Characteristics of Cruise Tourism in Asia

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Abstract: Recently, cruise demand has increased especially in the North America and Europe in response to the inauguration of large-scale cruise ship. In Japan, it is expected that tourism by cruise ship becomes a new style of tourism. However, there are few researches to investigate cruise tourism quantitatively. Therefore, the trend of cruise ship building and that of cruise tourism demand are investigated, the visiting port of ocean cruise ship in Japan is analyzed, and cruise fare function is estimated in this study. Through the analysis, the possibility of the promotion of cruise tourism in Asia is examined.

Keywords: cruise tourism, regional economics, port infrastructure, fare function

1. INTRODUCTION

Cruise tourism demands are gradually increasing in EU and the United States in recent years. Behind this trend is the popularization of cruise tourism, which travels on large cruise ships. Especially in Japan, cruise tourism is expected to spread as a new style of tourism.

We have many excellent ports in Japan, and from the perspective that we can utilize them and achieve regional development through tourism promotion, expectation against cruse tourism is rising higher.

Since these cruise ships are equipped with accommodation, the point that the region could take in more tourists without building extra accommodation on land is another advantage.

Like above, cruise tourism is expected to grow further, but there are little studies that analyzed the current situation. Therefore in this study, we have examined the trends of cruise ship shipbuilding, domestic/foreign cruising demands, and the trends of the anchoring ports of the oceangoing cruise ships.

Figure 1 shows the transition of cruise demand in the world (by CLIA). It had increased recently. The reason is that it is because “Fly and Cruise” that centered on North America succeeded. Recently, “Fly and Cruise” that centers on Hong Kong and Singapore increases in Asia. Therefore, the possibility of the cruise sightseeing promotion by “Fly and Cruise” will be thought also in Asia in the future.

Figure 2 shows the transition of cruise demand in Japan (by MLIT). Red bar indicate international cruise and green bar indicates domestic cruise stop at port in Japan. Each

demand had increased recently. Especially, international cruise demand has increased rapidly. The reason is that Ministry of Land Infrastructure Transport and Tourism have promoted development of the cruise terminal in several ports in Japan such as Naha port and Nagasaki port.

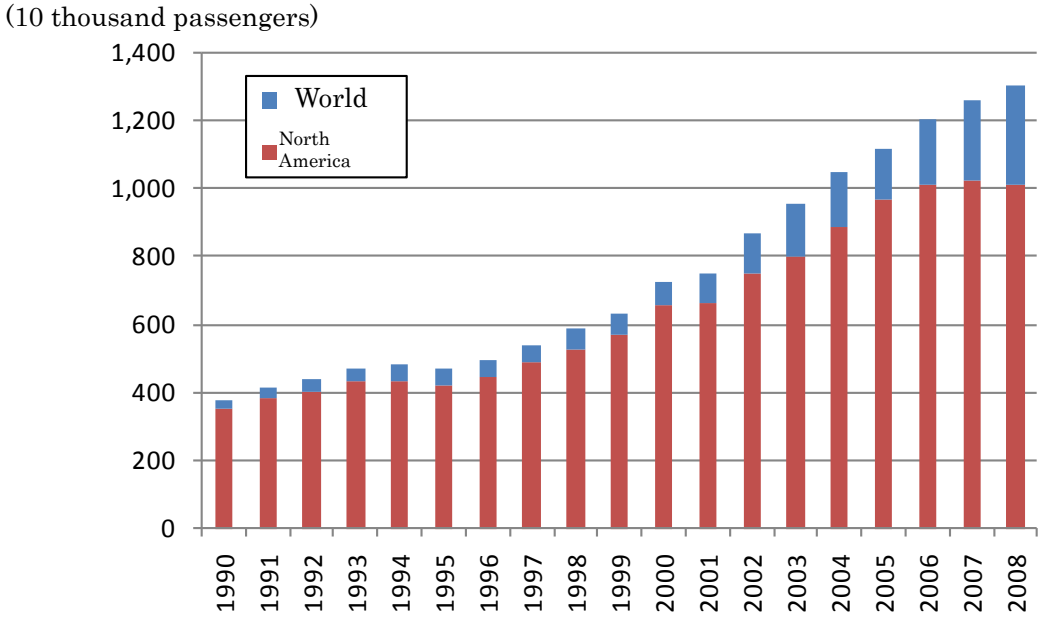

Figure 1 Transition of Cruise Demand in the world

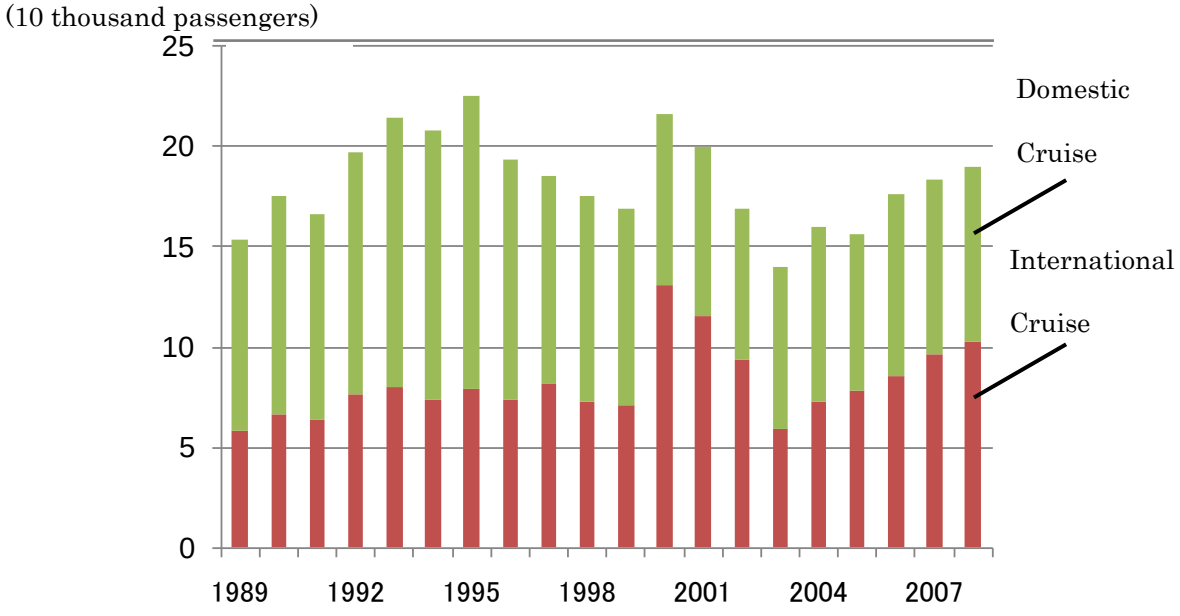

Figure 2 Transition of Cruise Demand in Japan

As shown in the above, the cruise sightseeing is becoming a new style tourism in the world. And it will felt for cruise passenger not only trip and enjoyment but also hospitality and opportunity of feeling several place in the world.

Recently, cruise demand has increased especially in the North America and Europe in response to the inauguration of large-scale cruise ship. In Japan, it is expected that tourism by cruise ship becomes a new style of tourism. However, there are few researches to investigate cruise tourism quantitatively. And, there is little information on characteristics of cruise tourism.

Therefore, purpose of this study is that the trend of cruise ship building and that of cruise tourism demand are investigated, the visiting port of ocean cruise ship in Japan is analyzed, and cruise fare function is estimated in this study. Through the analysis, the possibility of the promotion of cruise tourism in Asia is examined.

2. DATA

In this study, four kinds of different statistics were used to analyze condition of cruise tourism of World, Asia and Japan: “Statistics of Immigration”, “Record of Foreign Cruise”, “Worldwide Survey of Cruise Market” and “Survey of Cruise Passengers”. There is also one book that lists the basic data of each cruise ships.

The “Statistics of Immigration”, which the Ministry of Justice issued, lists the number of Japanese, non-Japanese, those who correspond agreement that have departed/arrived at each port.

The “Record of Foreign Cruise”, issued by Japan Oceangoing Passenger Ship Association, records the date, the vessel’s name, the tonnage, flag, passenger capacity, and the number of ports she has visited in Japan.

The “Worldwide Survey of Cruise Market” is a survey carried out by Cruise Lines International Association and lists worldwide cruise population, number of staying at cruise ship, and the distribution of their age.

The “Survey of Cruise Passengers” is a questionnaire survey against cruise tourists carried out by the Ministry of Land, Infrastructure, Transport and Tourism and lists the number of domestic/foreign cruise passengers.

“Complete Guide to Cruising and Cruise Ships” is published by Berlitz every year and lists the basic data for each vessel such as crews, number of beds, tonnage, etc.

3. CURRENT CONDITION OF CRUISING

3.1 Shipbuilding of Cruise Ship

Characteristics of the trend of cruise ship shipbuilding have been analyzed using “Complete Guide to Cruising and Cruise Ships 2008”. The results are shown in figures 1and 2.

Figure 3 shows the transition of the tonnage according to the year the vessel was built. It shows that the vessels are growing in size, and cruise ships less than 25,000 tonnes decreased significantly.

Cruise ships between 25,000 and 75,000 tons in size increased in the ‘90s but decreased in the ‘00s. Many large-sized cruise ships have been built since then and casual-type cruising which provides wide variety of services appears to be increasing.

On the other hand, cruise ships less than 75,000 tons are still being built, which can be considered that these smaller luxury type cruise ships targets down on a certain customer.

Figure 4 shows the transition of the space provided to the passengers. Space per passenger is increasing with the cruise ships less than 50,000 tons. With the cruise ships over 50,000 tones, it remained at the same level. This shows that casual cruise ships have increased their scale and their service, while luxury type cruise ship continued to operate without changing their scale and service.

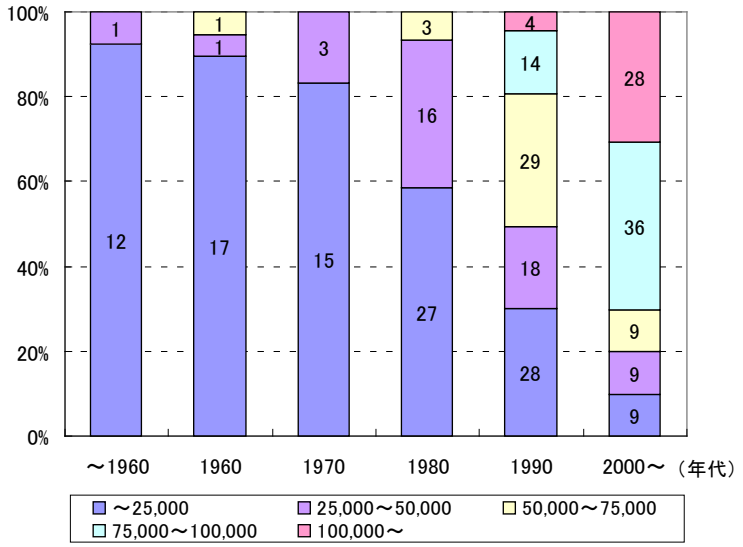

Figure 3 Transition of the tonnage of cruise ships

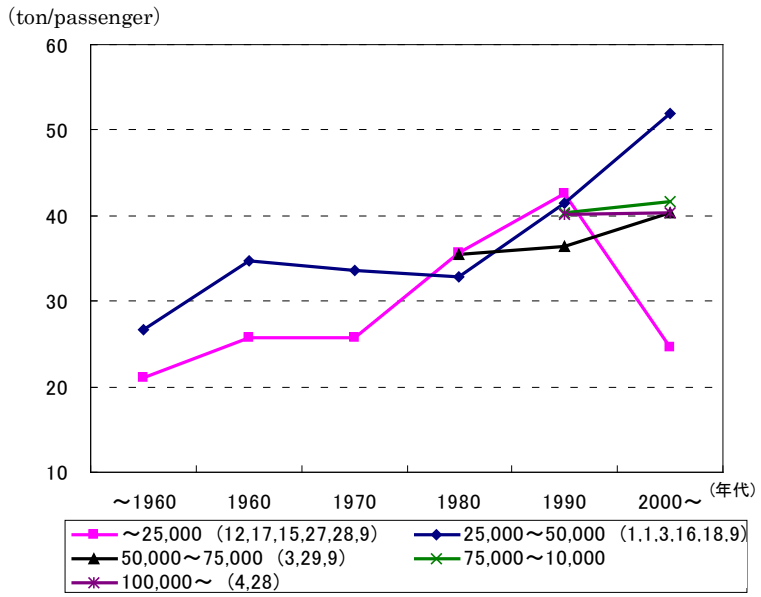

Figure 4 Transition of the space provided to the passengers

3.2 Infrastructures of Cruise Terminal

Recently, New cruise terminals were constructed several ports in Asia. These are Hong-Kong, Shanghai, Singapore Bussan and so on.

Figure 5 shows the condition of port infrastructures in Asia on 2009. Main cruise ports in Japan are Yokohama and Kobe. Compared with Asia port and Japan port, Yokohama and Kobe have big infrastructures. Moreover, several Asia port have bigger than it in Japan.

Table 5 Port infrastructures in Asia

Country	City	Name of port	details of berth			Passenger Terminal
			Num. of berth	depth of water (m)	length of berth (m)	
Singapore	–	Singapore Cruise Centre	2	12	310	○
				12	270	
Indonesia	Bali	Benoa Port	1	7.5	176	○
	Java	Port of Tanjung Priok	1	10.5	200	○
		Port of Tanjung Emas	2	8.6	600	○
				8.6	120	
	Sulawesi	Port of Pare Pare	1	20	240	–
	Sumatra	Port of Belawan		–	550	–
Malasia	SELANGOR	Port Klang	3	11	350	○
				10	195	
				10	120	
Philippine	Manila	South Harbour	3	8	127	○
				8	127	
				8	127	
	Subic	Port of Subic	1	13	280	×
	Cebu	Cebu port	30	8.5	–	–
			–	6.5	–	
			–	6.5	–	
			–	6.5	–	
			–	12.19	–	
Thailand	Laem Chaba	Port of Laem Chabang	1	11.5	365	○
	Phuket	Port of Phuket	2	10	360	○
				10	360	
China	Amoi	Xiamen-Jinmen passenger terminal	1	12.4	463	○
		Xiamen International Cruise Centre	1	12.4	463	○
	HongKong	Ocean Terminal	2	10	320	○
				10	381	
		new cruise berth	2	12	360	○
	Shanghai	Shanghai Port International Cruise Terminal		9～13		○
	Tensin	Port of Tianjin, Tianjin port				○
Korea	Busan	Busan Port International Passenger Terminal	1	11.5	360	○
Japan	Tokyo	Port of Tokyo	7	10	120	○
	Yokohama	Port of Yokohama	4	450	12	○
	Kobe	Port of Kobe	9	350	12	○

4. CRUISE FARE FUNCTION

4.1 Data

In this study, we have divided the area into Europe, North America, and Asia and constructed each datasets.

The datasets consists of cruise data and cruise ship data. Cruise data are data that put together the contents of each cruises. With each cruise area, the cruising company, ships' name, time of year, number of days, cabin rank, price, anchoring ports, and its distance. Data has been retrieved from the Homepage of each cruising company. We have used the data of the high season. In Europe it was Jul.-Aug., North America Jun.-Sep., and Asia Nov.-Feb.

The distance between ports was calculated with NetpasDistance, sold from Seafuture Inc..

Cruise ship data are data that put together the services that the passenger can enjoy during the cruise, such as the size of the cabin, with or without room window, amusement facility, fitness facility, and etc.. And also the specs of the cruise ships, such as number of crews, beds, etc. from the "Complete Guide to Cruising and Cruise Ships" published from Berlitz. The cruise data and the cruise ship data were later integrated for the analysis. Table 1 shows basic statistics of collected data.

Table 1 Basic statistics of cruise

	Unit	Asia	Europe	North America
Fare	USD	7800.8 (14127.8)	7267.1 (7680.8)	2021.7 (3216.4)
Number of days	days	7.5 (5.2)	10.2 (2.9)	8.7 (2.8)
Total distance	mile	1669.4 (1400.0)	2121.2 (904.3)	3106.9 (3069.3)
Number of port	ports	4.6 (1.8)	8.3 (1.9)	4.6 (1.6)
Breadth of room	m^2	31.4 (25.9)	31.9 (30.4)	24.8 (14.4)
Number of crew	person	689.5 (326.1)	608.8 (261.4)	980.3 (223.8)
Number of bed	beds	1365.2 (532.8)	1375.8 (805.0)	2381.2 (567.0)
Tonnage of ship	ton	42851.7 (21885.1)	54649.6 (31198.8)	95220.6 (37172.3)

4.2 Estimation

In order to compare the characteristics of cruise fare of each areas (Europe, North America, and Asia), estimation of cruise fare function has been conducted. In this study, regression analysis is applied to estimate the parameters in equation (1) which is multiplicative form of cruise fare function. The regression coefficient shows the price elasticity. Differences of price elasticity were used for measuring regional characteristics of cruise fare.

Estimation results of each variables of cruise fare function are shown in Table 2. Cruise fare function has 10 variables which are cruise fare per day as an objective variable, and total distance/days, number of anchoring ports/days, size of cabin, number of crews/passengers, number of crews, number of beds, tones, and cruising company dummy as explanatory variables. As the cruising company dummy was set for each cruising company, and for each area.

$$y = x_1^{\beta_1} x_2^{\beta_2} \dots x_n^{\beta_n} e^{\beta_0} \tag{1}$$

y : fare of cruise, x : explanatory variable, β_n : parameter (fare elasticity)

The covariates such as total distance/number of days, breadth of room, number of beds and Tonnage of ship in Asia market model, breadth of room in Europe market model and total

distance/number of days, number of ports per day, breadth of room, number of crew, number of beds and tonnage of ship in North American model are statistically significant as explanatory variables. Meanwhile, plus sign of the parameter indicates that cruise fare per day increases in accordance with the increase of the value of concerned variable. For example, the bigger breadth of room become, the larger cruise fare per day become and the bigger tonnage of ship become the smaller cruise fare per day become in Asia market.

Table 2 Estimation result of cruise fare function

		Asia Market model		Europe Market model		North America Market model	
		coefficient	t-value	coefficient	t-value	coefficient	t-value
total distance/number of days		0.71	3.77	0.05	0.889	-0.12	-3.10
number of ports/days		-0.13	-0.74	-0.01	-0.15	-0.45	-4.38
breadth of room		0.88	9.31	0.42	17.92	0.81	19.62
crew/passenger		0.56	1.24	0.10	0.56	-0.20	-1.23
Number of crew		0.84	1.20	-0.27	-0.53	2.63	5.08
Number of beds		-1.54	-2.41	0.10	0.39	-2.58	-5.17
Tonnage of ship		-0.35	-3.51	0.17	0.68	0.09	2.81
Dummy	Asia	0.61	2.42	-	-	-	-
	Europe1	-	-	1.73	9.92	-	-
	Europe2	-	-	0.75	12.38	-	-
	Europe3	-	-	1.68	16.80	-	-
	NorthAmerica1	-	-	-	-	-1.59	-11.92
	NorthAmerica2	-	-	-	-	-1.17	-4.05
	NorthAmerica3	-	-	-	-	-1.92	-12.29
intercept		8.66	5.25	2.68	6.50	5.26	7.14
R coefficient		0.86		0.95		0.91	
R^2 coefficient		0.73		0.90		0.83	
Number of sample		127		334		209	

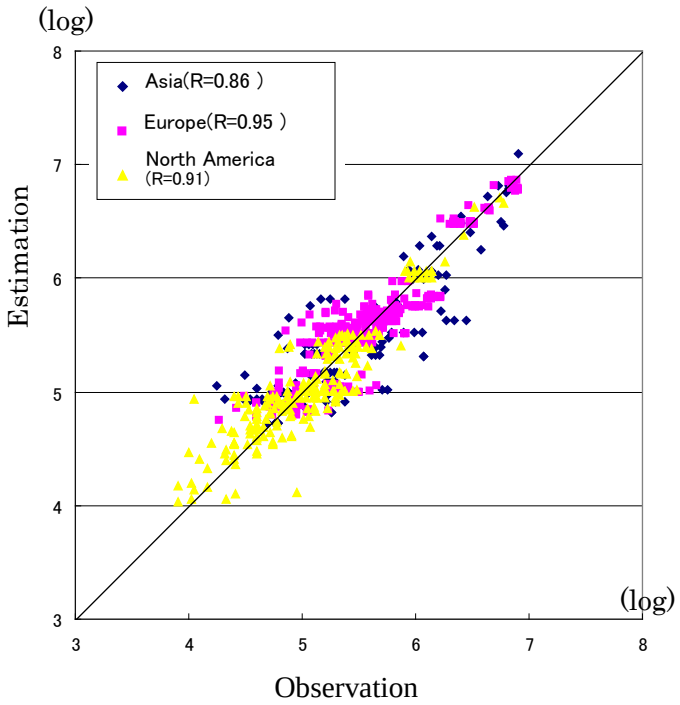

Figure 5 Reproducibility of cruise fare function

Here, reproducibility of each models are examined. Figure 5 shows the cruise fare per day reproducibility of Asia market model, Europe market model and North American market model. Regarding the cruise fare per day reproducibility, the coefficients of determination of Asia market model, Europe market model and North American market model are 0.86, 0.95 and 0.91 respectively. Those values are so high that it indicates that all models have high reproducibility. Moreover, the scatter situations of the plotted point in Figure 5 show that the estimated models are high reproducibility.

4.3 Result

Figure 6 is the comparison of the parameters with the t-values more than 90% significant. The results show that as the cabin size increases, the cruise fare also increases for all 3 areas.

On the other hand, as the number of beds increase the fare decreases. Economies of scale are considered to be one cause. And with the cruise in Asia, the longer the ship travels in one day, the higher the fare. But in Europe and in North America, qualities of service is thought to be more preferred, therefore it showed that as the number of crews on board and the tonnage of the cruise ship increases, the cruise fare increased.

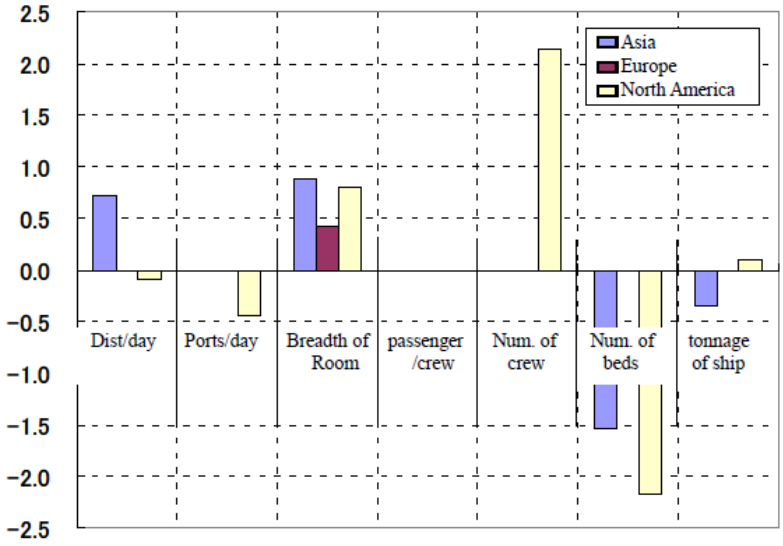

Figure 6 Cruise Fare Elasticity

5. CONCLUSIONS

From the analysis throughout this study, the growth factors of cruise tourism in Europe and in North America have been verified to some extent. This study has also shown that cruising demand in Japan is exceedingly small compared to other countries. The reason is that cruising is still a product mainly for rich people who have enough leisure time, but many cruising companies are now planning/offering shorter/affordable cruises to promote the market.

On the other hand, regions that possess port facilities are beginning to place more expectations towards the economic effect induced by the visits of the cruise ships. Campaign

of inviting cruise ships is getting more active. But to be chosen as an anchoring port, it is important how much the ports can satisfy the passengers. From that perspective, each region is required to come up of its own unique service.

In doing so, it is essential to understand the market characteristics of cruise tourism. Today, no public data are available for use in analyzing cruise tourism characteristics. But in order to expand the cruise market in Japan, and to invite more oceangoing cruise ships to anchor in Japan, we need to organize the data as quickly as possible.

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