Research on the Impact of Omnibus Industry Deregulation - From the Case of Entrance and Exit in Rural Area in Japan -

Hisashi OOI(OI) [a]

[a] *Associate Professor, Faculty of Economics, OITA University, OITA, 870-1192, Japan*
[a] *E-mail: ooi-hisashi@oita-u.ac.jp*

Abstract: In this paper, I analyze the effect of deregulation in Japanese omnibus industries, focused on entry and exit deregulation by analyzing operators' data and case study. From my research, I found that competitive entrance occurred in very few area, and the positive effect we expected by introduction of deregulation is very limited in Japan because of some factors existing as shown below. Except for the high-speed bus market, the profitability of regional omnibus is very low, and there are many hurdles for entrance or exit. In addition, operating circumstances of existing company has been worsened through before and after the deregulation. So I assume that both existing operators and new entrants couldn't enter the rural bus market positively.

Keywords: Deregulation, Omnibus Industry, Sunk Cost, Transaction Cost, Market Competition

1. INTRODUCTION

In Japan, omnibus industry's deregulation (entry, exit and price) has been introduced since 2002. We have seen various changes after deregulation, but totally evaluation on the impact of deregulation policy haven't been made in Japan or Japanese research sufficiently. Many studies of the bus business in Japan are made based on case study, but almost all of these studies only captured a few typical cases. Only Terada (2005) summarized many cases and totally analyzed Japanese omnibus industries' deregulation, but this research was treated few impacts of deregulation because this research was made in 3 years after deregulation.

The aim of this paper is to totally evaluate the impact of omnibus deregulation from economic viewpoints, so I summarize the current situation of omnibus industries in Japan rural area and the typical effect that has been occurred after deregulation. This research is based on my research such as Ooi (2008, 2009a,b, 2011a,b, 2012, 2013) , and added some cases newly researched. My research is limited in rural areas, except Tokyo, Osaka, Nagoya metropolitan Area and Big Cities whose population is over one million. And I treated only omnibus, except the high-speed bus (which to make inter-city transportation and some rural transportation, but face on different business environment)[1].

[1] Airport limousine buses are said to be part of the inter-city transport (one style of high-speed buses). But these buses are operated in same region, and some competition has occurred (ex. Okayama (shown in 3.1), Nagasaki). From these reason, I include the case of airport limousine buses in the target of this paper.

2. CAPTURE THE JAPANESE OMNIBUS BUSINESS ENVIRONMENT BEFORE/AFTER DEREGULATION

Before analysis of the individual cases or topics, I overview the current status of bus service in Japanese private bus operators, from the point of the network output, the business environment of the costs on the basis of published data.

2.1 About the data

Since there is no published data of the individual private bus operators in Japan, I will use a data set for regional areas from Ministry of Land, Infrastructure, Transport and Tourism (1994-2012) and Nihon Bus Association (1994-2012). These data are regionally aggregated operators' data, and extraction of representative private operators as a degree that has been recognized as sufficient investigation to reflect the trends by region in whole or in Japan. Although it is not exhaustive indicators of individual companies' cost or management data, I decided to consider the use of this data.

The observation used here, from which I estimate cost function, are from a pooled data set of 9 regions private bus operators' aggregated data for 16 years from 1994 to 2009. It should be noted that, in the middle of the target period, change of office jurisdiction is made at Niigata area, which also changes the jurisdiction of Department of Transportation of the Tohoku and Chubu. However, it is not possible to modify the data because of the lack of data. From the fact that typical change is not seen as continuous data, in areas where there is a change of jurisdiction, during the period, Hokuriku Shin'etsu and Niigata were analyzed as the same area.

2.2 Network-related indicators for output

Here, I show the data of passenger-kilometers, the total running kilometers, vehicle kilometers per work days, which are used as network indicators in later analysis.

Though in Kanto region including Tokyo metropolitan area, Shikoku and Tohoku district passenger-kilometers of bus transport has been increasing slightly each year, we can see totally to tend to decrease as shown in Figure 1. In Kyushu, it has increased to nearly same level as that of Kinki area, in which there are much larger passengers carried than Kyushu or Shikoku. I think it is presumed that the high-speed bus is affected.

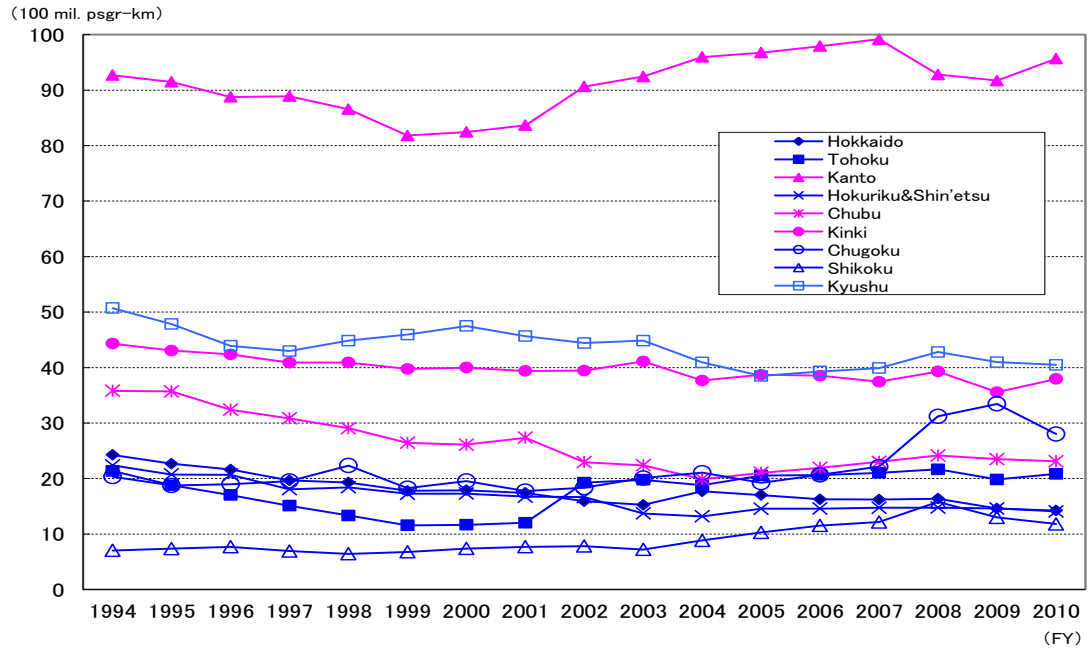

Figure 1 Trends in passenger-kilometer
(Note) Hokuriku = Hokuriku-Shin'etsu (before 2002, Niigata)(Ditto in Fig.2-8)

Next, I check the trend of the total running kilometers. As shown in Figure 2, that seems similar to trends of passenger-kilometer, relatively high in Kyushu and Tohoku. I think there are many high-speed buses and long-haul local buses in these areas.

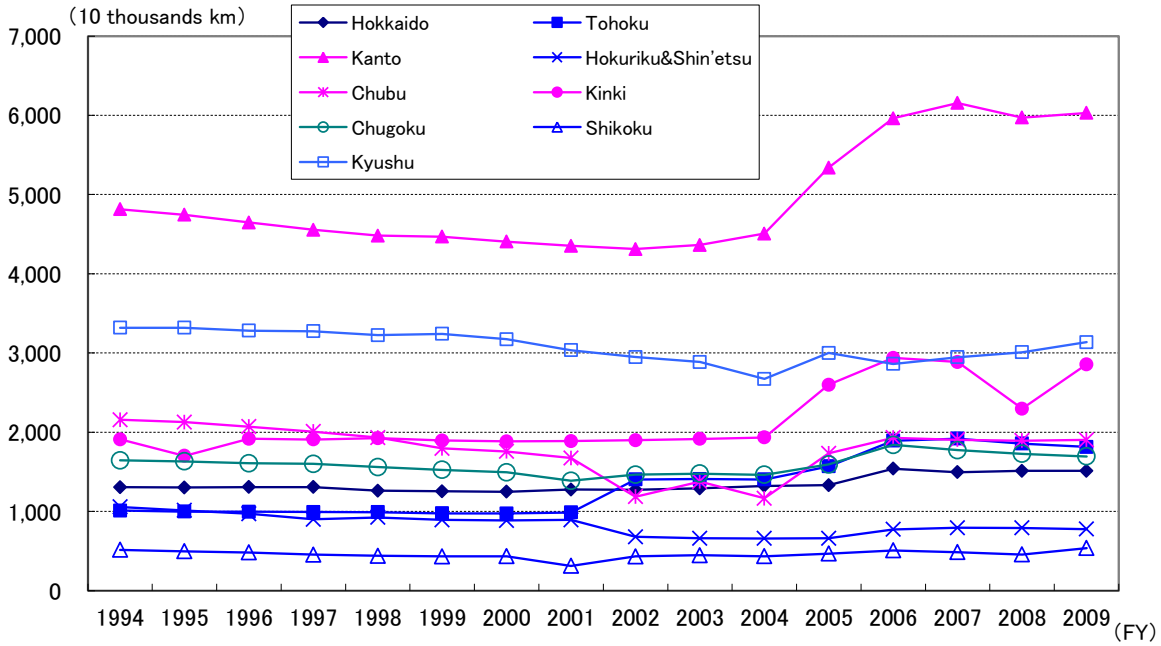

Figure 2 Changes in total running kilometers

Finally, I show data of traveling kilometers per work days per vehicle carrying passenger (*Jishha atari Soko Kiro*), which was calculated by the total running kilometers divided by the cumulative number of vehicles carrying passenger. This indicator is an indication of how these vehicle carrying passengers run daily. As shown the trend of this indicator in Figure 3, a

large value is shown in rural areas such as Kyushu, Shikoku, and Hokkaido. Comparatively, a small value is shown in urban areas, such as Kanto and Kinki. I believe that in rural areas such as Kyushu and Shikoku there are many local routes and high-speed buses, and which route distance of each line is usually long, so these areas' data shows a high value. On the other hand, because there are a lot of short-range transport in the urban and suburban areas, urban area's data shows small value. Therefore, this indication will be considered as representing the status of network.

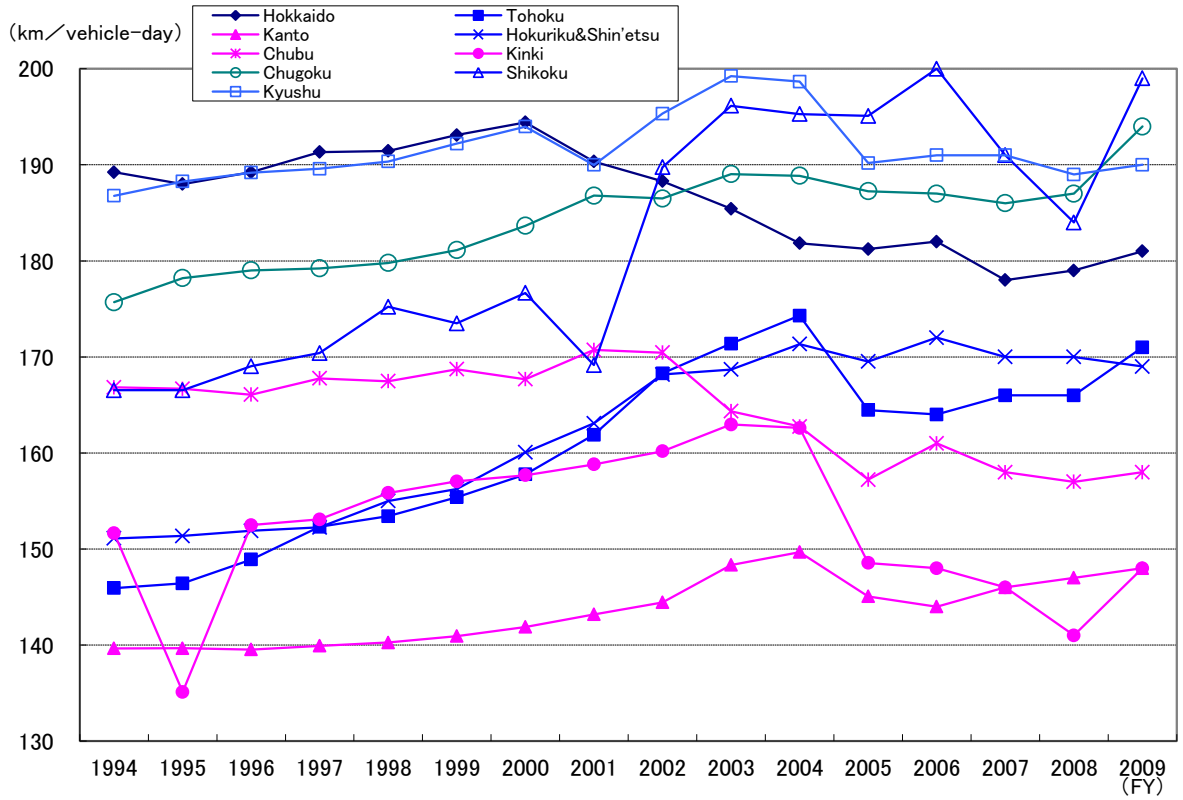

Figure 3 Trend of traveling kilometers per work days per vehicle carrying passenger (*Jishha atari Soko Kiro*)

As considered the data related to the network, that has been slightly changed because of the effect of high-speed bus entering. But significantly changes from the impact of deregulation is not seen.

2.3 Competitive environment and the level of service - About indicators on business environment

Then, I will look at changes in the level of service for affirmation of the changes in the competitive environment of the business.

2.3.1 Changes in the level of Service

As representing the size of the level of service, I focus on data of working kilometers licensed by government. This data is length of all licensed routes except for abolition or suspension. Because it is not in Ministry of Land, Infrastructure, Transport and Tourism (1994-2012) or Nihon Bus Association's data (1994-2012), I use the data from Ministry of Land, Infrastructure, Transport and Tourism (2011b, 2012b). The unit of data is in the country,

because there is no regional data[2].

As shown in Figure 4, it shows almost no change before deregulation, and it is extended since the implementation of deregulation has been decided. The reason is that community buses' operators got the omnibus operators' licenses (allowed under Article 4 of the Road Transportation Act) after deregulation, and some high-speed bus operators newly got the licenses. However, as pointed out in Ooi (2008), many routes closed before deregulation rather than after deregulation. And as pointed out by Terada (2005), in Japan, Most number of newly entering operators is not pure competitive entering, only because of license scheme changes (ex. taxi or chartered bus operators operated regional bus services have to get omnibus licenses under Article 4 of the Road Transport Act).

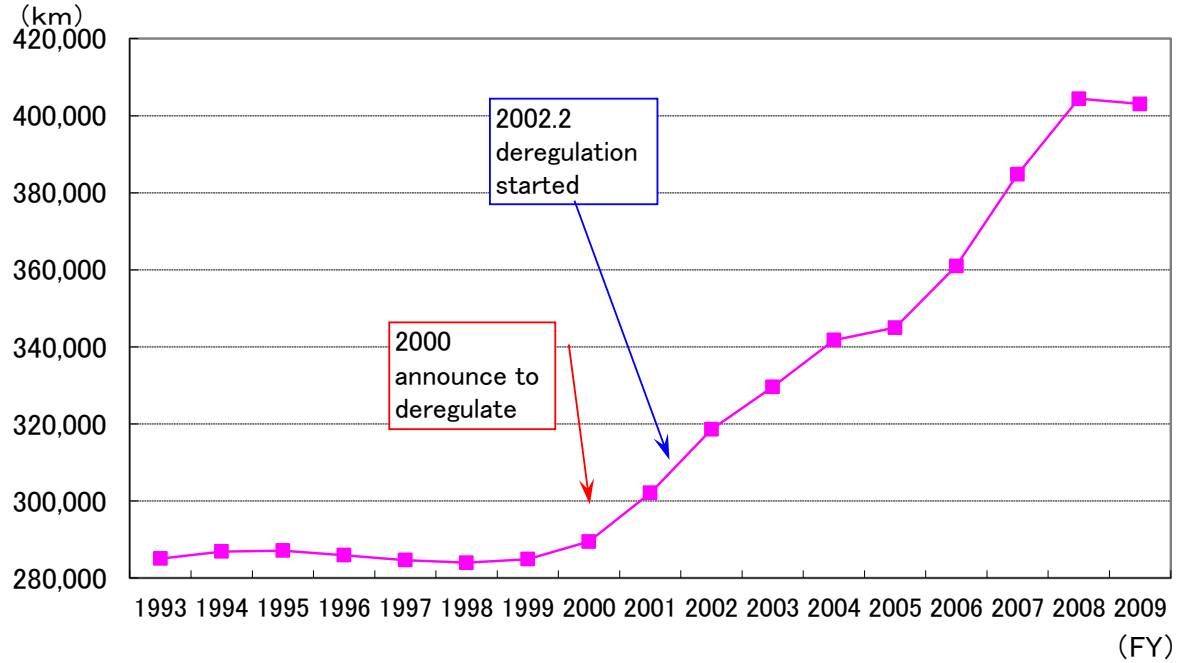

Figure 4 Trend of working kilometers licensed(before/after deregulation)

2.3.2 Changes in the number of operators - changes in the competitive environment

Then, to see changes in the competitive environment from the supply side, I focus on the data of the number of operators. Because MLIT data only captures limited operators, I use the data of Nihon Bus Association's data of the national unit. The results are shown in Figure 5.

Although we can see an increase in the number of companies around 2002, it is a trend continued from around 1998, not because of deregulation. As pointed out at Ooi (2008), the feature of newly entered companies is that their each working kilometers licensed is under 100km, and the number of vehicles working is 10 or less. On the other hand, as also pointed out at Ooi (2008), the number of large operators, which have 51 or more vehicles working and whose licensed working kilometers are over 1,000 km, also increased. As a background, not only the small companies are increased, but also existing companies divided their business by region or operated services(ex. high-speed bus, regional bus, chartered bus), both occurred before deregulation.

---

[2] This data has not already updated after 2010, so in Fig.4 I show the data from 1993 to 2009.

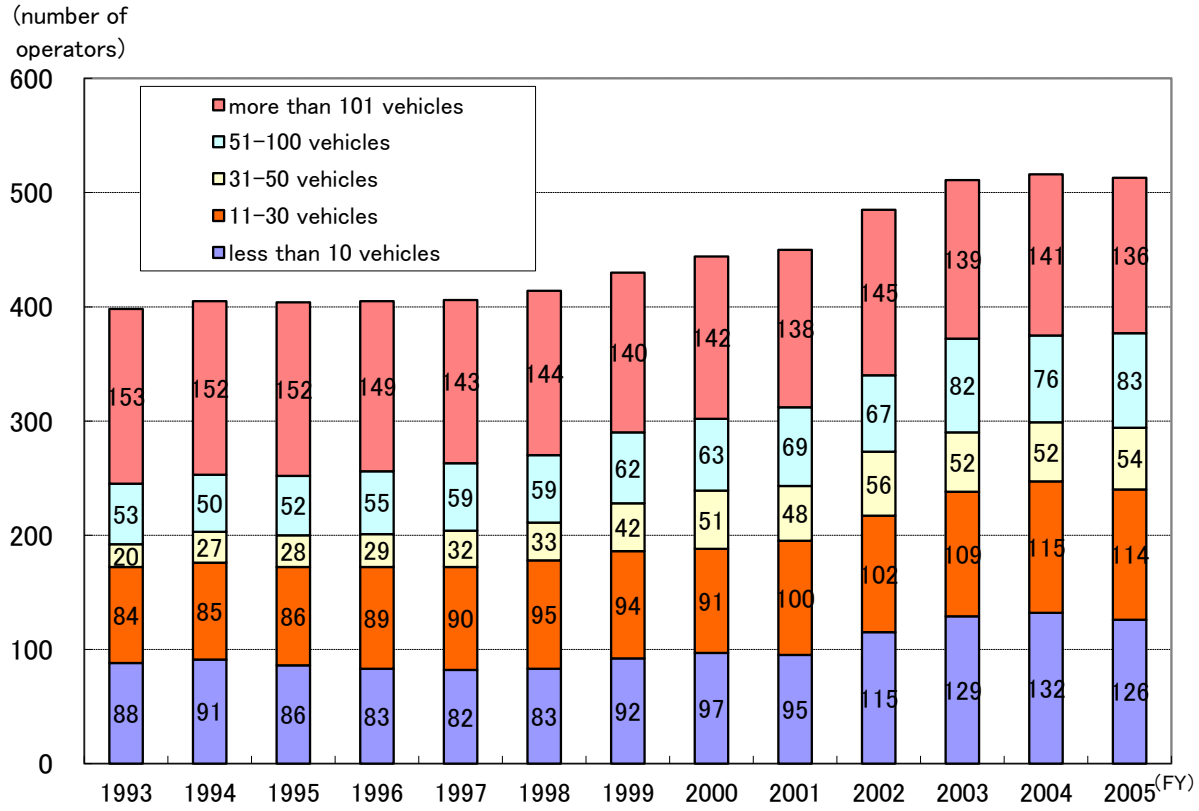

Figure 5 Trend of the number of omnibus operators licensed
(categorized by the number of vehicles owned)

As pointed out Terada (2005) and Ooi (2008), the increase in the number of operators after deregulation is caused by the spin-off of existing companies or getting regional buses operators omnibus operating licenses. I think these data doesn't exactly show increase of competition or newly entering.

2.4 Indicators related to cost

Then, as an indicator related to the management, I'll look at the trend of the indicators of cost. Here, I check the two indicators of operating cost such as (1)total cost and (2)labor costs. In addition, in order to control the difference of scale, these data shown are divided by total running kilometers.

2.4.1 Total costs

First, we consider the situation of the total cost. A situation of total costs, including non-operating expenses is shown in Figure 6.

It seems to be a higher cost in Kanto and Kinki where absolute transport volume is greater, because in these area labor cost is higher level than other area. For example, there are significant differences in the cost between metropolitan areas (Chubu, Kinki, Kanto) and other area. At the level of 2005, the total cost per total running kilometers is 523JPY/km in Kanto region, and that of Kyushu is 285JPY/km, so that of Kanto is about 1.8 times as large as that of Kyushu.

From 1994 to 2004, total cost tends to be reduced during the period with the exception of

the Hokuriku district, so it is not necessarily said that there was a change due to deregulation. I think that the decreasing labor costs effects such trend. Although total cost of metropolitan areas increased rapidly in 2004 and 2005, I think this is the effect that the amount of vehicle kilometers decreased though cost was nearly the same level.

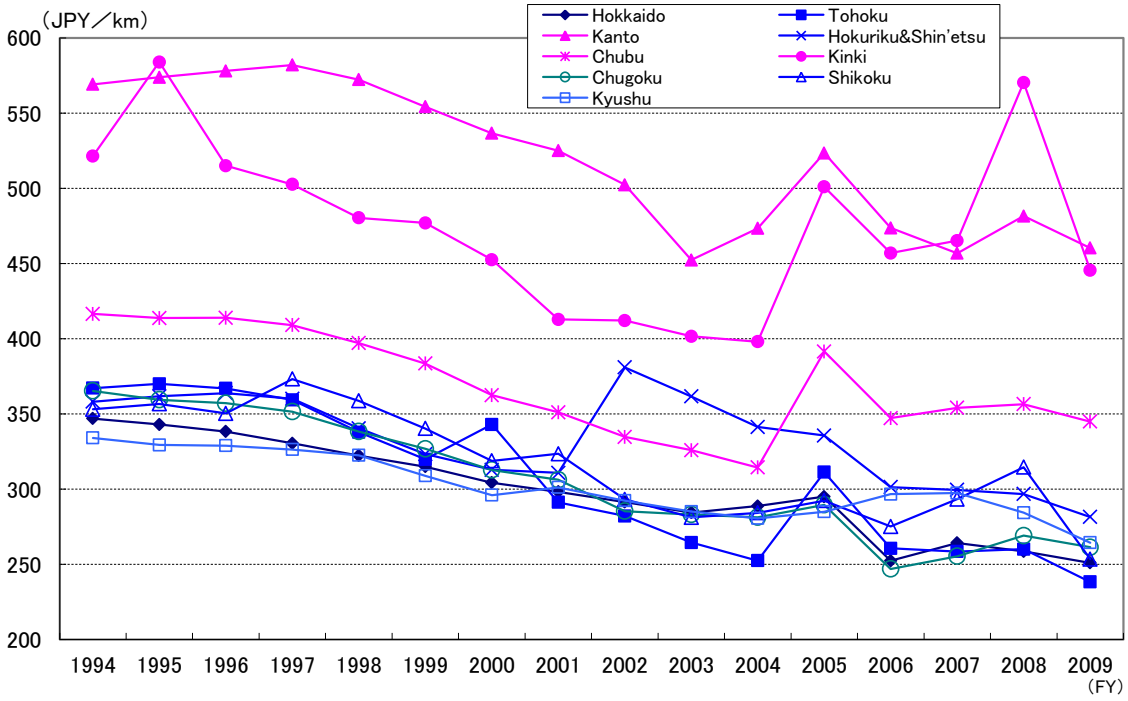

Figure 6 Changes in total cost of operators
(Note) “km” shows “total running kilometers per working car”.(Ditto in Fig.7-)

2.4.2 Labor costs

Here, I mention the total labor cost (per total running kilometers) and the annual labor cost per employee.

First, the total labor cost is shown in Figure 7. According to this figure, the trend is similar to that of the total cost shown above. It is understood that it shows higher level in Kanto and Kinki where we believe labor cost in such area is higher, and that of rural areas is lower. For example, with data for the year 2005, total labor cost in Kyushu area is 146JPY/km, and that in the Kanto region is 327JPY/km, so Kanto is more than twice than Kyushu.

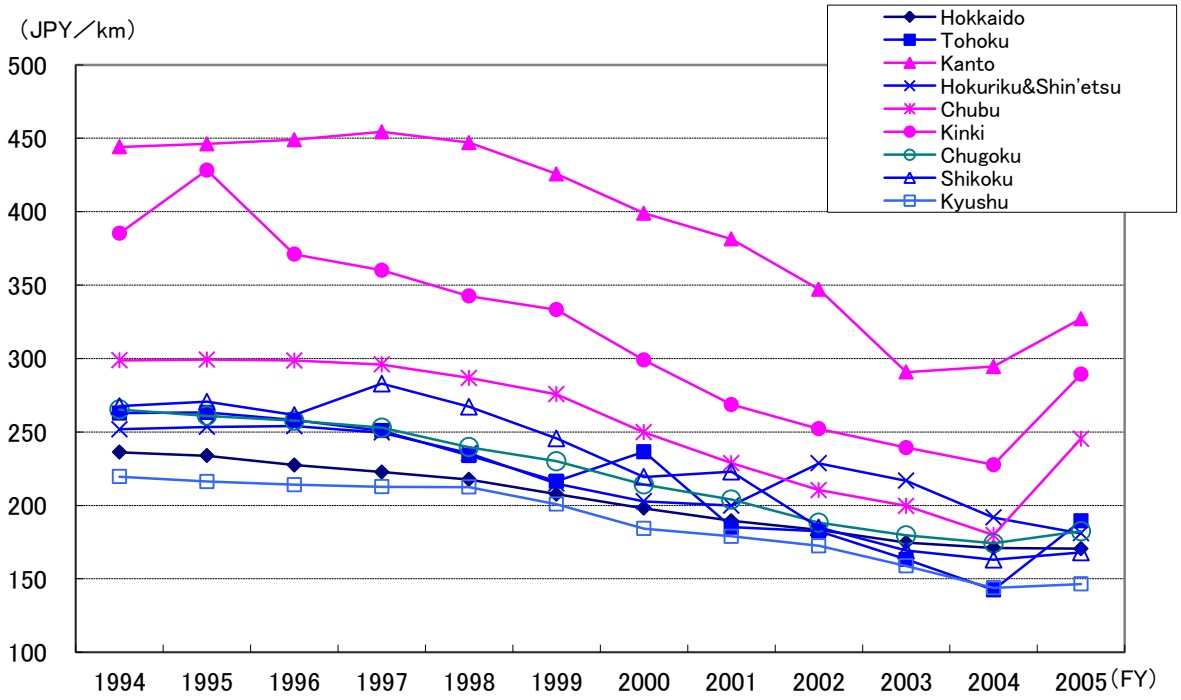

Figure 7 Trend of labor cost

(Note) Because of the lack of my data, I cannot show data after 2006 in Fig.7.

In Figure 8, I show the data of annual labor costs per employee. Because there is no salary data published, I use this index instead of salary data. According to this data, it is understood that there is a difference by the region as shown in Fig.7. For example, in 2005, though Kanto is 7.51 million JPY/employee, Tohoku(the lowest area) is 4.65 million JPY/year/employee, so Kanto is 1.6 times much than Tohoku. In the recent years operators in metropolitan area cannot jointly operate high-speed bus services with operators in rural area, because of the difference in labor costs.

As long as checking on labor costs, it has not appeared a sudden change due to deregulation. As a factor in lowering labor costs, I assume that operators' improved management such as spin-off are effected for depressing cost. However the labor cost in urban areas shown in Fig.7 increased from 2004 to 2005, the salary levels in Fig. 8 didn't change much, so I assume the reason is that a decrease in working vehicles kilometers effect this data.

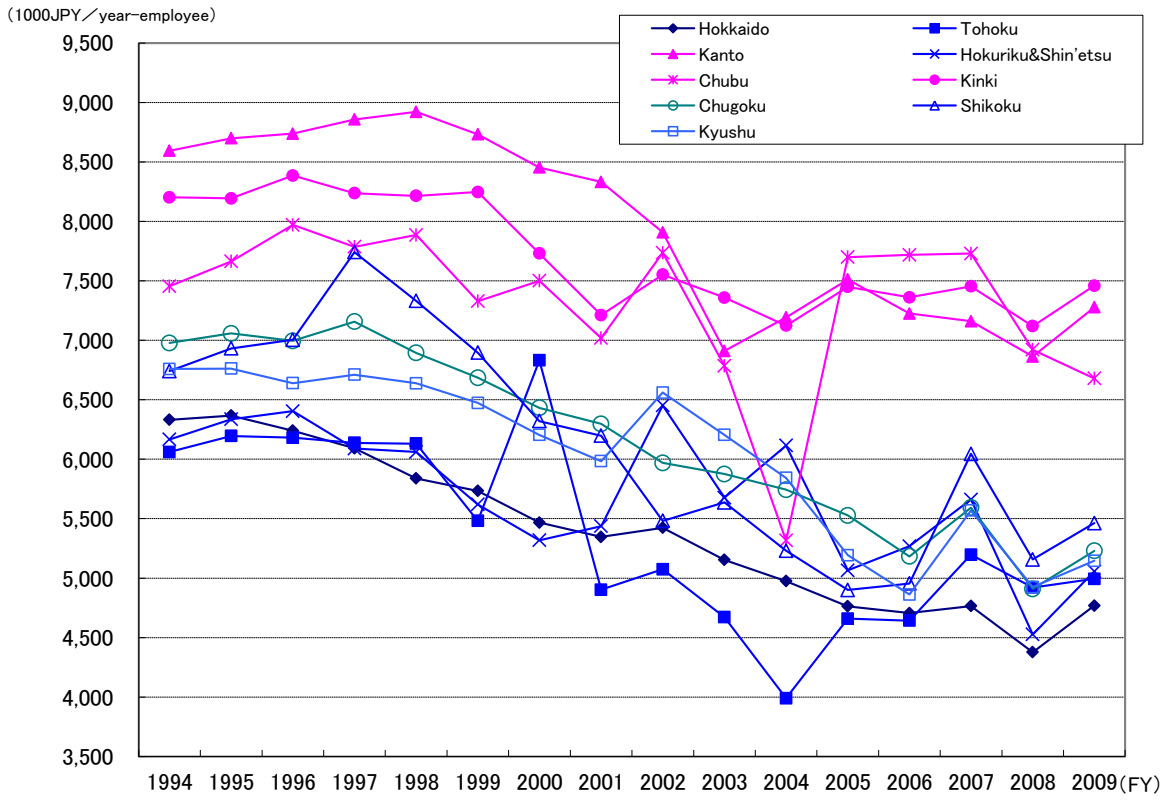

Figure 8 Changes in labor cost per employee

3. SURVEY AND ANALYZE TYPICAL TOPICS AFTER DEREGULATION

I showed the trends of private omnibus operators' management circumstances such as output, network, demand, cost and so on. In this section, I will summarize and analyze the typical topics of entrance and exit after deregulation in Japan, mainly from economic viewpoint.

3.1 Case of new entrance

The cases of new entrance in rural areas are three patterns as follows;

(1) competitive entrance
(2) entrance for satisfying needs that existing operators couldn't correspond, and occurred competition
(3) entrance for operating routes which existing operators are exit(closed) .

The typical example of case (1) is the case in Okayama city only[3]. The background of competitive entrance in Okayama is the license of airport limousine bus. Okayama Denki Kido Co., Ltd. (Okaden) has the exclusive license before moving Okayama airport, because Okayama airport is located on the area Okaden has the exclusive license of omnibus. But after airport is moved, Okaden cannot operate the limousine bus because other company Chutetsu Bus Co., Ltd. (Chutetsu) has the exclusive license in the area located new airport. Okaden was

[3] Case of Kagoshima to be described later are becoming pattern of (1) these days, you want to be taken up future as the results are not out.

applied for the license of airport limousine bus, but the entry is not observed before deregulation because of the license scheme (regional monopoly), so Okaden entered the after deregulation. After entrance of airport limousine bus by Okaden, Chutetsu entered some routes which Okaden has the route license and that seemed profitable, and Okaden also entered some routes which Chutetsu has the route license and that seemed profitable. Because of these competition after deregulation, road competition was occurred, and timetable of such competitive routes were changed nearly monthly. But passengers using such competitive routes was confusing, so the number of passengers or revenue was not increased, so the financial strength of companies also went weak. After this competition, both Okaden and Chutetsu were exit from some routes newly entered, a few other routes included airport limousine bus are now operated jointly this two companies[4].

The typical examples of (2) are the cases in Kagoshima, Sasebo (Nagasaki Pref.), and Kanazawa (Ishikawa Pref.).

In Kagoshima, Kagoshima Kotsu Co., Ltd.(privately owned) has newly entered in the area where Kagoshima Municipal Transport Bureau (public company; Kagoshima shi Kotsukyoku) has the route license almost exclusively. The reason of such entrance is that Kagoshima Municipal Transport Bureau could not accept the request of the route opening from the shopping mall located in Murasakibaru housing area and Kagoshima Kotsu accepted this offer. Newly operated routes of Kagoshima Kotsu partly compete with existing route operated by Kagoshima Municipal Transport Bureau.

In Sasebo, to satisfy the residents' needs of route expansion (especially high school students), Saihi Bus Co., Ltd (privately owned) has newly entered in the area where Sasebo Municipal Transport Bureau (public company; Sasebo shi Kotsukyoku) has the exclusive license, so this newly operated route are partly competed with existing routes operated by Sasebo Municipal Transport Bureau. This case is nearly same situation as that of Kagoshima.

The different case with that of Kagoshima or Sasebo is the case of Kanazawa. New entrance (called "Machi Bus" service) has occurred in Kanazawa downtown area (the route from Musashigatsuji and Korinbo area to Kanazawa Station), and the price is lower than existing company (100 JPY is new and 200JPY is the existing, from Kanazawa Station to Musashigatsuji). Since existing company, Hokuriku Tetsudo, did not accept the request of the route opening from Kanazawa Chamber of Commerce because of the avoidance of decrease in revenues, this new route is operated by Kanazawa Chamber of Commerce and delegated to not existing company (Hokuriku Tetsudo, privately owned) but JR Nishinihon Bus (privately owned). This entrance has occurred only in one route, but almost all this route are competed with the existing company's profitable routes. About one year after starting this competition, Hokuriku Tetsudo (exiting company) has started almost same service as "Machi Bus"(called "Kenrokuen Shuttle"), with same price as "Machi Bus" but slightly different routes from "Machi Bus". Now "Machi Bus" is operated only on holidays and "Kenrokuen Shuttle" is operated every day including weekdays, but fare of existing routes operated by Hokuriku Tetsudo (except for "Kenrokuen Shuttle") is different from these services, still higher fare.

[4] Very similar case of competitive entrance is also seen in the case of Nagasaki airport limousine buses. In the case of Nagasaki, not only the route but also fare competition occurred (in Okayama, fare competition didn't occur). Since passengers using Nagasaki Airport were confused and claimed because of the difference of fare and routes, in order to avoid image worsening of passengers, the two operators (Nagasaki Kenei Bus = existing and Nagasaki Bus = new entrant) adjusted the fare (to the same revel), time schedule and routes.

The cases of (3) have been occurred in rural area. After deregulation, the entry of small operators has increased (see Figure 5) [5], and almost all of these make business in rural area. The reason of these entrance is that charter bus operators and taxi operators have entered the omnibus business as alternative of the route existing omnibus operators were exit. The license classification was changed in relation to the revision of the Road Transport Act, so operators of community bus took the permission of the omnibus business. In Figure 5, these operators are treated as the newly entering operators.

3.2 Case of exit

Before I analyze the case of exit, I would like to see the trend of length of the suspended and abolished routes. As long as the data, after deregulation both suspended and abolished route length are not more increased than those before deregulation (See Figure 9)[6].

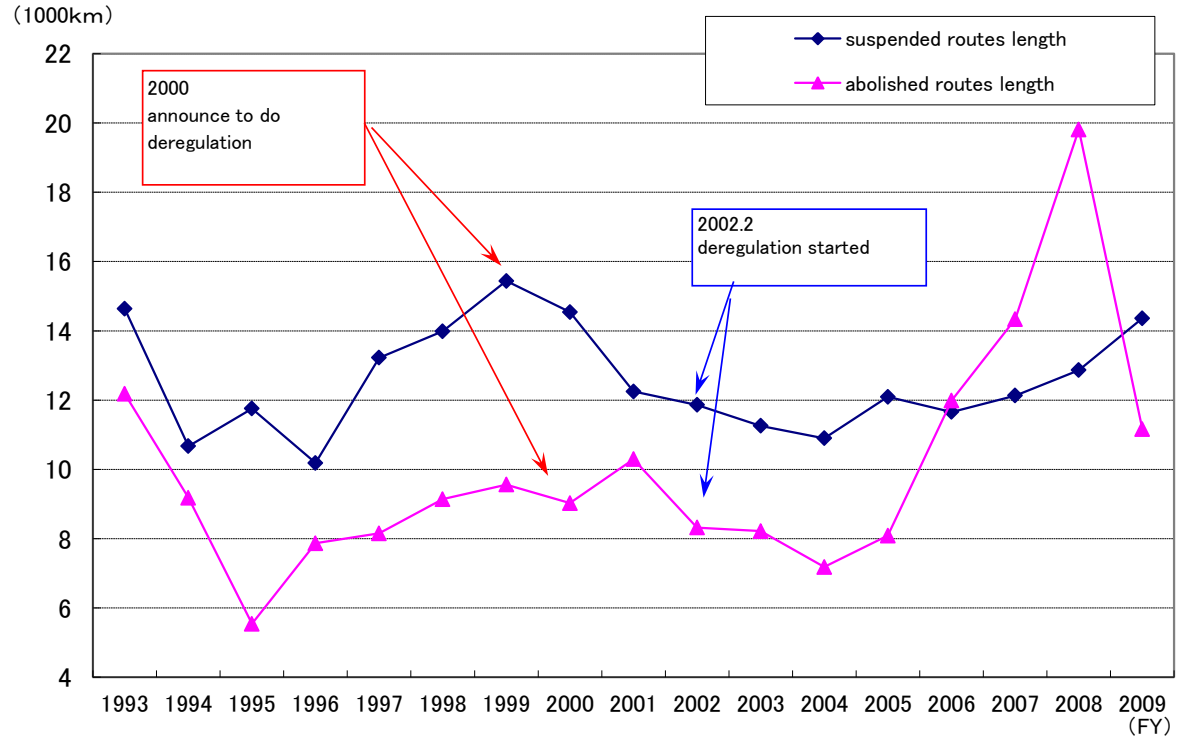

Figure 9 Total Length of Abolished or Suspended Routes per FY
(Source) MLIT(eds.)(2011b,2012b)

I surveyed the patterns of exit occurred after deregulation, and I could find these three patterns (factors) of exit as follows:

(1) Exit as the result of the competition really happened or the prevention for expected competition
(2) Exit as the result of change of the operating organization, including the privatization of public operators
(3) Exit for sustaining financial support , the request of management circumstance

[5] Due to the constraints of the original data, the data shown in Figure 5 is included urban data (not specific to the rural areas).
[6] Ditto as footnote No.5.

These factors aren't completely independent. For example, in the case of Iwasaki group in Kagoshima, his abolition is caused by (1) and (3). Here, I should pick up several cases that occurred in the exit.

(1) Exit as the result of the competition really happened or the prevention for expected competition

In the case of competition in Okayama shown above, after competition both Okaden and Chutetsu were closed routes, terminals, branches located newly entered area. Both companies needed cost for removing equipment such as bus stops, branches, and fleet, and needed to relocate workers and fleet. In addition, administrative procedures were also needed to close routes or branches. These cost are kinds of sunk cost in economics.

The case of Nishinippon Railroad Co., Ltd (Fukuoka Pref.)(Nishitetsu; privately owned) is the typical case of exit for sustaining competitiveness after deregulation. Nishitetsu has closed unprofitable routes progressively every year since around 2000, before deregulation. Before exit from such regional routes, the promotion for increasing passengers or cost reduction has done in stages. After finding these programs were ineffective, then administrative costs or transaction costs were lower than spending operating cost, so Nishitetsu decided to abolish such routes. In Nishitetsu, these abolition has done before deregulation, so we cannot see trend of abolished route length of Nishitetsu has been increased after the deregulation in 2002.

In addition, when to abolish the routes of rural areas, the distal part of the low utilization is firstly closed before abolition of the main part in many cases. But once newly entering operators operated such distal part closed existing companies might enter the main routes, competition between existing companies and newly entered companies might occur, and profitability of main routes of existing company will be able to worsened. For fear of such situation, some existing company abolished all routes including main routes. Such case was occurred in Amami Island and Mainland in Kagoshima Prefecture in around 2006[7].

(2) Exit as the result of change of the operating organization, including the privatization of public operators

For restructuring the public business, public bus operators (companies) were privatized after deregulation, such as Tomakomai (Hokkaido), Hakodate (Hokkaido), Akita, Himeji (Hyogo), Onomichi (Hiroshima), Naruto (Tokushima), and Arao (Kumamoto), and in some cities public operators transferred some routes to private operators. However, these privatization or transferring were not caused by deregulation.

(3) Exit for sustaining financial support , the request of management circumstance

After deregulation, bankruptcy of bus operators were found one after another. I think that such bankruptcy were not occurred by the limit of longtime financial difficulties rather than the effects of deregulation[8]. In the process of restructuring business from post-bankruptcy, omnibus business, which is the core business, wasn't given a special treatment, so unprofitable routes in these companies were abolished after deregulation. Such cases were occurred in Iwasaki group (Kagoshima; privately owned), Miyazaki Kotsu(private), Miyagi Kotsu (private).

---

[7] I hear that there was a slight impact from deregulation of exit procedures (From interview).

[8] For more information about the withdrawal cases related to bankruptcy, I have shown in Ooi (2009b) and Ooi (2011a), including cases of Miyazaki Kotsu and Iwasaki group of Kagoshima.

3.3 Analysis of these cases effected deregulation

In this chapter, I will analyze the cases or examples shown before from economic viewpoint. I will summarize the typical features of entry or exit cases in Japan, and I would like to clear the reason Japanese private omnibus operators didn't enter new markets competitively after deregulation.

3.3.1 Characteristics of the areas where new entry has occurred

From the cases of new enter, I can show the characteristics of the areas where entry has occurred as follows.

(1) Easy to set bus stops for newly entered operators

Except for the case of Okayama, there are public operators in such areas. So existing operators and newly entered operators often jointly use bus stops (including independently set each operator's poles at same place)[9]. I think that the reason new operators could enter such areas is that existing omnibus operators cannot allow the exclusive usage of their bus stops due to antitrust law.

(2) A niche market within the downtown of city with 300-600 thousands population

Many cases newly entered have occurred in areas existing operators didn't have any routes. For example, at the case in Sasebo, newly entered operator has captured the needs of high school students living such area. At the case in Kagoshima, newly entered operator has captured the needs of users to shopping mall. Only competitive enter (not to cover the niche market) has occurred in Okayama[10]. Furthermore, there are no case in areas with under 300 thousands population, because operators might think there is no benefit to entry in the such local market[11] .

(3) Existence of past or present competition about route license with existing operator (which has exclusive license) and other operators

In Japan, bus operators were allowed regional monopoly in own areas by license scheme before deregulation. So there has been only one operator in each region, and route licenses have been overwrapped only in central city of such region. However, in areas with competition between public operator and private operator(s) or with the conflict among private operators, new entry can be seen. I think these cases of new entrance were occurred in the wake of deregulation, so these cases of entry are consistent with the effect that was expected of deregulation.

---

[9] It is outside the scope of this paper, but in the case that occurred is entered in Kyoto, bus stop of Kyoto Municipal Transportation Bureau is not available, so new entrant needed to set bus stops separately at intervals from existing bus stops.

[10] In the case of Kagoshima(new entrance by Kagoshima Kotsu), first entrance is this case and competitive entrance with the route of Kagoshima City Transportation Bureau, and second case is competitive entrance to make competition like the case in Okayama.

[11] There are a number of cases for alternative transportation due to the abolition of the routes operated by incumbents. In such cases, operators entered newly have license of omnibus operating, but they aren't the competitive entrances expected in deregulation policy.

3.3.2 Characteristics of the areas where exit has occurred

From the cases of exit, I can show the characteristics of the areas where exit has occurred as follows.

(1) Occurred in areas with regional monopoly operators

Some big operators with exclusive regional monopoly license (ex. operators carried more than half of total passengers in such prefecture or region, only one operator existing in such prefecture or region) have sustain their routes or license with cross subsidization between profitable routes' profit and unprofitable routes' loss before deregulation. However, since they thought their business model need to be changed after deregulation, they have closed many unprofitable routes to maintain their business competitively after deregulation, I assume.

(2) Caused by effects of deregulation rather than effects of operators' management factor (such as financial problem)

It is very characteristic that many of the exit from unprofitable routes was not caused by deregulation. According to the interview to operators, they decided to close routes on the basis on such routes' operating circumstances such as profitability or number of passengers.

For example, in the case of Nishitetsu, he has needed to decrease the deficit of the bus business and change his business model in anticipation of introduction of deregulation before deregulation. In addition, it takes about a few years to close routes in the case of Nishitetsu, because it takes long time for inhabitants using such routes or local government to agree with abolition of such routes before and after deregulation.

In the case of Miyazaki Kotsu and Iwasaki group of Kagoshima, they made the decision to close many routes after deregulation. It is not because deregulation policy has been introduced but because they were asked to exit unprofitable department as a condition of financial assistance. Though deregulation of exit might be the trigger for abolition unprofitable routes, if so, more routes might be closed after deregulation than that in pre-deregulation. But from the data shown Fig.10, I am hard to capture such trend.

After deregulation, operators can exit routes if they notice closure of routes to persons concerned at least 6 months before closure. But to close such routes, operators need many transaction cost (ex. time to agree for closure, make the procedure to the government) or sunk cost, and such costs aren't decreased before/after deregulation.

4. CONCLUDING REMARKS

Generally speaking, introduction of deregulation policy is expected to give both users and operators more benefit. The reason is that operators improve their services and reduce operating costs in order to win the market competition with other operators. But in Japan, there were few cases of such competition (i.e. new entrance to rural omnibus market), and such competitive cases were occurred only in limited areas or and routes.

So I think omnibus operators' business model hasn't been changed compared with that of before deregulation. Then, why didn't such market competition occur in Japan after deregulation? From my research, I will show three reasons of such situation as follows.

First reason is that the financial background of the rural omnibus operators has been weakened. Trend of passenger decline has continued in the omnibus business. Then, as can be seen from the fact of omnibus operators' bankruptcy caused by debt in the past, operational

conditions have not improved. In addition, since there is no necessity to change their business model because there was no competition, improvement of service did not proceed. Therefore, it is considered that such movement for change of their business model is hard to take, and they didn't try to enter new market competitively.

The second reason is that there are many barriers to entry. First of all profitability of rural omnibus business has been much worse, so routes which can be maintained by new entrants competitively are few in regional cities. Even if new entrant can enter such routes, some barriers also exist. One of them is the establishment of a bus stop. New entrant is not easy to set bus stops or use bus stops of existing operators though there is regulation of antitrust law, sometimes because of police regulations for security. Furthermore, since the wage of drivers is low compared to other industries, or regional omnibus operators employ very limited drivers for cost reduction, to employ new crews for new entrance is very difficult. In addition, though the procedure for exit is relaxed by deregulation, because there are existence of sunk costs and transaction costs, new entrants cannot enter if they cannot pay such costs when to exit. In Japan, many operators have entered rural omnibus market after deregulation, but most of their objects of entrance are to operate alternative services at routes closed by existing companies in rural areas.

The third reason is that the transformation of customer customs already formed before deregulation are so far difficult. In Japan, since regional omnibus service is operated by one or a few operators monopoly for a long time before deregulation, most users tend to use existing operators' service, except for the case that users have requested such new entrance (to have more benefits from the use of newly entered operators than that of existing operators, etc.). In addition, in areas where competition has occurred by the new entrants, there were some troubles from confusion of passengers caused by different fare in the same route or time schedule change frequently. In some case of price competition occurred, passenger fare has been adjusted in the same route (periods) despite the fare regulation was liberalized.

I conclude that, though deregulation policy has been introduced, because of the lack of the competitive markets or operators' business environment for competition, market competition was hardly observed in Japanese omnibus market (businesses). And I showed some reasons that such situation has occurred. In Japan, except for the high-speed bus market, the profitability of regional omnibus is very low, and there are many hurdles for entrance or exit. In addition, operating circumstances of existing company has been worsened through before and after the deregulation. Because of these factors existing, competitive entrance occurred in very few area, and the positive effect we expected by introduction of deregulation is very limited in Japan.

It is expected that I research the event on the impact of deregulation further, and develop this research to evaluate its effect quantitatively as possible in the future.

ACKNOWLEDGEMENTS

This paper is based on my several research at Institute for Transport Policy Studies, Welfare Science Center in Oita University (Joint Research), Public Transport Division of Oita City(Ditto). And this research is funded by MEXT/JSPS KAKENHI Grant Number 22730336. I make thank for all these support.

REFERENCES

Matsuzawa, T. (2005) The direction and the role of the public in regional bus operators with reference to the regulatory reform of the United Kingdom (Ikinai Bus Jigyo ni okeru Hokosei to Ko no Yakuwari - Eikoku no Kiseikaikaku wo sanko ni shite). *Kaikei-kensa Kenkyu*, 32, 121-149. (in Japanese)

Ministry of Land, Infrastructure, Transport and Tourism(1994-2012) *Annual Report of Car Transport Industries (Jidosha Unso Jigyo Keiei Shihyo)*. MLIT, Japan. (in Japanese)

Ministry of Land, Infrastructure, Transport and Tourism(eds.) (2011b, 2012b) *Suji de miru Jidosha (Annual Pocketbook of Motorcars)*. Automobile Business Association of Japan (Nihon Jidosha Kaigisho), Tokyo, Japan. (in Japanese)

Mizutani, F. (2012) *Regulatory Reform of Public Utilities*. Edward Elgar, Cheltenham, UK.

Nihon Bus Association (1994-2012) *Annual Report of Japanese Bus Industries (Nihon no Bus Jigyo)*. Nihon Bus Association, Tokyo, Japan. (in Japanese)

Nozawa, M. (2008) *The time-series trend of the high-speed bus (Kosoku Bus no Jikeiretsu Doko)*. Master's thesis of Graduate School of Research Institute for Policy Studies. (in Japanese : unpublished)

Ooi, H. (2008) Research on re-evaluation of the deregulation policy in public transport (Kokyo Kotsu ni okeru Kiseikanwa Seisaku no Saihyoka ni kansuru Kenkyu). *Transportation Policy Studies Review (Unyu Seisaku Kenkyu)*, 11(2), 62-65. (in Japanese)

Ooi, H. (2009a) Research on deregulation effects in omnibus industries from the viewpoint of cost structure (Noriai Bus Jigyo ni okeru Kisei Kanwa no Eikyo ni kansuru Teiryoteki Ichi Kosatsu - Hiyo men no Bunseki kara -). *Annual Report on Transport Economics 2008 (Kotsugaku Kenkyu 2008)*, 161-170. (in Japanese)

Ooi, H. (2009b) The effect of deregulation policy of omnibus business (Noriai Bus Jigyo no Kiseikanwa Seisaku ga Motarashita Koka). *Transportation Policy Studies Review (Unyu Seisaku Kenkyu)* , 12(2), 94-101. (in Japanese)

Ooi, H. (2011a) Effects of Deregulation in Omnibus Industries on Rural Areas in Japan (Chihobu ni okeru Noriai Basu Kiseikanwa no Eikyo ni kansuru Seiri). *Journal of Public Utility Economics (Koeki Jigyo Kenkyu)*, 62(4), 9-17. (in Japanese)

Ooi, H. (2011b) *Research on the effects of deregulation and revaluating public sector's role - Focus on omnibus industries - (Kokyo Kotsu ni okeru Kiseikanwa Seisaku to Kokyo Sectar no Yakuwari no Saihyoka ni kansuru Kenkyu - Noriai Basu no Kiseikanwa to Sono Eikyo nit suite -)*, ITPS report 201001, Institute of Transport Policy Studies, Tokyo, Japan. (in Japanese)

Ooi, H. (2012) Quantitative Analysis of Optimal Operators' Size for Managing Omnibus Indutries in Japan (Noriai Basu Jigyo no Jigyo Unei Kibo ni kansuru Teiryoteki Kosatsu). *Annual Report on Transport Economics 2011 (Kotsugaku Kenkyu 2011)*, 233-242. (in Japanese)

Ooi, H. (2013) Economic Analysis of Deregulation Effect on Operational Efficiency of Omnibus Industry in Japan. Paper presented at the 12th World Conference on Transport Research Society, Rio de Janeiro, Brazil, July 15-18. (unpublished)

Ooi, H., Sakai, H. (2011) Change of form of management after deregulation in omnibus business (Noriai Basu Jigyo ni okeru Kiseikanwa Go no Unei Keitai no Henka). In Japan Transportation Policy Study Group (Nihon Kotsu Seisaku Kenkyukai) (eds.), *The significance of public transportation maintenance and measures to ensure*

mobility of the elderly in the community (Chiiki Shakai ni okeru Koreisha no Mobility Kakuho to Kokyokotsu Ijisaku no Igi), Japan Transport Policy Study Group (Nihon Kotsu Seisaku Kenkyukai), Tokyo, Japan. (in Chapter 5: in Japanese)

Terada, K. (2002) *Deregulation of the bus industry (Basu Sangyo no Kiseikanwa).* Nippon Hyoronsha, Tokyo, Japan. (in Japanese)

Terada, K. (eds.) (2005) *Bus transportation and decentralization (Chiho Bunken to Basu Kotsu).* Keiso Shobo, Tokyo, Japan. (in Japanese)