tourism expenditure survey

Tourism expenditure survey were carried out on 7,500 domestic residents extracted at random with the purpose of clarifying the following: visitors' attributes (age, gender, etc.); presence or absence of domestic/overseas travel within the previous six months; number of trips taken; nature of their most recent travel (purpose, number of overnights, time period, destination, etc.); and items purchased and expenditure. Since 2009, respondents answered the same questionnaire twice, making it possible to determine the presence or absence of travel and the number of trips taken within the previous year. In short, these surveys were carried out quarterly (July, October, January, April), and the July/January surveys and October/April surveys were completed by the same respondents. This survey was carried out by post. In 2009, a high recovery rate of 50.5% was recorded with 9,093 of

the 18,000 surveys submitted.

The results of 2009 tourism expenditure survey show that on domestic overnight stays, the average expenditure before and after a trip is 11,217 yen (US\$140) and the average total expenditure during a trip is 41,678 yen (US\$520). Similarly, on domestic same-day trips, the average expenditure before and after a trip is 4,949 yen (US\$62) and the average total expenditure during a trip is 13,492 yen (US\$169). In terms of overseas travel, the average expenditure before and after a trip (domestic actions) is 27,220 yen (US\$340) and the average total expenditure during a trip is 15,324 yen (US\$192). This amount excludes the money that Japanese tourists have spent overseas. These results are published by attribute and purpose of travel, and also include a breakdown of expenditure (transport, accommodation, dining, etc).

Tourism expenditure survey does more than simply allow for an understanding of the average consumption of each tourist. The ultimate goal of these surveys is the creation of Tourism Satellite Account (TSA) and measurement of the economic impact of tourism consumption (production ripple effect, added-value effects, employment effects and tax revenue effects). TSA is one of satellite account adopted by the System of National Accounts 1993 and provides the conceptual framework and the organisational structure for the integration of tourism statistics from an economic perspective. UNWTO encourages the creation of TSA to provide fundamental materials for the planning and implementation of tourism policies in many countries.

The estimate value is calculated with reference to survey results of other economic statistics in addition to tourism expenditure survey and the economic effects from tourism expenditure in Japan in 2009 are summarized in Figure 2.

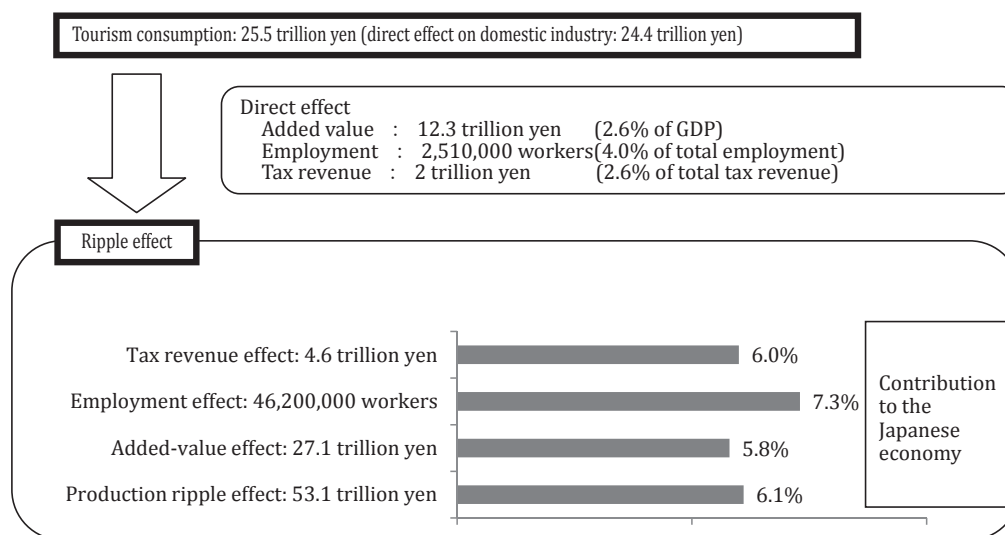


Figure 2: The economic ripple effect from tourism expenditure in Japan
(Source: Japan Tourism Agency, Ministry of Land, Infrastructure and Transport (2011b): p.178.)

(4) Foreign tourist expenditure survey

The foreign tourist expenditure survey was carried out in the passenger waiting areas of the international terminals at 11 major airports and seaports, including Narita International Airport, Kansai International Airport and Hakata Port. This survey targets foreign tourists leaving Japan, excluding residents of one year or more and permanent residents. A certain survey time frame is established each quarter (generally 1–2 months) and surveys are conducted by touch-screen PCs that support 10 languages, including English, Korean and Chinese, and by multilingual interviewers using a questionnaire.

In the 2010 surveys, a target number of responses was set for each of the 15 priority countries/regions under the 'Visit Japan' project, and each survey was carried out with the goal of obtaining a total of 6,500 responses. In total, 6,753 responses were collected from the October/December 2010 survey of which 98.2% were valid responses. The three top ranking nationalities or regions were South Korea (21.1%), Taiwan (18.8%) and China (12.4%), which accounted for over 50% of the total.

The survey items included attributes such as nationality, gender and age, the purpose or content of travel and travel expenditure, including consumption prior to travel. The survey results from April/December 2010 show that for all nationalities, the average pre-travel expenditure (such as package tours, round-trip airfare, and so forth) is 94,946 yen (US\$1,187), and the average expenditure while in Japan is 113,005 yen

(US\$1,413): an average total expenditure exceeding 200,000 yen (US\$2,500). When this total expenditure is divided by the average number of nights spent in Japan (12.4 nights), the average total expenditure per night is 16,729 yen (US\$210).

In terms of the average expenditure per night by region, the expenditure of visitors from Hong Kong (33,061 yen, US\$413) and Singapore (31,882 yen, US\$399) is comparatively high, while the expenditure of visitors from India (11,669 yen, US\$146) and Russia (12,282 yen, US\$154) is low. In addition, there is a large difference in the average expenditure per night between tourists on package tours (33,926 yen, US\$424) and tourists making their own travel arrangements (14,219 yen, US\$178). Amongst package tourists, Thai tourists have the highest average expenditure per night at 48,688 yen (US\$609). On the other hand, of visitors making their own travel arrangements, Chinese tourists have the lowest average expenditure per night, at just 8,572 yen (US\$107). With regard to China, there are many Chinese living in Japan, and it is conceivable that many Chinese tourists are able to limit their expenditure by visiting friends and relatives (VFR).

Although many other survey results are published in addition to the above, the ultimate purpose of foreign tourist expenditure survey is to estimate the amount of inbound tourism consumption. The total amount of inbound tourism consumption from the 2010 April/December quarter (including package tour fees) was calculated as 882.3 billion yen (US\$11.0 billion). Although surveys for travel expenditure by

nationality for the January/March 2010 period were not carried out, based on the consumption trends from 2010 April/December, the total foreign tourist expenditure in Japan can be calculated as 1.149 trillion yen (US\$14.4 billion).

3. Tourism statistics as regional statistics

The above section explained the content of government tourism statistics. It is clear that tourism statistics have rapidly developed since the beginning of the 21st century, in which the Japan Tourism Agency²⁾ has played a key role. However, regional tourism statistics have a much longer history than government statistics. For example, tourist arrival surveys have been carried out in Hokkaido since 1962. In short, this signifies that the tourism sector accounts for a large proportion of economic activity in regional areas and, at the same time, tourism policies have been emphasised as both a part of regional development strategies and a means of combating depopulation.

In recent years, the Japanese government's 'Visit Japan' project has inspired the implementation of various tourism projects all over the country. In addition, new statistical surveys such as tourism comprehensive survey, survey to estimate the amount of tourism consumption and survey on foreign tourists, have also been introduced in order to facilitate policy evaluation. However, the focus of regional tourism statistics remains on the tourist arrival survey. This results from the fact that analysis has been done based on the number of tourist arrivals, ensuring a strong correlation between the number of tourist arrivals and other data, such as the amount of tourism expenditure. Furthermore, it demonstrates that increasing the number of tourists has become a primary policy objective.

The major challenges of the tourist arrival survey prioritised by prefecture are similar to those of government statistical surveys, namely, gaining an understanding of the annual number of total tourist arrivals, classification of the number of visitors from inside or outside the prefecture and classification of the number of visitors on same-day trips or overnight stays. However, these three results are insufficient to capture the reality of tourism policies and therefore additional survey items exist in each prefecture as the following examples.

First, tourist arrival surveys are conducted according to municipality and region. By aggregating results at a municipal level, it is possible to understand trends in greater detail. In addition, many prefectures group the results into several regions or areas because tourism networks are formed at a regional level. Second, there are tourist arrival surveys that focus on particular tourist facilities or events and survey each of them individually. Major tourist facilities include theme parks, hot springs, nature parks, national parks, golf courses, ski resorts, campgrounds and beaches, and events include festivals, firework displays, sporting events, exhibits of local products and film festivals. Some prefectures publish these statistics by the type of facility/event and some publish these statistics by the actual facility/event itself. Third, there are surveys that examine tourist arrivals during each period of time. Although these kinds of results are generally calculated quarterly or monthly, there are also surveys focused on specific busy periods, such as Golden Week holidays³⁾, summer vacation, and the ski season. In addition, there are tourist arrival surveys by transportation (automobile, railway, ferry, airplane, etc), or tourist arrivals surveys targeting the number of students on school trips. In Japan, a wide variety of tourist arrival surveys are carried out by region, according to the attributes and purpose of the visitors.

As a consequence of regional variations in the formulation of tourism statistics, survey methods differed between regions and inter-regional comparison was difficult. In addition, it was necessary to be careful even when making comparisons within the same region over time, as survey procedures had been revised several times before taking their present form. National tourism statistics standards were formulated in 1995 in response to these problems and included a definition of a 'tourist attraction' as a place that has '50,000 or more visitors annually or 5,000 or more visitors per month'. Nevertheless, only a minority of prefectures began estimating their number of visitors based on these standards set by the Japan Tourism Association. As a result, the Japan Tourism Agency, as described above, strongly encouraged the introduction of tourist arrival survey based on the common standards formulated in 2009. The content of survey process based on the common standards is explained in Figure 3.

The first step in tourist arrival survey is to ascertain a list of tourist attractions, festivals and events. On January 1st each year, sites considered as having a large amount of non-daily use (where the proportion of people visiting the site more than once per month is less than half); sites where the number of visitors can be properly measured and sites that had 10,000 or more visitors the previous year or 5,000 or more visitors in a certain month during the previous year are selected. The selected tourist attractions are then classified into categories such as nature, history/culture, hot springs/health, sports/recreation, urban tourism (for example shopping and food) and festivals/events.

Next, tourist arrival surveys by tourist sites are implemented with the purpose of understanding the number of visitors to each tourist attraction, festival and event. The administrators of tourist attractions and the organisers of festivals and events make a survey of the number of visitors they receive and report their results. The administrators of tourist attractions are requested to conduct surveys on a monthly basis, and the organisers of festivals and events are requested to conduct surveys for each event/festival.

The purpose of tourist attraction parameter surveys is to gain an understanding of the composition of visitors by attribute (gender, age, place of residence, etc.), average number of tourist attractions they visit and their tourism consumption per tourist spot. These surveys are carried out quarterly. Some holidays are chosen as survey days in that they allow for an understanding of the

average number of tourist attractions travelled by each visitor and the tourism consumption per visitor. In addition, these surveys collect information on the place of residence, age, gender, same-day trip/overnight stay classification, and tourism consumption of visitors, apart from the names of tourist attractions.

The total numbers of visitors, tourism consumption per visitor and total tourism consumption are estimated based on the results of the above survey. However, as the above survey results alone lack the information required for such estimates, the Japan Tourism Agency data on the number of tourist arrivals and tourism consumption per visitor is also used. Following the collation of data, results are calculated according to each estimation equation and are shared between local governments and the Japan Tourism Agency. Local governments will use some of these statistics as fundamental data in forming tourism policies or publish them in the form of a report. In addition, the Japan Tourism Agency calculates national results and publishes national tourist arrivals statistics each quarter. It is through this process that tourist arrivals survey is carried out according to common standards.

In recent years, many prefectures have been carrying out tourism demand survey in addition to the above survey. This is done to gain an understanding of aspects such as tourist attitude and level of satisfaction, which, as tourism demand diversifies, cannot be grasped by statistics on the number of visitors and consumption amounts

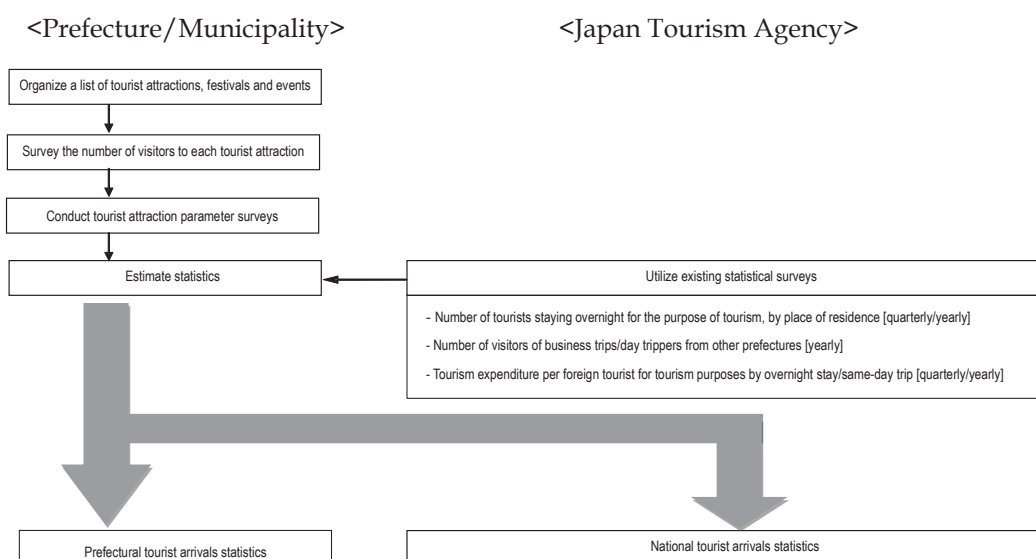


Figure 3: Tourist arrivals survey process based on the common standards
(Source: Japan Tourism Agency, Ministry of Land, Infrastructure and Transport (2009): 8)

alone. Essentially, tourism demand survey has aspects of market research. Tourism demand survey items that differ from other statistical surveys include the purpose of the tourist's visit (motivation); sources of tourism information (internet, guide books, word of mouth, etc.); level of satisfaction (dining, souvenirs, accommodation establishments, tourist facilities, guidance information display, transportation, etc.); and likelihood of a repeat visit. Prefectures place a particularly strong emphasis on levels of visitor satisfaction, and suggested points of improvement are reflected in their future tourism policies. Implementation of tourism demand survey is not required by the Japan Tourism Agency, but prefectures carry out these surveys independently. Therefore, sample sizes, survey methods and survey items differ by prefecture and one must be careful when making inter-prefectural comparisons.

While local governments also carry out surveys on tourism consumption and foreign tourists, their content is generally the same as the statistical surveys lead by the Japan Tourism Agency and, as such, are not discussed in detail in this paper. Surveys on foreign tourists generally make use of accommodation survey data. The reason includes increasing burden of surveys on local governments when they conduct their own expenditure surveys using techniques similar to those used in government statistics. This is a possible topic of consideration in the future.

The regional tourism statistics described above are not conducted uniformly nationwide. Because each prefecture places a differing degree of importance on tourism, there are prefectures that conduct detailed surveys consisting of items above and beyond those suggested by the Japan Tourism Agency, as well as prefectures that only examine the minimum amount of items. A certain number of visitors can be expected in major metropolitan areas even in the absence of a tourism policy; however, visitors to regional areas will decrease unless they hold specific events or carry out PR activities. The development of tourism statistics, therefore, is essential in prefectures that place an emphasis on tourism promotion efforts.

In any event, the agencies which implement many tourism statistics are prefectures or municipalities. Surveys are carried out frequently and their content is diverse. The Japanese

government (mainly Japan Tourism Agency) reviews common standards and improves survey and estimation methods. It also processes and provides necessary statistics to local governments and gives survey-related advice and guidance when these local governments perform various estimates, in addition to compiling national data. Without this co-operation and trust between the central and local governments, Japanese tourism statistics could not exist.

4. Principal component analysis using accommodation survey

This section of the paper contains a principal component analysis using the Japanese accommodation survey. Because the accommodation survey was carried out in all 47 prefectures nationwide based on unified standards, there is no problem in performing multivariate analysis. In foreign studies, various statistical analyses have been performed on data using different survey methods and definitions. Although it is clear that the analyses make little sense, this kind of empirical analysis is presently conducted in some areas of tourism research regardless.

The purpose of principal component analysis is to build a composite index by summarising data that has been measured with multiple variables in a fewer number of variables. This composite index is called the principle component. Here, eight sets of data from the 2009 results of accommodation survey have been selected in order to perform principal component analysis. The data was limited to results from accommodation facilities with ten or more employees by prefecture and included the number of accommodation establishments, the total numbers of overnight stays, overnight stays by tourists from other prefectures and overnight stays by foreign tourists, the actual numbers of overnight visitors and occupied rooms, and actual room occupancy rate. The data is not only summarised in principal component analysis but the status of accommodation establishments is also ranked by prefecture, making regional comparison possible.

The results of the principal component analysis performed in this study can be seen below. Table 2 shows the degree of contribution and cumulative contribution results. In this table, it is evident that

Table 2: Eigenvalues and percentage of variance explained (principal component analysis)

Components	Initial eigenvalue			Sum of square loading after extraction		
	Total	Per cent of variance	Cumulative per cent	Total	Per cent of variance	Cumulative per cent
1	6.51	81.36	81.36	6.51	81.36	81.36
2	1.02	12.81	94.17	1.02	12.80	94.17
3	.35	4.43	98.60			
4	.05	.68	99.28			
5	.03	.36	99.64			
6	.02	.30	99.94			
7	.00	.05	99.99			
8	.00	.01	100.00			

two principal components have been extracted. However, as the contribution ratio of the first principal component exceeds 80%, the use of only this first principal component (named 'accommodation establishment capacity') was deemed necessary. At the same time, it should be understood that this first principal component plays a role as a composite index.

Figure 4 is a geographical graph of the principal component score results calculated based on the first principal component above. The prefectures with the highest factor scores, or in other words, with well-developed accommodation establishments were Tokyo (5.03), Osaka (1.87) and Hokkaido (1.86), while the prefectures with the lowest scores were Tokushima (-0.73), Saga (-0.73) and Fukui (-0.71).

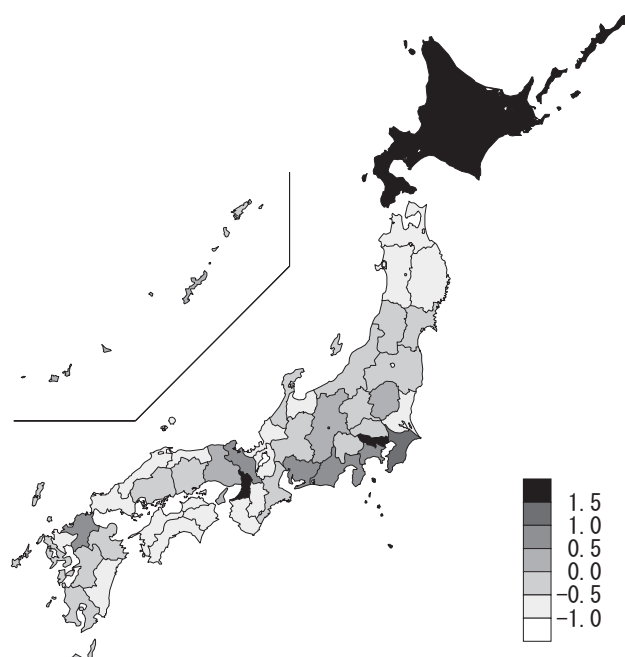


Figure 4: Principal component scores using the first principal component

The protrusion of Tokyo is evident and as can be seen in Figure 4, values are higher in urban areas and lower in more regional areas (particularly in Shikoku). These results indicate that business activities centred on business trips greatly contribute to the development of accommodation establishments more so than leisure.

There are many studies on regional characteristics of the tourism market that focus on a specific prefecture or region, as well as studies on accommodation establishments. However, this kind of nationwide analysis was inadequate both quantitatively and qualitatively because tourism statistics are not sufficiently developed. This is a worldwide trend. Although the accumulation of tourism statistic results is currently insufficient, nationwide empirical analysis in the area of tourism research is expected to increase in future.

5. Conclusion

In this paper, the author has explained the content of Japanese tourism statistics from the perspective of both government and regional statistics and has performed principal component analysis using accommodation survey. Government statistics include accommodation survey, tourist arrival survey, tourism expenditure survey and foreign tourist expenditure survey. A statistical system has been built, making comparison over time and between regions possible. On the other hand, there is a long history of regional tourism statistics centred on tourist arrival surveys. The content of these surveys not only indicates the number of tourist arrivals by year but also makes detailed classifications according to the number of visitors

by municipality, region, purpose, major tourist facilities or time period. The development of common standards led by the Japan Tourism Agency are in the process of resolving issues such as data reliability and interregional comparison and tourism statistics are compiled through close government and regional collaboration. It is hoped that these statistics will continue to closely reflect the situation of each region in the future.

Finally, the author would like to mention international tourism statistics standards and trends. Since the 1990s, international tourism statistics standards have moved towards unification. There have been various discussions regarding these standards within international organizations such as UNWTO, United Nations Statistics Division and OECD, which have resulted in the development of guidelines for tourism statistics (United Nations and UNWTO, 2008). Although Japan's current tourism statistics are essentially compatible with these guidelines, there are many problems with the implementation of these guidelines. These problems do not only exist in Japan but also in other countries. The reason is because tourism activities differ according to history, culture and social condition, giving rise to various phenomena that do not fit within the common criteria. In future, a further study of resolving this problem should be conducted.

Notes

- 1) All converted amount is approximate based on the current conversion rate (US\$1= 80 yen).
- 2) Formerly the Tourism Department, Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism.
- 3) A week containing four public holidays from 29 April to 5 May.

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Tourism-related statistics web pages published by each prefecture