

# **The Feature of Passenger Demand in Hakata-Busan International Sea Route**

Takeshi CHISHAKI , Director General, Fukuoka Asian Urban Research Center

Makoto NOGUCHI, Senior Researcher, Fukuoka Asian Urban Research Center

Shigemi KOMAKI, Building Instruction Section, Fukuoka City

■ **Summary** : Hakata-Busan international sea route runs only about 200km, which is pretty close as an international route. Its travel time between city centers (Fukuoka and Busan) is as short as that of the airline including all of transportations. Between Fukuoka and Busan, sea route attracts much more demand than airline, and has grown up to be one of the main routes between Japan and Korea, which is very unique as an international route. This uniqueness of Hakata-Busan sea route would be utilized as a very important, steady, and effective tool to create Fukuoka's City development plan to be "Gateway to Asia." In order to create the appropriate plan, it is necessary to analyze and comprehend the genuine feature of the sea route, such as the character of passengers, and the forecast of the demand. This paper analyzes the historical change and the structure of the demand of Hakata-Busan sea route, and discusses the prospect of it.

■ **Keywords** : Daily interchange zone of Fukuoka and Busan, Demand analysis of ship passengers, Hakata Port, International ship passenger demand

## **1. Introduction: Sea route plays a main role in transportations between Fukuoka and Busan**

Northern Kyushu and Southern Korea geographically face each other across the Japan-Korea Strait. However, the distance between the two countries is only 200 km and several islands exist such as Iki and Tsushima among them. Since ancient times, many Japanese and Koreans have visited each other and deepened exchanges, establishing relationships to share history and cultures.

While those circumstances caused unfortunate disputes in the past, they have created strong interchange and cooperation between the regions in modern society, which are expected to be more developed. Both Fukuoka and Busan are hub and gateway cities for the two countries. Therefore, an important role to be played by them and peculiar urban policy for them are as follows: improvement of transportation convenience and revitalization of exchanges, which make bases for Japan-Korea exchange promotion.

For exchange between two cities a barometer is transportation demand and its trend. There are three modes of transportation between Fukuoka and Busan: plane, jetfoil, and ferry. Annual passengers of the three methods are over one million. Furthermore, the number has been increasing year by year. However, the actual conditions and recent trend have not been thoroughly analyzed. It is crucial to grasp correctly the structure and trend of transportation demand, and forecast their future in order to discuss and propose exchange promotion policy.

Table 1 Comparison of transportations and their facilities from the viewpoint of passengers

Item		Jetfoil	Ferry	Airplane
Transportation	Quickness			
	Travel time including all of transportations from the city centers	Approximately four hours including access to the Hakata Port. Check-in is simple.	When using a private car : It takes as long as 10 hours including chek-in. You should check in at least three hours before your departure time. Boarding only : Approx.7 hours including getting to the harbor. Boarding procedures are simple.	About three hours including access to the airport. It takes much more time for departure procedures during busy hours with many travelers.
	Travel time	2'55"	From 5'30" to 11'30".	Approx. 50 min.
	Travel time from the city centers	Fukuoka : about 20min. Busan : about 20min. Chek-in : 20min.	Fukuoka : about 20min. Busan : about 20min. Chek-in : 20min.	Fukuoka : about 30min. Busan : about 40min. Procedures : one hour.
	Frequency	Advantage : frequently five to seven services a day	One service a day	One to two round trips a day
	Cost			
	Fares	Round trip : 24,000 yen. Discounts are offered. Special discounts : approx. 15,000 yen for a round trip.	Using a private car : about 90,000 yen including insurance fee. Round-trip fare : 17,100 yen. Special discount fare : around 10,000 yen.	Round-trip fare : 36,800 yen. Discounts are provided. Special discount fare : about 17,000 yen.
	Rate of actual services	Over 98%		
	Comfortability			
	Facilities	The atomosphere of the ship interior is not good enough despite its stylish exterior impression. Service including a duty-free shop is offered to some extent.	The ambience of the ship interior with lounges is good. Satisfactory services are supplied, such as shops and restaurants.	The inside of an airplane is pleasant enough, for example, comfortable chairs. Limited service by flight attendants.
Mobility	Certain degree of mobility.	Free mobility.	Restrained.	
Other	Concerns about seasickness depending on the level of the wave.	Services are stopped when a ferry is going into dock.	Flight is canceled at a certain level of wind velocity.	
Port	Building and expanding facilities			
	Terminal	Although terminal building is developped, it is not improved comfortably enough. -Image covering the Port and its enverons is dark and not favorable enough because the place is considered as a distribution area. -Insufficient in quantity of plantings, flower beds and lawn surrounding the buildings.		Buildings are modern, well-equipped, and sufficiently comfortable. -The airport has generally a bright and good image. -Insufficient plantation, flower beds and grass.
	Facilities	Facilities in the harbor are developped, however, not enough. There is room for them to be improved.		Facilities at the airport are well-equipped.
	Environs	View from the area around the harbor is not splendid engouth. It has plenty of room for improvement. (It lacks especially humaine familiarity, warmness, and high quality.)		Airport environs cannot be referred to as beautiful scenery because they are bleak.
	Accessibility to the Port			
Car parking	A sufficinet number of car parkings : 150 yen per half an hour, maximum of 3,600 yen per 24 hours.		Plenty of car parkings : about 800 yen per day in a private parking.	
Connection to expressway	It is complicated because of necessarily going around the entrance despite close to the expressway ramp.		It is located close to the expressway ramp. There are sometimes traffic jams.	
Public transportations, etc.	Route bus. The Port is not directly connected to the nearest subway station from which is located at a distant place. Taxi is available with no problem.		Route bus, expressway bus. Many people use subway and free shuttle bus service connecting between International Terminal and subway station. There is no shortage of taxis in each terminal.	

Table 1 compares the three transportation means in Fukuoka from the stand point of passengers. In terms of speed such as traveling time, airplane is superior to other ways. However, its travel time including all transportations between the city centers is as short as that of jetfoil. The cheapest way is ferry, followed by jetfoil and airplane. In addition, Table 1 illustrates the number of their services. Jetfoil provides the most frequent services among them.

With regard to comfortableness, there may be a wide variety of opinions due to personal preference or travel plan (e.g. purpose, companion, schedule, etc). In this context, it is quite difficult to determine which one may be superior or inferior to the others. The facilities and environment of the Hakata Port and Fukuoka Airport cannot be regarded as entirely satisfactory. Among them the Port of Hakata cannot be referred to as a completely pleasant place because of the following reasons: Firstly, an international passenger terminal and distributive processing facilities are not completely separated from each other. Secondly, there are aging buildings and facilities around the Port. Thirdly, Hakata Port lacks visual impact on passengers near the sea and hydrophilicity. Finally, streets to the Port are not beautiful enough to see.

There are also other problems: transit to/from the Port of Hakata lacks diversity with only bus and international terminal at Fukuoka Airport is not directly connected to subway.

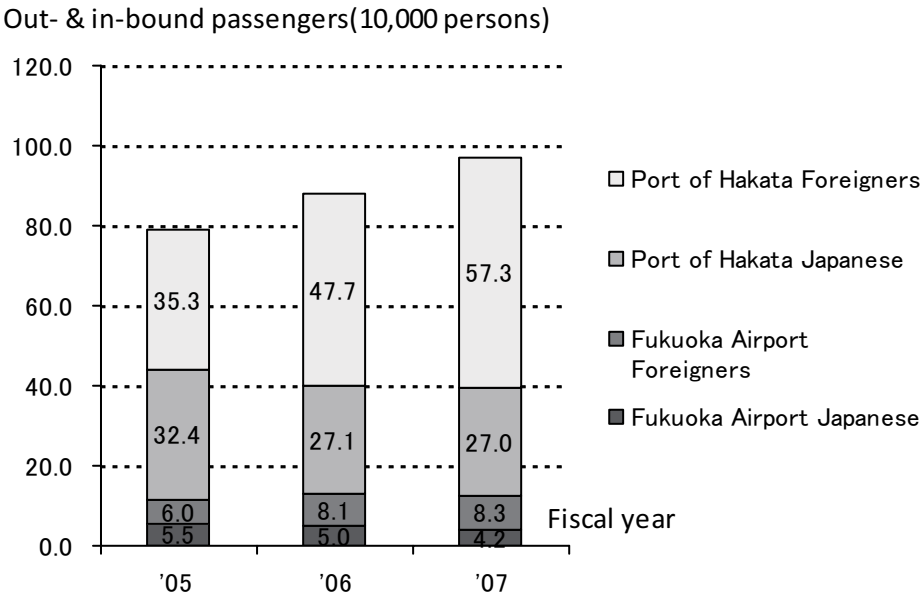


Figure 1 Actual state of international ship and airplane passengers between Fukuoka and Busan in Fukuoka

Figure 1 compares the proportion of passengers in Fukuoka by transportation. It includes:

- The number of passengers between Fukuoka and Busan increased steadily in recent years to 878,000 in 2006 and 968,000 in 2007.
- In 2006, 37% was made up by Japanese, 61% Koreans, and 2% ‘other’, which means that the number of Koreans is larger than that of Japanese.
- 15% of passengers entered and left Japan from Fukuoka Airport and 85% from the Port of Hakata on

average in the three years (2005-2007). During the period, three fourths of vessel's passengers used jetfoil and one fourth ferry. As a result, two thirds of them entered/left Fukuoka by jetfoil, 20% by ferry, and 15% by airplane.

In short, the number of people entering and leaving Japan for Korea from Fukuoka soared. Most of them used jetfoil and the figures climbed to 85% including ferry passengers. In terms of international passenger flow, the feature of Hakata Port is that most of the scale and share depends on vessel. It is incomparable to any other ports in Japan, which cannot be missed for developing international policy in Fukuoka.

## 2. Changes in the Number of Passengers at Hakata Port and Future Prospects

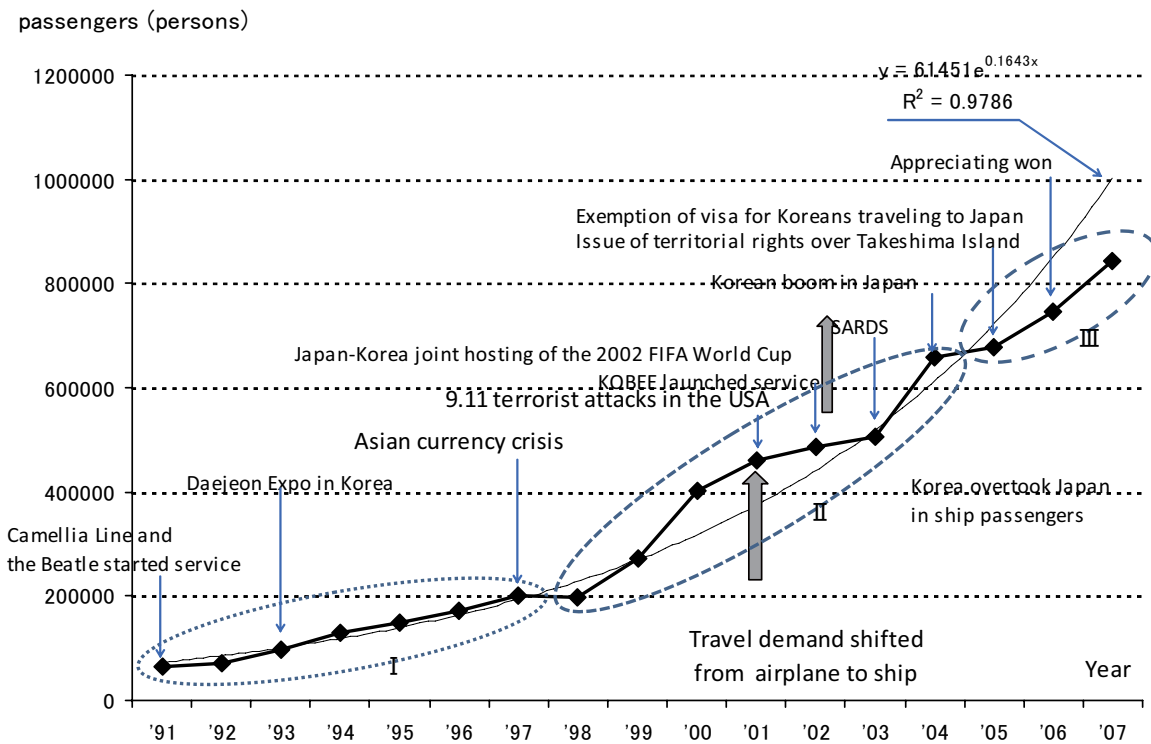


Figure 2 Changes in the number of ship passengers between the Port of Hakata and Busan

In spring 1991, jetfoil started service between the Port Hakata and Busan. Figure 2 covers changes in ship passengers in chronological order since then. It also illustrates global or bilateral events, which had a great impact on passenger demand between 1991 and 2007. After entering the 21<sup>st</sup> century while the following incidents happened such as joint hosting of the 2002 FIFA World Cup, Korean boom in Japan, boom in foreign travel by Koreans, some problems came to the surface (e.g. recognition of the history concerning the previous war, the issue of territorial rights over Takeshima Island, and raging SARS), decreasing the number of travelers. However, the number of ship passengers during the whole period has grown steadily to the present, without year-on-year decline except 1998.

For your information, if data on annual number of ship passengers from 1991 to 2007 is fit into approximate curve, a thin line is found. Basically it is an exponential curve (coefficient of determination: 0.979). There was a slight rise in earlier phase and then a significant climb, resulting in a large percentage of Fukuoka-Busan travelers who used ship.

Seventeen years can be divided into three periods based on changes in the number of ship passengers and events between Japan and Korea. The first term is illustrated by I in Figure 2, between 1991 and 1997, ranging from launching service of jetfoil to Asian currency crisis. During the years, there was a steady rise in ship passengers because of progress in deregulation, mutual understanding, and exchange between the two countries such as Korea’s liberalization of its people’s traveling abroad and the exemption of visa requirements for the Japanese who enter Korea for a short period of time on the occasion of the Seoul Olympic Games (1989), Daejeon Expo in Korea (1993), and abolishment of fingerprinting system mandatory for foreign residents in Japan (1993). However, passengers took mainly a flight. In fact, the number was 2.6 times higher than that of ship passengers in 1994. The increasing rate of the latter remained relatively low.

In the period of II (1998–2004) in the figure, Japanese played a main role in expanding travel demand after Asian current crisis followed by the joint hosting of the 2002 FIFA World Cup and Korean boom in Japan. During the term, Fukuoka-Busan travelers shifted from airplane to jetfoil. Finally, in 2001 the number of the latter exceeded that of the former, which was epoch-making.

In 2002 and 2003 SARS was rampant mainly in Asia, which had serious impact on travel abroad of the two countries. Additionally, Korean boom in Japan did not last long, ending in two years. Instead, Koreans began to make a trip more frequently in the wake of appreciating won. The number of ship passengers between Fukuoka and Busan has soared until today, which is shown by the period III in the figure. In 2005 the number of Japanese and Korean ship passengers reversed (Figure 4). Considering ship passengers, Koreans accounted for 61% and Japanese 37% in 2006, and 66% and 32% respectively in 2007.

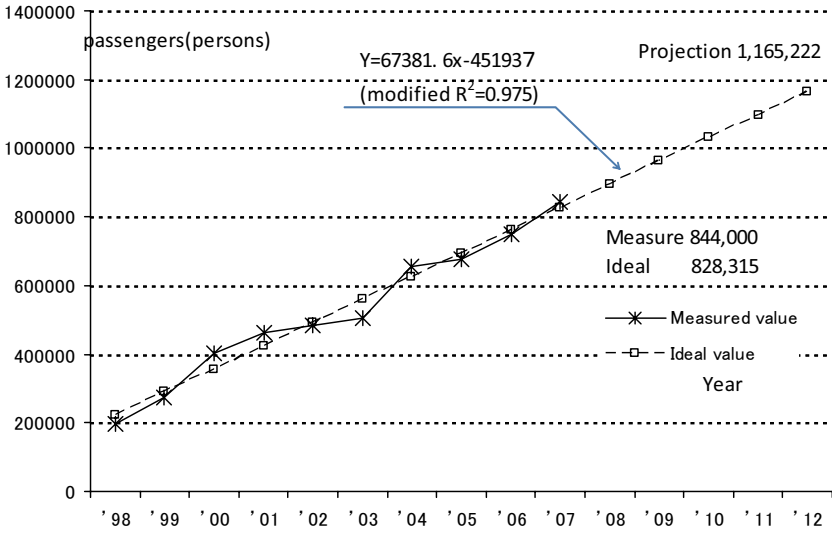


Figure 3 Projection of the number of ship passengers by time series analysis

The easiest way for the future forecast of ship passengers is time series analysis. It, however, may lead to an exaggerated estimate because the gap between data and actual figures has widened in the recent years (see Figure 2).

Therefore, applying liner regression to the II-III period in ten years which showed similar changes between projections and real numbers results in figures in Figure 3. Regression expression formula is  $Y=887945x^{-3.4793}$  in revised coefficient of determination and has high relevancy. Given the current situation lasts based on the regression expression formula, ship demand in the coming years is estimated to be over one million in 2010 and 1.7 million in 2012.

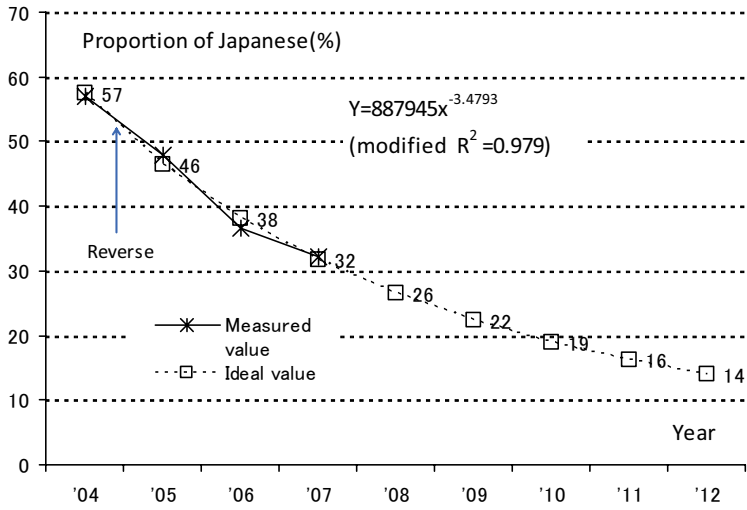


Figure 4 Percentage of Japanese in total ship passengers

The ratio of Japanese in Fukuoka-Busan passengers, as already mentioned earlier, was 57% in 2004 and was reversed by that of Koreans in the next year. Since then it has continued to decline (Figure 4).

Several changes may make it difficult to attempt a mid-long term future forecast. They include Japan-Korea joint hosting of the World Cup Soccer Games, SARS, and exemption of visa for Koreans traveling to Japan. However, dotted line in Figure 3 is a result from the application of trend curve. While liner regression may be applicable, exponentiation curve is applied with the hope of stopping decline in the proportion of Japanese in due course. As a result, it estimates that the percentage of Japanese will be 19% in 2010 and 14%, approximately 170,000 demands, in 2012.

On the other hand, suppose aggregated ship demand in 2012 kept the same level of 271,000 in 2007, Japanese would account for 23% of total passengers. There is a large gap between 23% and 14%. With the understanding of the meaning, considerable efforts are needed to keep Japanese traveler demand only at the current level.

To sum up, the number of ship passengers sometimes remained at lower level due to occurrences which had bad influences on foreign travel (e.g. Asian current crisis or SARS) for 17 years since jetfoil had begun service. Despite those circumstances, there was a steady increase in the passengers because of initial exchange development phase after the Seoul Olympic Games and structural shift in a short period of time

including Korean boom in Japan and foreign travel craze in Korea. Furthermore, divided into (I) and (II)(III) periods in 17 years, the latter two had a greater rise than the former. With this level of growth, the number will be expected to reach to 1.17 million in 2013. In addition, the structure of travel demand between Fukuoka and Busan has changed for the 17 years: from air to marine transport, and from Japanese to Koreans as main travelers. The future is expected to witness more changes.

**3. Monthly Changes in the Number of Ship Passengers**

Although the number of ship passengers has soared, there has been a wide disparity between months with larger and smaller number of passengers. This chapter explores the characteristics of those fluctuations.

**(1)Data changes in the number of monthly ship passengers**

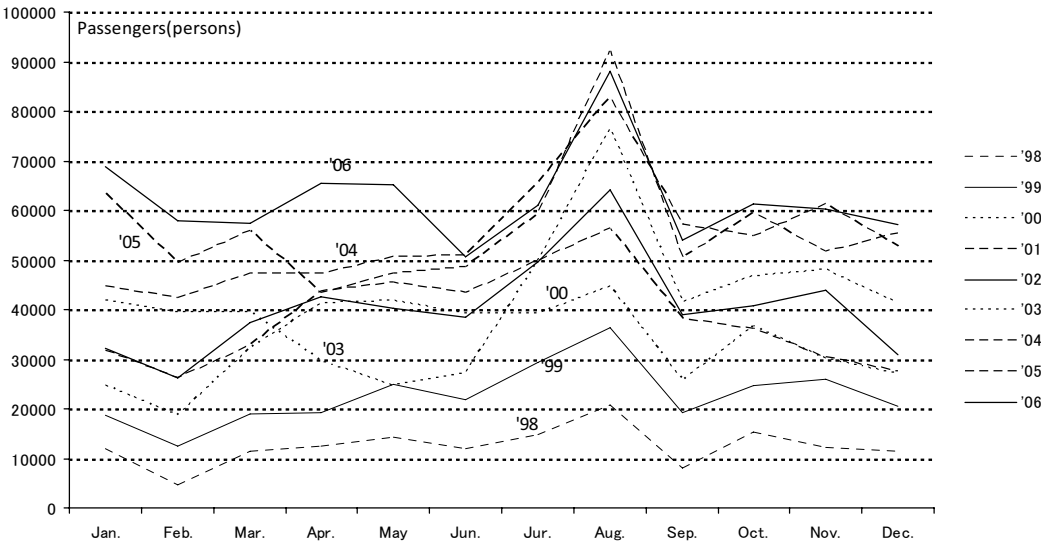


Figure 5 Changes in the number of ship passengers per month between Hakata and Busan in Hakata Port from 1998 to 2006

Plot the number of monthly ship passengers during the above-mentioned II and III periods from 1998 to 2006 in Figure 5. It went up year after year with the peak of August, which represented upward shift of broken lines. The lines per year in the term did not necessarily form similar pattern. While the shape of 1998 was relatively similar to that of 1999, there were peculiar patterns in 2003 and 2006.

In order to express monthly changes by coefficient, the next step is to make an assumption as follows:

The number of ship passengers on a month in a year = monthly variation coefficient×trend of the month in the year + residual followed by  $(N(0, \sigma^2))$ .

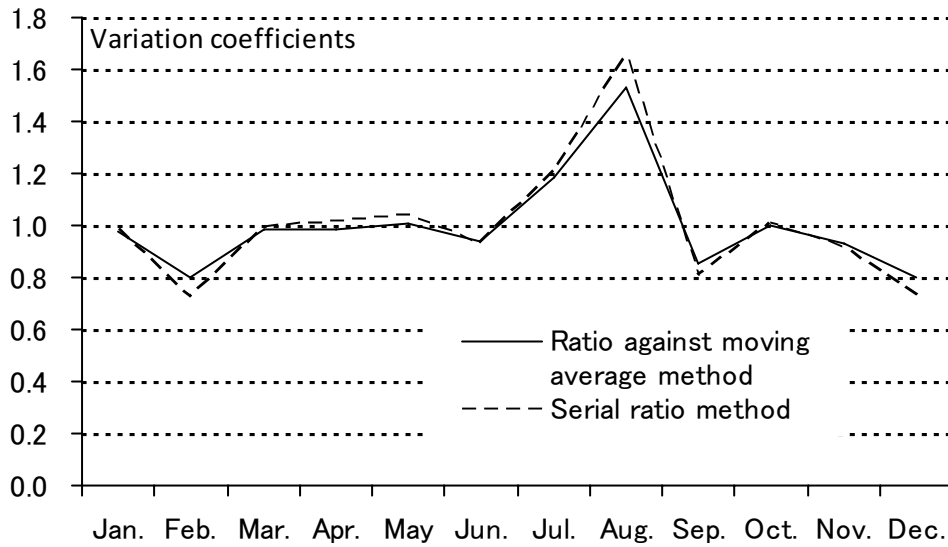


Figure 6 Monthly variation coefficients based on the data from 1998 to 2006

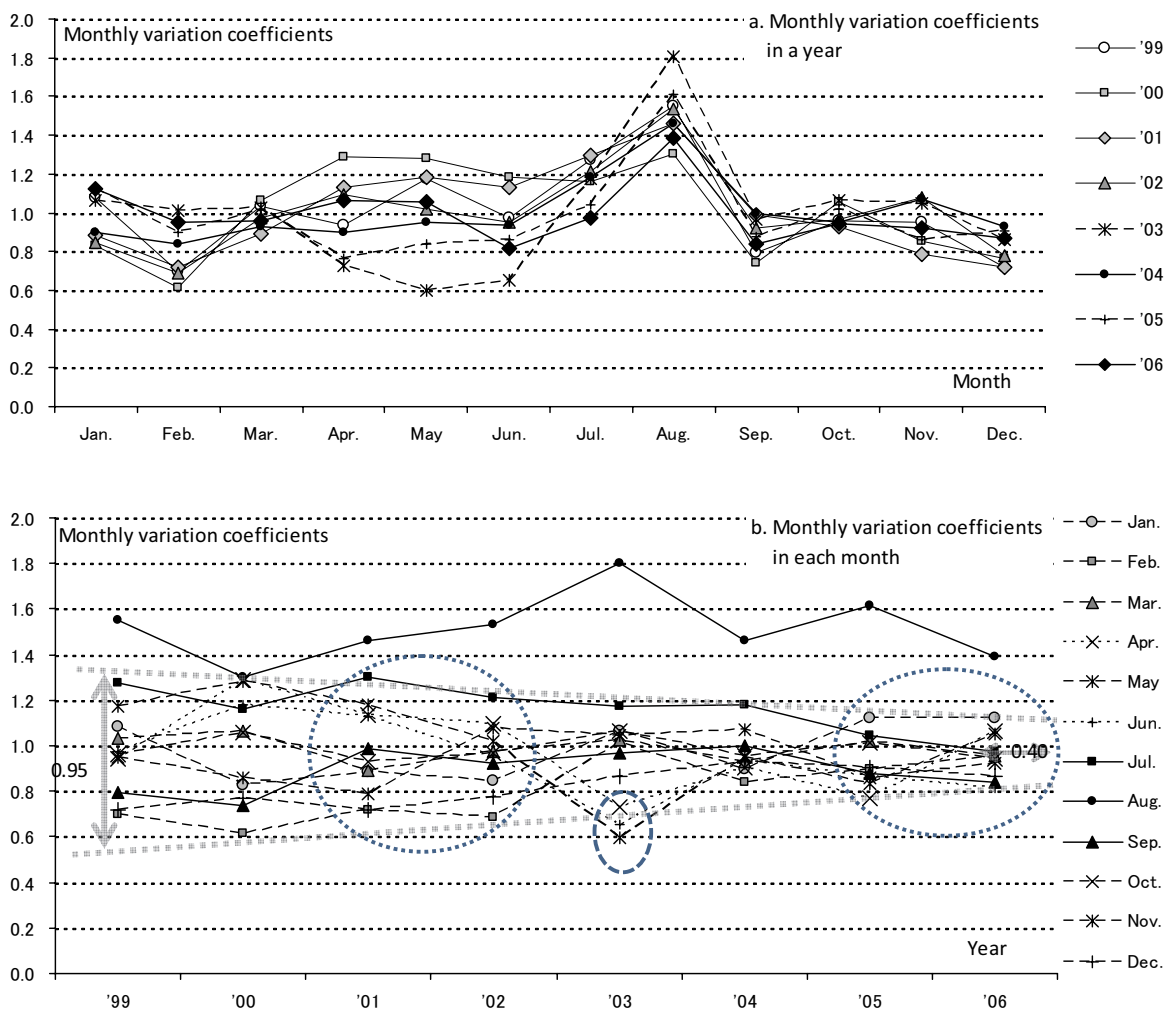


Figure 7 Changes in monthly variation coefficients per year and month



Figure 6 shows monthly variation coefficients, representing data on average from 1998 to 2006, which is calculated by two methods; method of ratio against moving average and serial input-output ratio method. The methods produced the similar results, though the latter fluctuated a little more than the former.

Of twelve months, August was a peak month with the largest number of passengers, 1.5 or 1.6 times more than average month. On the other hand, there were the least number of passengers in February, September, and December, about 0.8 times more than the monthly average.

## **(2)Monthly variation coefficients per year**

In § 3 (1), monthly variation coefficients of the nine years were calculated. However, as mentioned above, they had different unstable patterns per year. Figure 7a illustrates monthly variation coefficients per year calculated by serial input-output ratio method using data from December in the previous year to December in the year.

Each year had a different pattern in variation coefficient. Particularly, there were wide differences between that of 1999, 2000 and 2003, and that of the other years.

The reasons are: In 1999 Korean economy was seriously affected by Asian current crisis. The following year was a period of recovery from it. In addition, it is estimated that in 2003 SARS prevented people in the two countries from traveling abroad.

Although the other years seem to have followed similar patterns as a whole, they had a wide variety of shapes except March, September, October, and November. The fact leads to the interpretation that monthly variation coefficient does not always follow a certain pattern but unstable or fluctuating one.

From a different perspective, put monthly variation coefficients in chronological order. Figure 7b reveals clearly that August marked a peak each year with a different figure. While it fluctuated around 1.6, it ended up leveling out.

On the other hand, there were changes in variation coefficients of each month except August between the two envelope dotted curves. The curves show that the range of fluctuations was at 0.95 in 1999, gradually decreased, and finally declined to 0.4 in 2006. This means that the monthly variation coefficients were slowly approaching to 1.0. In other words, with the rise in the number of ship passengers, monthly fluctuations except August became smaller, drawing near to average figure. Judging from the fact, the number of August and that of other months were polarizing.

## **(3)Comparison of monthly variation coefficients between months of Japanese and those of Koreans as main passengers**

Variation coefficients changed due to the influence of SARS in 2003 and reversed the ratio of Japanese with that of Koreans in 2004. In addition, both Japanese and Korean have different events, customs, and holidays.

Focusing on those points, Figure 7b can be divided into two terms: before 2002 and after 2005, with transitional period of 2003 and 2004. While in the former phase main actors were Japanese, in the latter Koreans. The variation coefficients rarely crossed.

Then monthly variation coefficients can be calculated by the number of ship passengers around

transitional period of 2001-2002 and 2005-2006. While, according to Figure 4, in the former period Japanese accounted for 60% or more, approximately 60% of passengers were made up by Koreans in the latter term.

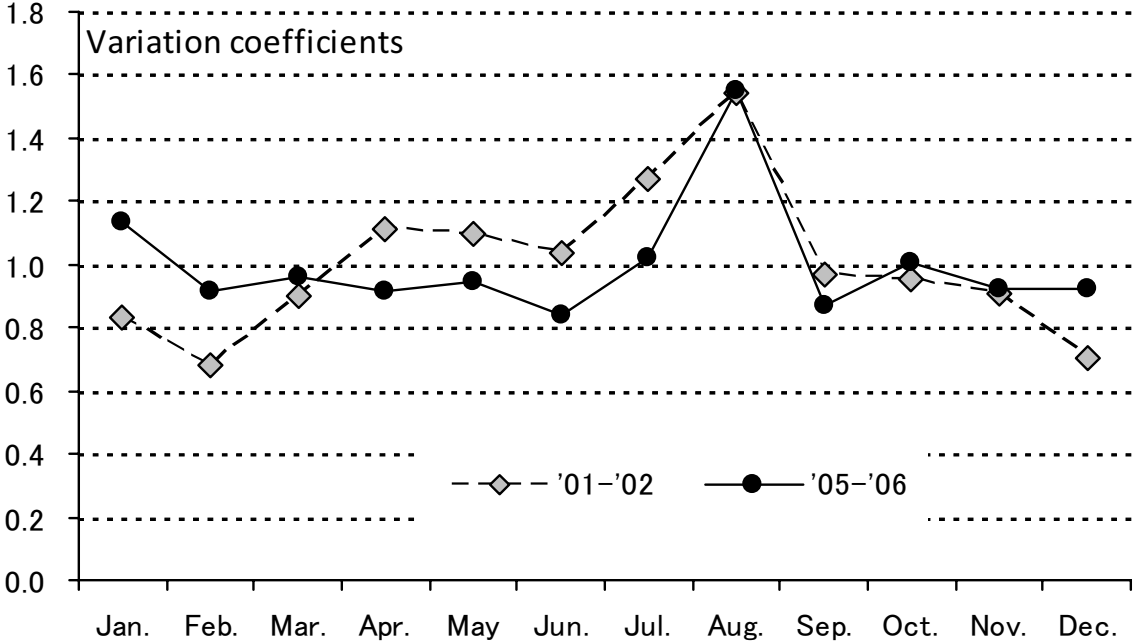


Figure 8 Comparison of monthly variation coefficients between '01-'02 and '03-'04

Figure 8 shows plotted monthly variation coefficients between the two periods. They had a clear gap; in terms of determination coefficients, it was 0.426.

Figure 8 reveals that the variation coefficients of August in both terms stayed at the same level, about 1.5. The monthly variation coefficients of the two countries were almost equal in March, October, and November; 1.0 or less.

However, months except the above four months had different variation coefficients between 2001-2002 and 2005-2006. Variation coefficients during winter season from December to February in 2001-2002 declined significantly, with 0.7 or 0.8; whereas they exceeded 1.0 from April to July when the number of travelers increased.

On the other hand, characteristics of 2005-2006 are that fluctuation range was narrow as a whole; variation of coefficient in January exceeded 1.1 with relatively more travelers than other months, and dropped slightly to 0.9 in June and September.

In any case, fluctuation patterns differed between 2001-2002 and 2007-2006. Variation coefficients averaged by the two periods resulted in similar fluctuation patterns to those of Figure 6. In the sense, balancing the proportion of passengers between the two countries can alleviate significant monthly changes and make favorable conditions such as the equalization of ship services and port facilities uses.

#### 4. Changes in the Number of Jetfoil Passengers per Day of the Week

This chapter discusses changes in the number of jetfoil passengers per day of the week from October 1 to 31 in 2007, based on a survey conducted by the Fukuoka Asian Urban Research Center. The number of ferry passengers was not included in the data. However, as referred to in §1, jetfoil constituted a majority of percentage, which means that the number of jetfoil passengers may be almost equivalent to that of ship passengers using the Port of Hakata. For your information, according to the previous chapter, October had a variation coefficient on annual average.

Monthly total number of ship boarding passengers in October (Note: It does not mean boarding/landing passengers.) was 22,843. Figure 9 shows it by nationality and sex. By nationality, Japanese accounted for 47% (22,843), Koreans 51% (25,168), and ‘other’ 2% (1,040). By sex, Japanese male made up 56%, whereas Korean female 54%. Finally, the total number of passengers in each sex from the two nations was equal respectively.

For more details, there were 737 Japanese per day on average and over 1,000 a day mainly on Sunday, whereas 812 Koreans on average per day and over 1,000 especially on Friday.

Variation coefficient of a day of the week is calculated by the following model.

The number of passengers of a day of the week = variation coefficient of a day of the week × trend-cycle of the day in a week + residual followed by  $(N(0, \sigma^2))$ .

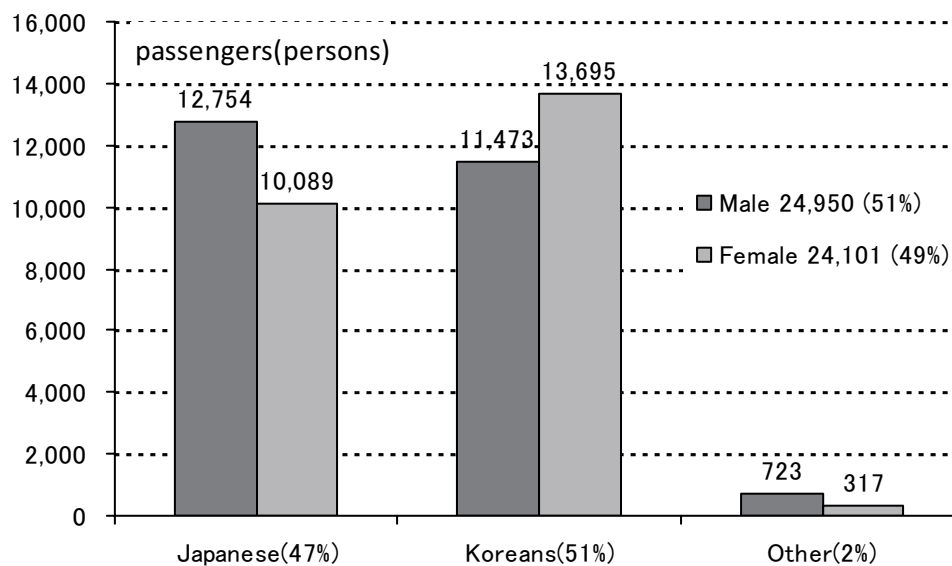


Figure 9 Number of jetfoil passengers by nationality and sex in October 2007

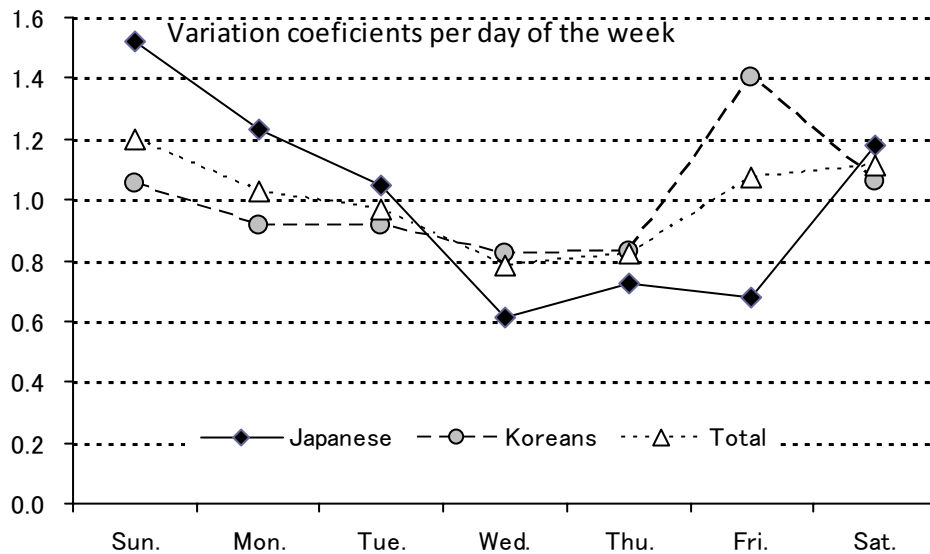


Figure 10 Variation coefficients per day of the week(October 2007)

Figure 10 illustrates plotted variation coefficients of a day of the week, as monthly variation coefficients, were calculated by serial input-output ratio method. In terms of Japanese, the variation coefficient of Sunday was the largest (1.52), followed by 1.2 of Monday and Friday. On the contrary, variation coefficients of Wednesday, Thursday and Friday were smaller from 0.6 to 0.7.

Variation coefficient of Koreans reached a peak at 1.41 on Friday. The second largest was that of Saturday and Sunday at just over 1 and those of the other days of the week ranged from 0.8 to 0.9. Compared with variation coefficients of Japanese, those of Koreans fluctuated within more narrow range.

Solid line in Figure 10 shows variation coefficients of all days of the week including Japanese, Koreans, and 'other.' It ranged from 0.8 to 1.2, making U-shape with over 1.0 on Sunday, Saturday, and Friday and around 1.0 on Monday and Tuesday, and 0.6 to 0.7 on Wednesday and Thursday.

In summary, variation coefficients of a day of the week can be smoothed to some extent by mixing together the two peoples. Demand on Wednesday and Thursday, however, still declined.

## 5. Summary and Considerations

### 5.1 Structure of Changes in Ship Passenger Demand

An international passenger route between the Port Hakata and Busan is crucial, which characterizes Hakata Port compared with other ports in Japan, in terms of its existence, volume, and contents. It is also served as a foundation for Fukuoka to develop into a gateway city to Asia. When reviewing a plan for developing the Port, drawing up sailing schedules and management plans, and improving international policies in Fukuoka City, the followings are needed: careful survey of scale and change in passenger demand, comprehension of qualitative content, and future prospect. Based on those perspectives,

accomplishments acquired are summarized:

### **(1)Trend and structure changes in passenger demand**

- Among means of transportation between Fukuoka and Busan, jetfoil is superior to others in terms of speed and frequency and almost as comfortable as airplane. Therefore, two thirds of passenger demand is made up by jetfoil. In addition to ferry, over 85% of the passengers use ship including jetfoil and ferry.
- Trend of ship passenger demand since 1993 when jetfoil started service between the two cities can be divided into three periods: (I)initial expansion period, (II)developing period of Japanese as main passengers, and (III)expanding period of Korean as main actors.
- After those periods, Koreans accounted for over 60% of ship passengers in 2007.

### **(2)Monthly changes in passenger demand**

- Regarding changes in the number of ship passengers in the past nine years, they tended to demonstrate more upward trend with a peak of August as time passed; however, it did not necessarily show a similar pattern. As indicated in § 5.1(1), structural changes in passenger demand and influence of events between Japan and Korea had a great impact on passenger demand.
- Looking at monthly changes generally, they fluctuated around 1.6 in August and under 1.0 in February, September and December, which had fewer passengers. Then, monthly variation coefficients of each year were calculated and study of the changes in chronological order except August showed smaller-range fluctuation as the years passed by, finishing at 1.0.
- Based on data in 2001-2002 when Japanese accounted for over 60% and in 2005-2006 Koreans over 60%, monthly variation coefficients were found respectively (Figure 8). While monthly variation coefficients of the two countries in August were equal at just over 1.5, those of Japan and Korea in other months of both terms showed obvious differences. On the one hand, the number of the former declined in winter and increased in spring and summer. On the other hand, that of the latter ranged within narrow scales, with the largest figures in January and August, with the average amount in October, and with fewer passengers in the other months.

### **(3)Changes in jetfoil passengers of a day of the week**

- Changes in variation coefficients of a day of the week were found on the basis of data in October 2007 (Figure10). Overall, it formed a U-shape with 1 or more on Saturday and Sunday and with less than 1 on Wednesday and Thursday.
- Variation coefficients for Japanese and Koreans were obviously different. Japanese formed U-shape at a peak of over 1.5 on Sunday and with the bottom of 0.6-0.7 on Wednesday, Thursday and Friday. Koreans showed less sharp fluctuation, having its peak of 1.4 on Friday, and around 0.8 on Wednesday and Thursday.

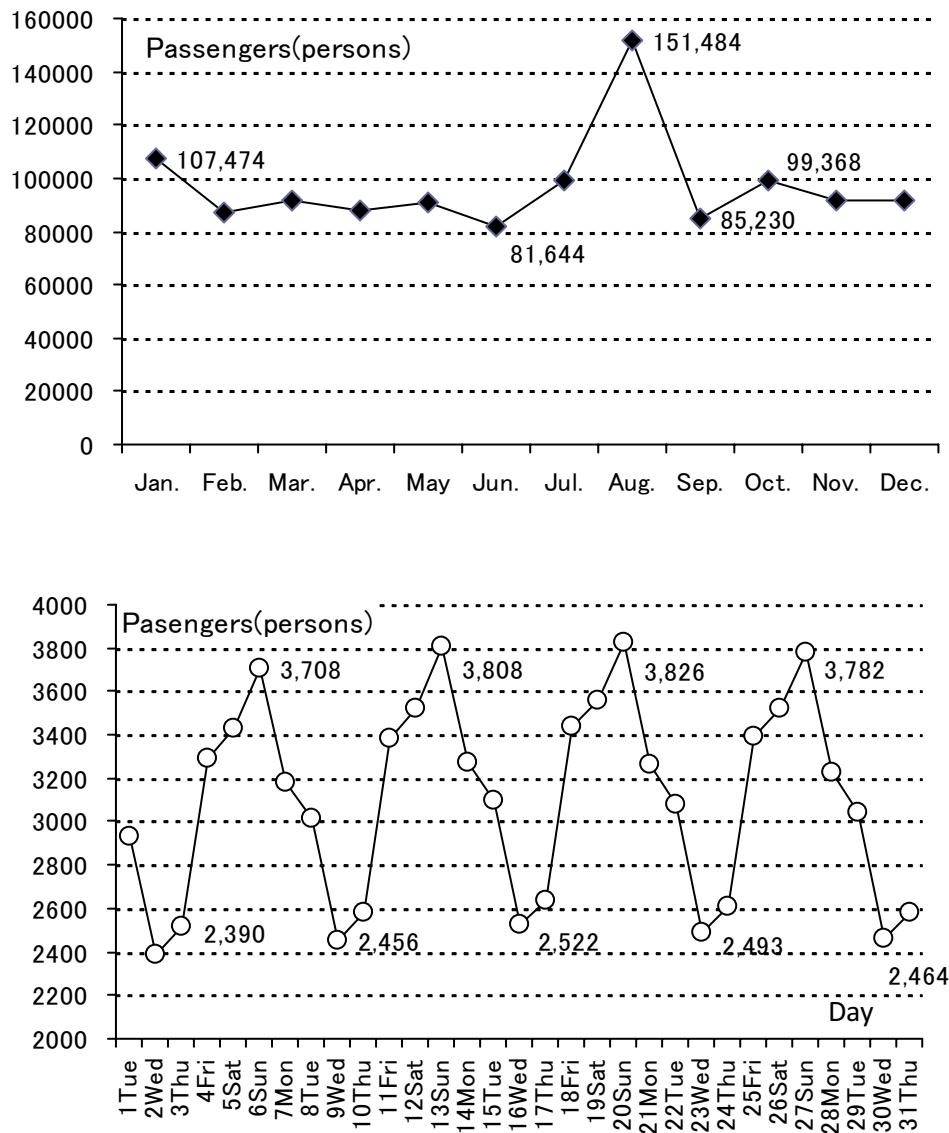


Figure 11 Projection for the number of passengers per month in 2012 and per day in October 2012

## 5.2 Future Prospects on Passenger Demand

Trends are gauged by regression lines in Figure 3. Applying them to monthly variation coefficients in 2005-2006 and to a solid line in Figure 10, then the number of boarding and landing passengers per both month and day in 2012 is forecasted in Figure 11. The number of passengers, an estimated 1.17 million annually, will reach a peak at 0.15 million in August and 0.1 million in October, fluctuating from 2,500 to 3,800 in a day of the week.

Above-mentioned simple projection is useful for short-medium term. Furthermore, more detailed study on variation coefficients of both a month and a day of the week, focusing on differences between

Japanese and Koreans, is needed.

### 5.3 Study on Future Measures to Take

Analyses, features, and future prospects of ship passengers between Fukuoka and Busan are stated above. After considering them, we, the authors, believe that discussions will be necessary in the future on the following points:

While the number of Japanese passengers between the Port of Hakata and Busan has gradually declined, that of Koreans has increased in the past except the latest year. In order to keep Fukuoka City internationalized bilaterally with Busan not unilaterally, this international sea route needs to be effectively used by both Japan and Korea. For achieving the aim, inviting more Japanese travelers along with the growing number of Korean visitors is a key and task (§2).

In short, Korean's travel pattern is assumed to follow Japanese one. Therefore, the development of travel model to slow the decline of Japanese travel demand can be a key to keep encouraging more Koreans to make a trip to Japan in the future.

One measure for Japanese travelers is increasing variety and enhancing charm of travel in Korea: visiting not only Busan and its suburbs but also Korean inland by ship connecting to high-speed railroad and bus. Most Japanese visit Korea more than once and in this repeated visitits era, the solution mentioned above is extremely important.

Next is expanding utility areas of the Hakata Port. For the end, connection between the Kyushu and Sanyo Shinkansen lines, and between high-speed bus and ship as well must be stronger. This will result in attracting visitors from not only northern Kyushu and Chugoku region but also South Central Kyushu and Kansai area. To achieve the end, Fukuoka needs make efforts to make it more attractive, construct necessity for people to make a trip via international city Fukuoka, and offer information about pleasant voyage. Creating an image for Fukuoka-Busan twin city and daily interchange zone between the two cities is needed by the following means: uncovering hidden local cultural resources in Fukuoka, cosponsoring events actively, expanding the launch of new businesses mutually, and receiving students and trainees each other.

Thirdly, when taking above-mentioned two measures, the introduction and development of not only round voyage but also intermode-typed circular system which connects ship, train, and airplane are necessary. Moreover, the promotion is desired. While Kyushu Island has rich nature and healing, a wide variety of lives and cultures, and know-how in aging society as a developed field, Korea owns a wide array of highly qualified regional resources including the World Heritage sites and cultural exchange and sharing cultures with Japan. Based on the facts, planning and aggressive marketing of round tours and tickets for them is to be considered.

In conclusion, not only increasing ship demand as a whole is perceived as favorable but also alleviating a drop in Japanese travel demand and promoting repeated visits by Koreans are strongly desired. Making those efforts will result in striking a balance between the number of Japanese and Korean travelers and decreasing fluctuation band of changes in both a month and a day of the week. Furthermore, it will

lead to have a ripple effect for leveling out of harbor use and shipping system, which will make a favorable situation.

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