

# Tourism Promotion Policy by Roadside Stations: Study on Regional Revitalization in Hokuto City, Japan\*

Ryusaku Matsuo<sup>†</sup> and Mitoshi Yamaguchi<sup>‡</sup>

Regional collaboration is one of the basic functions of Roadside Stations for revitalizing regions. Indeed, such collaborations are expected at the national level as part of regional revitalization policies. In this study, we focus on regional tourism promotion measures in cooperation with three Roadside Stations in Hokuto City. First, we systematically analyzed the regional tourism promotion policy based on mutual cooperation of Roadside Stations in Hokuto City. Second, using the estimation results of simultaneous equations of Matsuo and Yamaguchi (2015, 2016), we analyzed the management conditions of three stations in Hokuto City and derived the political implications thereof. The measurement results show that the three Roadside Stations in Hokuto City have achieved much better results in terms of regional cooperation than the national average.

Key words: Roadside Station, Hokuto City, regional revitalization, tourism promotion, simultaneous equations

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<sup>†</sup> Research Fellow, Graduate School of Economics, Kobe University,  
Visiting Research Fellow, Institute of Social Sciences, Toyo University,  
E-mail: yousakum@gmail.com

<sup>‡</sup> Emeritus Professor, Kobe University,  
E-mail: mitoshiyy@yahoo.co.jp

## 1. Introduction

Except for the locations around Mt. Fuji, sightseeing has become less popular in Yamanashi Prefecture in recent years despite its rich natural environment and convenient access to transportation. This region is located within 100 km of Tokyo Metropolitan Area and 150 km of Nagoya Metropolitan Area. In other words, it has all the conditions to be a tourist spot. Nevertheless, the number of visitors and tourism consumption are declining<sup>1</sup>. To address this decline, each tourist spot in this region has taken its own measures to revitalize the area. Among the regions with a low number of tourists, Hokuto City, in particular, has many tourist facilities and business entities; it has expertise on exchange projects with other cities that include attractions such as horse-riding spots and camping sites. However, such measures have had limited effect because each tourist facility developed its own tourist attraction policy.

In 2014, Hokuto City integrated all the different tourism promotion measures that had been instated in its territory. Under the leadership of local governments, a unified scheme was developed to attract tourists. Specifically, the city has been working to attract tourists by ensuring all the city's tourist spots collaborate and cooperate with each other. Hokuto City has three Roadside Stations as its core facilities, and its regional revitalization policy has shown positive effects. Such "regional revitalization measures through regional cooperation and network construction based on Roadside Stations" promoted by Hokuto City have been successfully adopted nationwide. The government also recommends and supports such measures through cooperative networks of local governments, public organizations, and other tourism organizations centered around Roadside Stations. The initiatives undertaken by Hokuto City can be regarded as successful examples of revitalization measures based on Roadside Stations<sup>2</sup>.

In this study, we analyze Hokuto City's efforts to revitalize the region by attracting tourists through inter-regional cooperation.

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<sup>1</sup> For details, refer to Matsuo and Yamaguchi (2018).

<sup>2</sup> The Ministry of Land, Infrastructure, Transport and Tourism has also selected the case of the "Roadside Station" wherein multiple stations compete with each other to build a network, expending efforts for revitalization and disaster prevention in the entire region as a "priority Roadside Station" in order to provide support. In 2015, two groups that formed networks were selected as priority Roadside Stations: *Izu Michi no Eki Network* and *Around Shimanami Kaido* (published by the Zenkoku "Roadside Station" Liaison Committee, supervised by the NPO Hito-to-Michi Kenkyukai, with the cooperation of the Road Bureau of the Ministry of Land, Infrastructure, Transport and Tourism [2017, p. 81, p. 124, p. 158–161]).

We especially focus on Roadside Stations, which are attracting nationwide attention. Our study uses both qualitative (structural) and quantitative (econometric) methods to examine the effects of Roadside Stations. First, we conduct a qualitative analysis of the operation status of each Roadside Station. For this analysis, we use the results of a questionnaire survey and an interview survey of station managers at each Roadside Station. We also use data on management indicators such as sales and the number of visitors. Second, we quantitatively analyze the business conditions of three Roadside Stations in Hokuto City. The policy implications are derived from the results of simultaneous equation models obtained from prior research on the management of Roadside Stations (Matsuo and Yamaguchi, 2015, 2016). The actual elasticity values obtained from quantitative analysis show the degree to which the policy target value increases, or decreases, if the policy measure of Hokuto City is increased by 1%. This way, the effects of the city's revitalization policy can be determined in objective figures, which is a major contribution of this study.

## 2. Tourism Promotion Policy in Hokuto City

Hokuto City is located in Kyohoku Region (northern Yamanashi Prefecture). It is located on a plateau surrounded by mountains such as Mt. Yatsugatake and Mt. Kai-Komagatake in the northernmost part of Yamanashi Prefecture. However, Hokuto City had the following problems in implementing policies to attract tourists: (a) There were no special Class A tourist spots such as Mt. Fuji; (b) the old municipalities before the merger had a strong regional character, and the policies for revitalization were not unified as a city; and (c) tourist facilities and business entities scattered in the city had taken different measures to attract tourists<sup>3</sup>. To address this problem, the city launched a policy in 2014 to revitalize local communities by linking tourist spots scattered throughout the city and enabling collaboration programs. Three Roadside Stations in the city were positioned as bases for this policy. For this study, we conducted a questionnaire survey and an interview survey of Roadside Stations in Hokuto City, which attract tourists<sup>4</sup>.

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<sup>3</sup> Hokuto City was formed in 2004 through the merger of Nagasaka Town, Takane Town, Oizumi Village, Hakushu Town, Takekawa Village, Sudama Town, and Akeno Village that belonged to Kitakoma County, Yamanashi Prefecture, and former Kobuchizawa Town in 2006.

<sup>4</sup> The field survey in Hokuto City was conducted twice. The purpose of this study was to investigate tourism promotion activities in Hokuto City through cooperation with tourist spots, based on the concept of Roadside Stations (Kobuchisawa, Minami Kiyosato, and Hakushu) in Hokuto City. Two types of surveys were employed: interview and questionnaire.

Using the survey results and collected data, we clarify the role of Roadside Stations in attracting tourists for regional revitalization. Then, we describe the efforts of Hokuto City to attract tourists through Roadside Stations.

### 3. Destination Management Organization in Hokuto City and the “Food Valley Council”

Hokuto City is working to revitalize the city by linking its three Roadside Stations with scattered tourist facilities under the Hokuto City Tourist Association and Hokuto City Food Valley Association. As shown in Figure 1, the conceptual diagram of this policy is multilayered (Hokuto City Food Valley Association, 2017a, 2017b). Of the two organizations, the Hokuto City Tourist Association (General Incorporated Association) applied in April 2013 for a plan to form and establish a Japanese version of a Destination Management Organization (DMO)<sup>5</sup>. Hokuto City DMO consists of a board of directors; eight branches in former towns and villages; the Sun and Chigatake/Mizugakiyama Area, the Yatsugatake Nanroku Kogen Area, and the Seiryu and Kai-Komagatake Area Subcommittees in the three tourist areas of Mt. Yatsugatake, Mt. Kai-Komagatake, and Mt. Chigatake/Mizugakiyama; the Retreat no Mori Subcommittee for the development of sojourn-type travel products; and the local executive committee. The purpose of these organizations is to allow tourists to tour three different tourist areas in the city. Therefore, the three Roadside Stations in each tourist area play an important role in

promoting the DMO.

Among the city’s only tourist destinations, both Mt. Kai-Komagatake and Mt. Yatsugatake are located in Hokuto City; the Japan Travel Bureau has designated these ranges as Class A tourism resources, namely, “tourist areas with nationwide attraction.” Mt. Mizugaki and Kiyosato Plateau are designated as Class B resources, namely, “tourist areas with local-scale attraction.” Hokuto City has only a few local specialties such as Kahoku rice and Hakushu rice. However, the city has abundant natural resources, such as the spring waters of Yatsugatake and the clear waters of the Southern Alps. Through regional cooperation, the DMO seeks to overcome the disadvantage from having few sightseeing spots and specialties by disseminating information about such locations as well as profit-making businesses throughout the city.

The Hokuto City Food Valley Association, which was established in October 2017, is now a voluntary organization. It is marked to become a joint-stock company and will play a central role in promoting industry in Hokuto City. The organization will establish a loose community of relevant entities in the city in relation to agriculture, tourism, accommodation, food and drink, logistics, processing (sixth industrialization and product development), finance, and employment. This association will be operated through a conference of representatives from each sector. The council currently consists of members such as local farmers and tourist agents. In addition, three Roadside Stations in Hokuto City are members of the Food Valley Council and play a central role in its activities (Hokuto City Food Valley Association, 2017a, 2017b).

### 4. Tourism Promotion Policy of Hokuto City’s Roadside Stations

As described above, Hokuto City can be divided into three tourist areas around Mt. Yatsugatake, Mt. Kai-Komagatake, and Mt. Chigatake/ Mizugakiyama. The Kobuchizawa station is located at the foot of Mt. Yatsugatake, the Hakushu station is located at the foot of Mt. Kai-Komagatake and the Kamanashi-gawa River Basin, and the Minami Kiyosato station is located on the border between the foot of Mt. Chigatake and the Shio-gawa River Basin and the foot of Mt. Yatsugatake. By linking these Roadside Stations, the entire city’s tourist spots are linked, forming a network. Each region, centering on its own Roadside Station, promotes “landing tourism” to communicate the attractiveness of the region by incorporating local originality

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The first survey was conducted on December 20, 2017, and the second survey was conducted on July 22–23, 2017. The survey covered (a) Roadside Stationmasters in Hokuto City (Kobuchizawa, Minami Kiyosato, and Hakushu); (b) *Ehon Mura*; (c) Yatsugatake Western Ranch; (d) Chamman Wine (factories and farms); (e) Suntory Hakushu Distillery; and (f) residents of Kobuchizawa area. The questions included the following. For each Roadside Stationmaster and Hokuto City Hall, there are two questions: (a) on Roadside Station management indicators (sales, number of visitors, number of parking, number of events, administrative expenses, and total operating expenses), and (b) on the current status and perspective of tourism design based on *Michi no Eki* (Roadside Station); and (2) for other tourist facilities and local residents, (a) what kind of regional revitalization efforts are being made in Hokuto City? (b) and to what extent are you participating in these efforts?

<sup>5</sup> The Japan Tourism Agency defines a DMO as “A corporation with a coordinating function as a steering wheel for the development of a sightseeing area from the viewpoint of ‘management of tourist sites’ that brings out the ‘earning power’ of the region and fosters pride and affection toward the region.” In other words, the Japanese DMO is a corporation that is knowledgeable of local tourism resources and cooperates in the development of tourism areas. For details, refer to the Japan Tourism Agency’s “What is the Japanese DMO?” section on the Ministry of Land, Infrastructure, Transport and Tourism (2007) website.

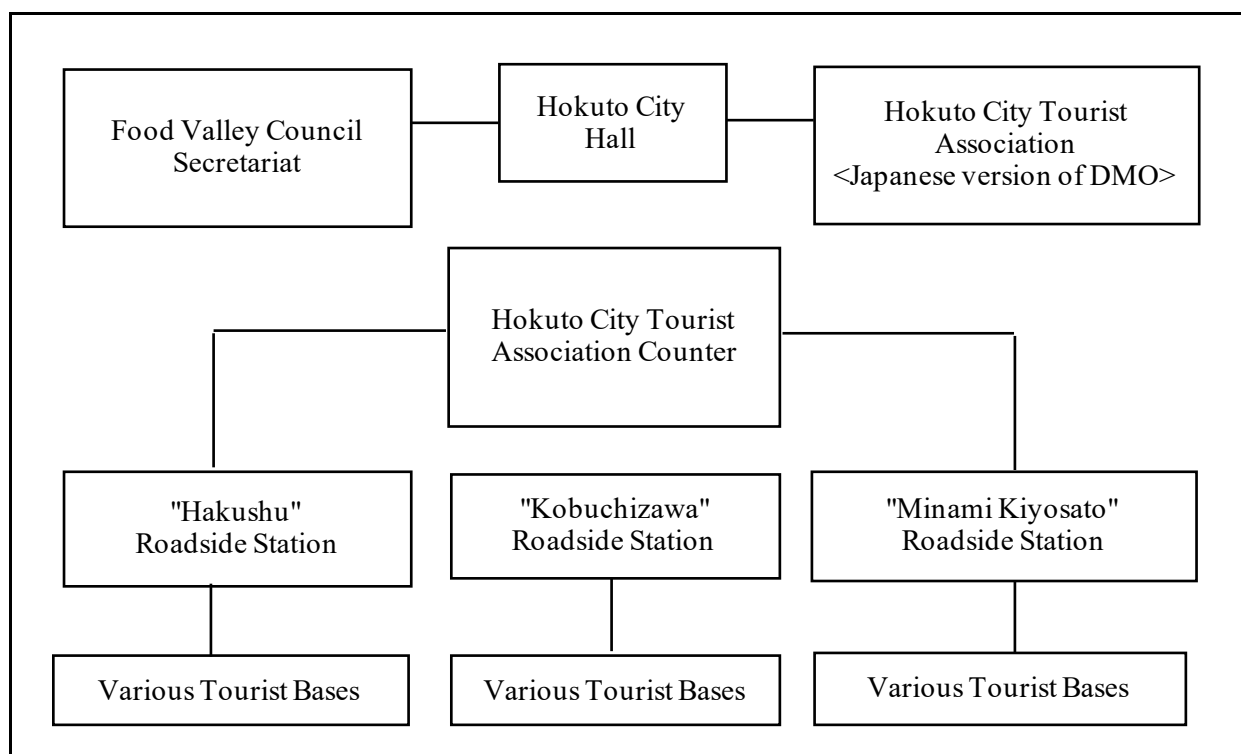


Figure 1. Conceptual Diagram of Hokuto's Tourism Promotion Policy.

Source: Prepared by the author from Hokuto City documents.

and ingenuity; it has been developing measures to revitalize the region<sup>6</sup>.

Hokuto City has adopted the basic idea of community development as an environmentally creative city where people and nature coexist (New Hokuto City Construction Project). Its prototype can be seen in the revitalization measures taken by the former Kobuchizawa Town. Based on this concept, the current regional revitalization policy was created through cooperation among Hokuto City's Roadside Stations. In particular, the Hokuto City Tourist Association has set up a counter at the Kobuchizawa station to provide one-stop information on sightseeing in the city; the station is positioned as a central base for the coordination of various facilities, including Roadside Stations in the city.

#### 4.1 Tourism Promotion Measures by Kobuchizawa Station

Kobuchizawa station was established by the former Kobuchizawa Town in August 2004<sup>7</sup>. The facility before it was

registered as a Roadside Station was a general exchange terminal<sup>8</sup>. Its contents are described in the Kobuchizawa Refresh Village Basic Plan Report (Agriculture, Forestry and Fisheries Experience Association, March 1995). Kobuchizawa station is said to be the first Roadside Station built along a prefectural road, and not on a national road. Kobuchizawa station is managed and operated by the third sector, Spatio Obuchizawa. At the farm stands, there are fresh vegetables and a variety of processed products. Local produce, handmade jam, and freshly baked bread are popular. The restaurant serves Enmei soba named after the famous "life-prolonging water" of Yatsugatake. At a separate building of the "experience workshop," you can experience soba noodle- and bead-making. There is a free foot bath, and the adjacent accommodation Spatio Kobuchizawa has a hot spring, Enmei no Yu, which is a place for tourists as well as local residents to relax.

<sup>6</sup> This area classification is the same as that of each area subcommittee of Hokuto City Tourism Association, a Japanese version of the DMO of Hokuto City.

<sup>7</sup> When Kobuchizawa station was registered as a Roadside Station, it was newly certified as a "Special Agriculture, Forestry and Fishery

Projects for the Development of New Mountain Villages in FY 2003" by the Ministry of Agriculture, Forestry and Fisheries. For this reason, it receives subsidies.

<sup>8</sup> The former Kobuchisawa Town merged with the former Hokuto City in March 2006 to become the current Hokuto City. However, the former Kobuchisawa Town had a population of about 6,000, and marginally increasing. It stretches from north to south, and the difference in elevation in the town is more than 2,100 meters.

The event is held as many as 44 times a year; it not only attracts more visitors, but also helps improve communication with local residents and visitors. There are 145 members of the shipping association of the farmer's markets, Kobuchizawa Specialty Producers Association (2018). Popular products at the stand are the new yacon and edible wild plants. A food processing plant Food and Health Processing Department is set up in an accommodation facility Spatio Kobuchizawa, and tofu, miso, and gyoza are produced there (Representative: Hideko Natori). Since Michi no Eki Kobuchizawa is the center of tourism policy not only in the Yatsugatake mountain area, but also in cooperation with the whole city, efforts have been made throughout Hokuto City toward tourism<sup>9</sup>. There are many ranches, riding grounds, and museums in the area. There are two projects connecting these facilities to the Kanto area under a network centered around the Kobuchizawa station.

**Hachi-Hachi Project:** This project's idea was proposed by picture book author Masako Matsumura<sup>10</sup>, who is also the director of Ehon Mura, a picture book museum in Kobuchizawa. The name comes from the two "8: Hachi in Japanese" that connect the Yatsugatake and Hachioji shopping districts. This project promotes exchange between urban and rural areas.

**Hana Bus Tour:** This bus tour travels from Shinjuku to several bases in Kobuchizawa. It was inaugurated by "Flower bus sightseeing" in January 2018. The route in Kobuchizawa is as follows: Spatio Kobuchizawa → Hotel Fuka → Neo Oriental Resort Yatsugatake → Yatsugatake Royal Hotel → Seisenryo Shinkan → Kiyosato Kogen Hotel → Kiyosato Station → Moegi-no-Mura. Despite the newness of this route, the number of passengers has been steadily increasing.

Kobuchizawa station plays a central role in the regional revitalization policy through the promotion of tourism throughout Hokuto City. In August 2011, the station was ranked second in eastern Japan as a "Roadside Station that families can enjoy all day long" (sponsored by Nihon Keizai Shimbun). In 2014, at the Kanto Roadside Station Awards (sponsored by Yomiuri Shimbun), the station was selected as a "Premium 30" destination for being an advanced Roadside Station<sup>11</sup>. In the

<sup>9</sup> Kobuchizawa station has eight horseback riding clubs including the Yamanashi Equestrian Stadium and Yatsugatake Western Ranch; it is an area where approximately 200 horses are reared, and the horse show held at the Yamanashi Equestrian Stadium at the end of July is a major event in Hokuto City.

<sup>10</sup> Masako Matsumura is a picture book author who established Japan's first picture book special library *Ehon* to exhibit her works, create books, and conduct workshops. She works as the head of the library. Tours from Japan and overseas are also accepted.

<sup>11</sup> For details of the ranking of Michinoeki, refer to Nikkei Style

same year, the station was selected as a "Prioritized Roadside Station" candidate among 49 stations by the Ministry of Land, Infrastructure, Transport and Tourism. The Ministry stated that "it is expected that active efforts will be made in the region in order to materialize the planning that will serve as a base for regional revitalization, and related organizations will cooperate to support planning and examination, etc."<sup>12</sup>

#### 4.2 Tourism Promotion Measures by Hakushu Station

Hakushu station is the main base of Hokuto City DMO, the Seiryu and Kai-Komagatake Area Subcommittee. It is located at the foot of Mt. Kai-Komagatake in the Kamanashi River Basin area. It was established, registered, and opened in 2000; and the municipality in which this system was established was the former Hakushu Town. At the time, Hakushu Town was aging and had large and increasing tracts of idle farmland that reflected a decline in agricultural production. The main purpose of establishing the Roadside Station was to revitalize local agriculture, which was in poor state<sup>13</sup>. The designated administrator is Michi no Eki (Roadside Station): Hakushu (Management Operating Association). The farmer's markets are operated by the Hakushu station (Users Association), with Kazuo Uematsu as the current union president. In January 2000, while the Roadside Station was scheduled to open, a cooperative was established by 280 local producers in order to quickly establish a system for shipping produce to the farmer's markets and producing specialty products.

Hakushu station especially emphasizes direct sales at its farmer's market and the creation of production areas using local production for local consumption. In addition to the specialty Hakushu rice and Kahou rice, which are grown using the region's special water, fresh vegetables such as shiitake mushrooms, spinach, Japanese parsley, apples, and long potatoes are also grown with fewer synthetic fertilizers and growth enhancers. To solve the produce shortage in winter, the farmer's market at the station has introduced Kakizuna on a trial

"Ranking of all things related to "Roadside Station" that can be enjoyed in one day by family: parks and hot springs," "Ranking of everything" (Nikkei Electronic Edition), and "Kanto "Roadside Station" Award 2014 "Premium 30" decided!" (September 11, 2014: Yomiuri Shimbun website).

<sup>12</sup> For details, refer to "49 Priority "Roadside Station" Candidates" (Ministry of Land, Infrastructure, Transport and Tourism website).

<sup>13</sup> For details, refer to "Hakushu-cho, Hokuto City, Yamanashi Prefecture [Hakushu "Roadside Station" Users Association]," "National Commendation Program for Creating Rich Villages" by the Kanto Regional Agricultural Administration Office (Kanto Regional Agricultural Administration Office website).

basis to good reception. In addition, 100% buckwheat noodles, Aji Okowa and Tsukitate Mochi, produced in the neighboring agricultural product processing facility Ajinosato Hakushu are on display. These businesses increased the sales of the farmer's market from about ¥120 million in 2001 to about ¥300 million in 2018.

The restaurant Ojira in this station also serves food made especially from fresh local produce<sup>14</sup>. A specialty of the Roadside Station is the natural water pumping station located next to the parking lot. This natural water is certified as "Japan's 100 Best Waters" or "Hakushu Oshiragawa Natural Water." In addition, the Hakushu is characterized by a large number of sightseeing spots in the surrounding area through mutual cooperation. You can obtain information about the surrounding tourist facilities at the information corner of the Roadside Station. The main cooperating tourist facilities and their outlines are described below.

**Hakushu Oshiranomori Meisui Park "Verga":** This park is a complex in Hakushu Town, where you can enjoy natural grounds and forests as well as the Oshirakawa River. The park includes a restaurant, BBQ area, living accommodation, campsite, hot spring, facility for experiences, and park, among others. It is connected to Hakushu station by Verga Street.

**Chateraise Hakushu Factory:** This factory is a manufacturing plant of Chateraise, a confectionery manufacturer operating nationwide. The plant conducts factory tours and taste testing for visitors as well.

**Kai-Komagatake Hot Spring "Oshiranoyu":** This attraction is an ultra-high concentration hot spring rich in various minerals, gushing from Oshiragawa riverbank's underground.

**Charman Wine Headquarters Farm and Brewery:** This winery that produces European grape varieties on its own farm. Tours of the vineyard, wine factory, and cellar are popular. It is next to Hakushu station.

**Suntory Hakushu Distillery:** The whiskey brands Hakushu and Delicious Waters of the Southern Alps allow tours; about 20% of their visitors are foreigners. (For a more detail, such as photographs and diagrams, of the above locations, please see Matsuo and Yamaguchi (2018)).

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<sup>14</sup> For details, refer to "Expanding consumption of locally produced local consumption and domestic agricultural, forestry and fishery products" "Hakushu "Roadside Station" Users Association (President & CEO: Kazuo Uematsu Location: Hakushu-cho, Hokuto City, Yamanashi Prefecture)," "Special Feature Rich Village Development Efforts to Revitalize Local Communities: National Commendation Program for Rich Village Development in FY 2007" (Ministry of Agriculture, Forestry and Fisheries website).

#### 4.3 Tourism Promotion Measures by Minami Kiyosato Station

Minami Kiyosato station is located in the former Takane Town, the easternmost of the areas at the foot of Mt. Yatsugatake. It is strongly influenced by the eastern areas of the foot of Mt. Chigatake and the Shiokawa basin. The Hokuto City DMO includes both Yatsugatake Minamifumoto Kogen Area and Sun and Chigatake/Mizuno Area characteristics. Like Karuizawa, Kiyosato Highland is one of the most famous tourist spots in Japan, but the Minami Kiyosato station is located far from this tourist spot in a rural area surrounded by rice terraces. The Roadside Station was established by the former Takane Town, and its management and operation fall under the Alps Co., Ltd.<sup>15</sup>.

According to an interview with the stationmaster, the Roadside Station has a unique management because of the wonderful scenery and culture in the Takane area. At the farmer's market in the station, fresh agricultural products such as tomatoes and corn in summer and apples and Chinese cabbage in winter are sold. The shippers are mainly local farmhouses, and members of shippers' associations, which include 130 households (2018). The original dessert Shingen Soft has become popular on social networking sites as well, and is even visited by tourists from China. In addition to the restaurant, this station includes facilities for BBQ, dog runs, and a cable car that goes up to the adjacent Hana-no-Mori Park. It has a wide parking area that can accommodate 312 ordinary cars, 6 large cars, and 2 handicapped cars, and is characterized by its large facility area and spacious feel. Many events are held at the station. Among the more than 10 events held annually, Carp Streamer Festival is held on May 5 every year. Hundreds of Koi-Nobori swim in these parks, attracting tourists.

Many tourists from the Kanto area visit such events, accounting for about half of all the participants. Since its introduction, it has also attracted many tourists from East Asia, including China, Taiwan, and South Korea. Before Minami Kiyosato station was established, only skiers from the Tokyo area drove past this area in winter. The number of tourists was low. However, this region has seen an uptick in visitors. Furthermore, the Yatsugatake mountain area, where Kiyosato

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<sup>15</sup> In addition to Minami Kiyosato station, the company is entrusted with the management and operation of sightseeing spots in Hokuto City, such as Sanbui-Chusui-Kan, Hakushu Ojira-no-Mori Meisui Park Verga, Oishii Market, Mahorano-yu, Marugoto Yamanashi-kan (Yamanashi Plaza on the 1st floor of Disaster Prevention Annex, Yamanashi Prefecture), and Yamanami no Yu. It operates them in close collaboration with the local community.

Minami is located, is now ranked first as a settlement town because it is a safe and comfortable place to reside, similar to the nearby Kiyosato Highland. The local authorities have made steady progress to promote settlement in the region. The same company is also entrusted with the management and operation of sightseeing spots in Hokuto City, such as Sanbui-Chusui-Kan, Hakushu Ojira-no-Mori Meisui Park Verga, Oishii Market, Mahorano-yu, Marugoto Yamanashi-kan (Yamanashi Plaza on the 1st floor of Disaster Prevention Annex, Yamanashi Prefecture), and Yamanami no Yu. It operates them in close collaboration with the locals.

## 5. Measurement Results and Policy Analysis

Table 1 shows the results of interviews with the Kobuchizawa, Hakushu, and Minami Kiyosato Roadside Stations in Hokuto City (We obtained sales data as well, but do not disclose them). Table 2 shows the ranking of each index for each station with the highest sales based on the results of the questionnaire. The data used in this study were derived from two questionnaires. The first set of results is from the “Questionnaire Survey on “Roadside Station” Disaster Prevention.” It was conducted by the authors of the study in August 2012. The response rate was 73.7% based on 727 responses. The second set of results is from the “Questionnaire Survey of Station Managers Concerning the Establishment and Management of Roadside Stations.” In this survey, 94 stations responded, which reduced to 80 stations with effective responses. It was conducted in September 2013.

Table 2 shows that, among the Roadside Stations with a sales ranking of 15, the sales ranking exceeds the number of visitors ranking. That is, these Roadside Stations have higher expenditure per visitor than other Roadside Stations. This is because of (a) the high number of products on sale, good quality of products, and good store service; and (b) the higher per capita expenditure from the establishment of hot springs, accommodations, and experience facilities. The ranking of sales greatly exceeds the ranking of the number of visitors, which is a remarkable result. Specifically, Kobuchizawa station ranked 17th in the number of visitors, but second in sales; Hakushu station ranked 11th against 35th, and Minami Kiyosato station ranked 39th against 52nd. Thus, these Roadside Stations show excellent management, justifying the need to study them. Kobuchizawa station stands out because it ranks very high in two categories: number of events (1st) and management expense (3rd).

This is similar to “Roadside Stations,” in Table 2, which

ranked 1st in sales, 2nd in the number of events, and 2nd in management expense. As for Hakushu station, the gross business expense ranked 21st, the highest of the three stations, while other items ranked low—from 21th to 66th. Nevertheless, it is remarkable that the station ranks high in sales (11th). Parking space in Minami Kiyosato ranked 3rd; the number of events ranked 16th, indicating a modest number of events. As a result, the sales of this station ranked 39th, although other items in this station rank low—from the 49th to 66th. Thus, the three Roadside Stations in this study as well as the highest-ranked Roadside Stations have high per capita sales and are in good financial condition. This result can be understood from the estimation results.

Table 3 shows the estimation results using the simultaneous equations of the Private Finance Initiative (PFI). We obtained the following equation from Table 3 from the estimation result of the sales using the simultaneous equation:

$$\text{Sales} = 227.6816 (\text{Number of Visitors}) + 54989.81 \quad (1)$$

When the number of visitors to Kobuchizawa Station in 2017 was substituted into Eq. (1), the estimated value of the sales becomes ¥134.65 million, but the actual sales of the station is much larger than this estimated value. The estimated value of Hakushu station is ¥66.93 million, and the estimated value of Minami Kiyosato is ¥35.39 million. In both cases, the actual sales is far higher than the estimated value. Because the estimation formula is a result obtained from the data of the values of 80 Roadside Stations, the estimation value represents the average value of 80 stations. That the actual sales of these three stations is far larger than the estimated value shows that the performance of the three Roadside Stations is higher than the average value. Subsequently, the same results were obtained for the number of visitors. Here, the estimation equation obtained from the simultaneous equation model is as follows:

$$\begin{aligned} \text{Number of Visitors} &= 0.0006239 \times (\text{Gross Business Expense}) \\ &+ 5.530615 \end{aligned} \quad (2)$$

Substituting the gross business expense of the three stations into Eq. (2), the number of visitors to Kobuchizawa station was approximately 106,263, to Hakushu station was approximately 400,000, and to Minami Kiyosato station was approximately 105,000. In each case, the actual number of visitors far exceeded the above estimates. Here, the estimation equation for the number of events obtained from the simultaneous equation

Table 1. Number of Visitors, Parking Spaces, Number of Events, and Gross Business Expense of Roadside Stations in Hokuto City.

No.	Roadside Station	Number of Visitors per Year	Parking Spaces	Number of Events per Year
1	Kobuchizawa	591,903	178	44
2	Hakushu	294,004	83	0
3	Minami Kiyosato	155,457	330	10

Source: Compiled from interviews conducted by the authors.

Table 2. Rankings of Kobuchizawa, Hakushu, and Minami. Kiyosato Roadside Stations in Hokuto City vs. Over 80 other Roadside Stations.

Sales Amount	Roadside Station	*	Parking Spaces	Number of Visitors	Number of Events	Gross Business Expense	Management Expense
1	A	1	7	20	2	8	2
2	B		6	31	12	81	60
3	C		5	13	70	33	46
4	D	1	38	16	3	45	44
5	E	1	59	10	10	46	83
6	F		12	22	33	7	34
7	G	1	19	25	35	13	61
8	H		31	14	8	15	11
9	I		27	7	51	23	30
10	J		65	32	17	27	10
11	K		4	12	6	1	33
12	L		30	11	18	9	42
13	M		55	40	5	18	63
14	N	1	11	5	35	10	6
15	O		15	38	41	35	14
2	Kobuchizawa		53	17	1	75	3
11	Hakushu		45	35	66	21	41
39	Minami Kiyosato		3	52	16	66	49

Source: The rankings were recalculated by adding the three. Roadside Stations in Hokuto City in this study to Table 1 in Matsuo and Yamaguchi (2016).

\*A "1" to the right of the "Roadside Stations" indicates that these Roadside Stations received new type grants.

model is as follows:

$$\text{Number of Events} = 0.0000399 \times (\text{Sales}) - 1.284553 \quad (3)$$

Substituting into Eq. (3) gives an estimate of the number of events, although the actual number of events was found to be far larger than the estimate, except for Hakushu station, where the number of events was zero. (Although the number of events is calculated from this estimation formula, the number of events is not disclosed, because it is possible to estimate undisclosed sales by inverse calculation).

As shown above, the three Roadside Stations perform very well compared with the national average, even from the estimation results. Next, we consider policies to further improve the performance of these Roadside Stations. The important simultaneous equation results and elasticity values estimated by Matsuo and Yamaguchi (2015) are shown in Table 3 and Figure 2 below. Here, the PFI is a project wherein the private sector takes the initiative to provide public services, using private sector funds and expertise in the design, construction, maintenance, and operation of public facilities. It was first used by Roadside Stations in April 2000. On the other hand, new type

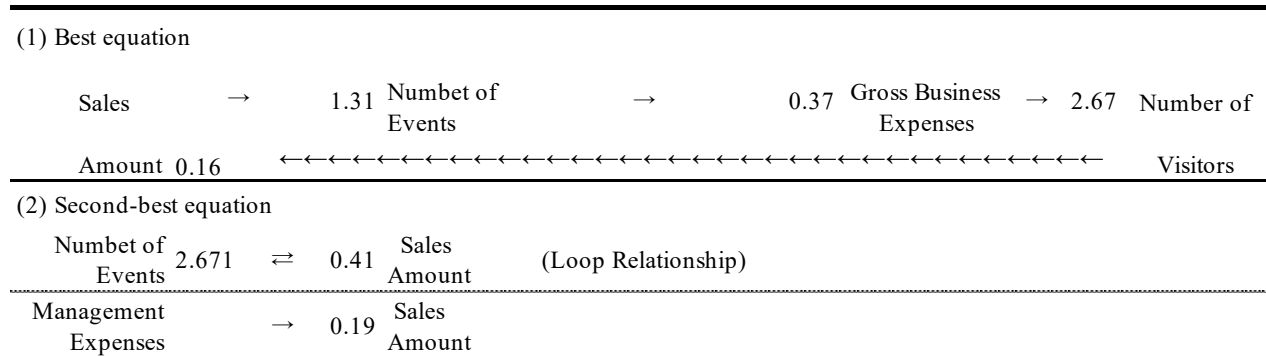


Table 3. Simultaneous Equation Results.

No.	Dependent variable	Independent variable	Coefficient estimate	z value	p-value	elasticity value
(1)	Sales Amount	Number of Visitors	227.6816	3.04	0	0.16
		Kinki dummy variable	60986.37	1.86	0.06	
		Constant term	54989.81	1.42	0.16	
(2)	Number of Visitors	Gross Business Expense	0.0006239	3.14	0	2.67
		PFI dummy variable	393.7743	1.77	0.08	
		Constant term	5.530615	0.05	0.96	

Source: Table 4 from Matsuo and Yamaguchi (2015).

Figure 2. Elasticity by Simultaneous Equation of Private. Finance Initiative Roadside Stations



Source: Compiled by the authors based on Matsuo and Yamaguchi (2015).

grants refer to two types of grants: the 2007 Grant for Supporting Rural Development Projects and the 2010

Comprehensive Grant for Infrastructure Development. First, Figure 2 shows the elasticity values obtained from the simultaneous equation of PFI “Roadside Stations.” As indicated by the arrows, when the sales is large, the number of events increases; at stations with a large number of events, the gross business expenditure is large. In addition, the larger the gross business expenditure, the larger the number of visitors to “Roadside Stations” and the higher the sales.

The numerical values in the figure represent the elastic values. For example, a value of 1.31 between sales and the number of events indicates that a 1% increase in sales results in a 1.31% increase in the number of events. Similarly, a value of 0.37 between the number of events and the gross business expenditure indicates that a 1% increase in the number of events equals a 0.37% increase in the gross business expense. These elasticity values are extremely important findings from a policy point-of-view because they indicate the percentage increase, or

decrease, in policy objectives when policy measures increase by 1%.

Subsequently, in the second-best simultaneous equation for PFI, a loop relationship was found wherein more events led to an increase in sales (because of an increase in the number of visitors), which, in turn, led to more events (calculating the cost of events) (lower part of Figure 2). The elasticity also shows that increasing the management expenses increased the sales amount (owing to cleaner infrastructure and better service).

In addition, two loop relationships and elasticity values were also found in the estimation results, including Roadside Stations that received new type grants (Figure 3). The first loop relationship is the relationship between parking spaces and sales. That is, a Roadside Station with a wide parking space has large sales, since it can accommodate a greater number of visitors. Conversely, a Roadside Station with a large amount of sales has a large parking space (a small space can be expanded by other measures such as a second parking space). The second loop relationship shows that stations with large management

Figure 3. Elasticity by Simultaneous Equation of New Type Grants Roadside Stations

(1) Parking Spaces	0.34	⇔	1.06	Sales Amount	(Loop Relationship)
(2) Management Expenses	3.60	⇔	0.25	Number of Visitors	(Loop Relationship)
(3) Sales Amount		→	2.23	Number of Events	

Source: Table 2 from Matsuo and Yamaguchi (2016).

expenses increased the number of visitors, while stations with many visitors increased the sales and management expenses. Further, as the sales increased, the number of events increased, and the number of visitors increased. This point is similar to the analysis result of the PFI “Roadside Station” described above.

In summary, these estimates have the following policy implications, given that elasticity is an extremely important policy measure. First, to increase the sales, it is necessary to increase the number of visitors (elasticity 0.16 in Table 3). To do so, it is important to, for example, develop clean and hygienic infrastructure and friendly services. Second, increasing gross business expenses (elasticity: 2.67) can attract visitors because of the resulting improved facilities, such as the farmer’s market and restaurants. Third, to increase the number of visitors, it is important to have enough parking spaces to accommodate visitors. Estimates also show that increasing sales will allow for more parking spaces (elasticity 0.36). Fourth, increasing the number of events leads to an increase in gross business expenses (elasticity 0.37), and increasing gross business expenses leads to an increase in the number of visitors, which is an important relationship (elasticity 2.67). As mentioned above, it is important to improve services by ensuring thorough management, clean infrastructure, and friendly services.

Here, we consider the estimation result in the case of Kobuchizawa station. According to the simulation results, if the number of events is increased by 10%, the number of visitors will increase by 22,492, and the sales will increase by ¥24.84 million (Here, we use 10% because 1% is too small; that is, 1% of 44 would only amount to 0.44, which is not a realistic value for analysis). Therefore, if the number of events is increased once a year, the annual number of visitors will increase by 5,112 and the sales will increase by ¥5,645,000. Further, increasing gross business expense by 10% would increase the number of visitors by 158,038 and the sales by ¥25.63 million. In other words, it is significant that the degree of increase in the size of each policy target was indicated by the actual value of elasticity. By making effective use of these estimation results, the sales of Roadside Stations can be improved further. This way, these

Roadside Stations can become a driving force for regional revitalization through tourism promotion.

## 6. Summary and Conclusion

We conducted a qualitative and quantitative analysis of three Roadside Stations in Hokuto City, Yamanashi Prefecture. We summarize the policy implications of qualitative analysis below. First, Hokuto City has been developing regional revitalization measures based on multilayered tourism promotion policies by local governments, public organizations, and other tourism facilities, all centered on the Roadside Station concept. Second, the Hokuto City Tourist Association provides information and tourism services. Third, the Food Valley Council has established a unified “Hokuto Brand” for promoting exchanges between urban and rural areas through agricultural experiences and contests. Fourth, there exists a policy to attract tourists through the Hana Bus tours, which connects the Roadside Stations. Fifth, inbound tourism is promoted by city travel plans that include well-known facilities for foreigners (e.g., Suntory Hakushu Distillery, Ehon Mura, etc.). Sixth, efforts are being made to expand the number of tourists and consumers from the Kanto region through the Hachi-Hachi Project and to revitalize the region as a whole through mutual cooperation between the three tourist areas of Hokuto City and the eight former towns.

The implications of the quantitative and policy analyses are summarized in the following four points. First, to increase sales, it is necessary to increase the number of visitors. To increase the number of visitors, better management, clean infrastructure, and friendly services are required. Second, it is important to increase gross business expenses to enhance facilities and infrastructure such as sales outlets and restaurants, thereby attracting visitors. Third, it is important to have sufficient parking spaces. Fourth, it is important to plan a number of events, increase gross business expenses, and, thus, increase the number of visitors. In the case of Kobuchizawa station, the number of visitors will increase by 5,112 a year and annual sales will increase by ¥5,645,000 if one event is added. A 10% increase in gross business expenses

results in an increase of ¥25.63 million in sales. It is a very significant finding that the numerical value of elasticity indicates the percentage increase of each policy target by each policy

measure. By using this elasticity value, the strategies to improve sales become clearer.

Appendix Table 1 Ranking of 8 business contents of the top and bottom 20 stations

(1) The top 20 stations

High Ranking	Sales amount	Number of visitors	Number of events	Parking spaces	Gross business expense	Management expense	New Type Grant	PFI
□ 1	688243	19	1	6	8	2	1	0
□ 2	640000	30	11	5	76	56	0	0
□ 3	442751	12	66	4	32	44	0	0
□ 4	422731	15	2	34	44	43	1	0
□ 5	407000	9	9	57	45	80	1	1
□ 6	405429	21	30	11	7	33	0	0
□ 7	390000	24	30	18	13	59	1	0
□ 8	384300	12	7	30	15	11	0	0
□ 9	383782	6	45	26	22	29	0	0
□ 10	345000	31	16	62	26	10	0	0
□ 11	340000	40	45	21	54	40	0	0
□ 12	326000	11	5	3	1	31	0	0
□ 13	323000	10	16	29	9	41	0	0
□ 14	320000	42	45	67	46	42	1	0
□ 15	300000	39	4	53	18	60	0	0
□ 16	300000	4	30	10	10	5	1	0
□ 17	280000	37	35	13	34	13	0	0
□ 18	270000	28	35	32	31	24	0	0
□ 19	270000	18	30	9	14	4	0	0
□ 20	269360	47	14	61	46	8	1	0

(2) The bottom 20 stations

Lower Ranking	Sales amount	Number of visitors	Number of events	Parking spaces	Gross business expense	Management expense	New Type Grant	PFI
△ 20	44200	67	56	80	57	55	0	0
△ 19	43000	63	15	77	33	47	1	0
△ 18	40000	71	56	67	51	27	0	0
△ 17	33000	36	56	12	19	17	0	0
△ 16	32680	33	21	51	50	28	0	0
△ 15	30000	15	66	2	6	9	0	0
△ 14	30000	75	55	19	74	54	0	0
△ 13	27500	77	23	64	36	75	0	0
△ 12	26900	79	23	78	75	64	1	0
△ 11	24000	21	35	53	58	50	1	0
△ 10	23000	66	66	63	67	70	0	0
△ 9	23000	62	13	34	28	35	1	0
△ 8	20000	77	55	76	76	51	0	0
△ 7	19000	71	23	42	46	73	0	0
△ 6	18639	70	66	52	37	78	0	0
△ 5	17305	80	66	45	72	72	0	0
△ 4	16669	67	66	70	71	46	0	0
△ 3	16000	60	55	59	62	56	0	0
△ 2	11680	57	35	53	76	35	0	0
△ 1	340	74	66	79	76	24	0	0

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