

# Food deserts, health, and municipal measures

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## 1. Introduction

Increasing attention is being paid to problems faced by persons with limited shopping options, such as those who live in food deserts and who must travel long distances to reach food retailers. Shopping for groceries serves various functions, other than just obtaining food. Shopping often serves to get older adults out of the house and give them a sense of purpose. It also attributes to community building and enables monitoring of older adults. Measures to assist persons with limited shopping options are the responsibility of various administrative departments, including those for commerce, welfare, and transportation. Furthermore, private business, non-profit organizations (NPOs), and local residents. Seen from this perspective, the problem of persons with limited shopping options is a community development issue. The Policy Research Institute of the Ministry of Agriculture, Forest, and Fisheries have conducted diverse surveys of food deserts. In the first half of this paper, we introduce the results of a survey on shopping and health of residents in a regional city, while in the second half, we present the results of a survey on municipal measures for people with limited shopping options.

## 2. Shopping habits and health

The Policy Research Institute of the Ministry of Agriculture, Forestry, and Fisheries conducted municipal surveys—one in 2010 and one in 2015—of Shirakawa City, Fukushima Prefecture. In Shirakawa City, the emptying of the city center became an issue in 2010, with many residents finding it difficult to shop for groceries. In 2011, however, a new supermarket was opened in the east of the city. Dividing the city into three regions (west, east, and south), and observing changes in the shopping habits of older women (65 years or older), we find major differences in shopping habits between 2010 and 2015 in the eastern region, where the supermarket opened around 2011. First, 78.6% of older women in the east of the city found shopping difficult in 2010; this number decreased to 16.9% in 2015. Shopping frequency also increased from 2.6 times/week to 3.1 times/week. Furthermore, walking to the store as a means of transportation increased from 14.7% to 47.9%, and the percentage of “Other” transportation means with the greatest limitations (cars driven by non-family, buses, taxis and other, etc.) decreased from 13.7% to 1.4%. These survey results suggest that, even in regional cities where shopping by car is said to be common, there is possibly some residents who potentially need to go shopping on their own, diligently walk when possible.

Next, based on 2015 survey results, we analyzed the impact of distance from home to retail stores on individuals’ dietary patterns and health (Fig. 1). According to the results, the shorter the distance to the supermarket, the greater the tendency to go shopping by walking; moreover, the higher the percentage of individuals shopping by walking, the higher the shopping frequency. In addition, a higher shopping frequency meant a greater food intake diversity score, and the higher the diversity score dietary pattern, the higher the Index of Competence. Furthermore, there was a tendency of a smaller waist-to-height ratio (waist/height) the higher the shopping frequency. The results therefore indicate that a short distance to a retail store means possible long-term

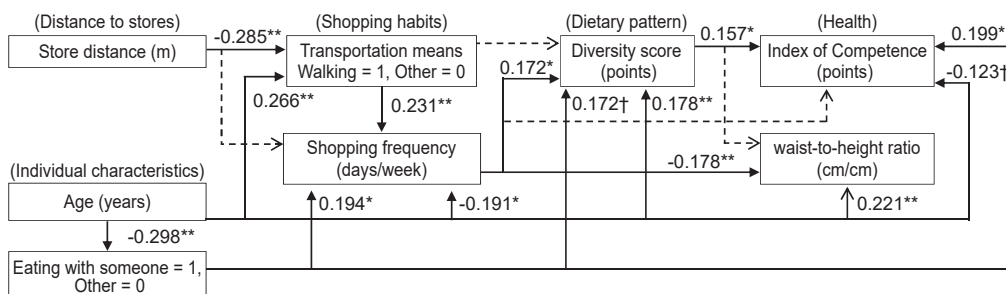


Figure 1. Covariance structure analysis estimation results

- Note: 1) We included older women ( $N = 215$ ) in the 2015 survey.  
 2) We used statistical analysis software *R* (lavaan) and diagonally weighted least squares method for estimation. Goodness of fit is CFI = 1.00, RMSEA = 0.00, GFI = 0.981, AGFI = 0.902.  
 3) The solid line indicates a significant path at the 10% level, the dash line indicates an insignificant path at the 10% level, and the error variable is omitted. The numbers indicate the standardization factor. \*\* 1% significant, \* 5% significant, † 10% significant.  
 4) Diversity score is an index that indicates the degree of diversity in a dietary pattern, and the Index of Competence is an index that evaluates life functions. The higher the index, the better the individual's health.

improvement in the dietary patterns and health of local residents. In the city center of Shirakawa City, the opening of a new store has led older women to go shopping more frequently by walking, which may have a positive effect on their dietary patterns and overall health.

In recent years, studies have aimed to investigate the impact of shopping environments on fresh food intake and food intake diversity. In addition, municipal leaders undertaking measures for persons having difficulty shopping have stated the importance of promoting going-out activity. Grocery shopping seems closely related to the dietary patterns and health of local residents, in addition to their actual food supply. Of course, in rural villages in mountainous areas where it is difficult to maintain retail stores, switching to home delivery services is often effective. However, in the city centers of regional cities, steps toward urban development enabling shopping by walking may be an important direction to take, in light of residents' welfare and health.

### 3. Municipal measures for persons experiencing difficulty shopping

Next, we consider the results of a survey on municipal measures for persons who experience difficulty shopping. Fig. 2 shows the number of municipalities implementing measures for persons who have difficulty shopping, based on the results of the "National Municipal Survey of Food Deserts" by the Ministry of Agriculture, Forestry, and Fisheries (hereinafter, "National Municipal Survey"). Most often, municipalities are the implementing entity for measures such as opening and operating permanent stores that were formerly vacant (indicated as permanent stores in Fig. 2), and services such as community buses and shared taxis. However, many relatively new measures—such as introducing and operating moving stalls, home delivery, door-to-door sales, and shopping agencies—are operated by private businesses, and an especially high percentage of cooperative organizations. Furthermore, NPOs, such as business and industry associations and social welfare corporations, are increasingly opening and operating temporary stores, such as morning fairs and open-air markets, and providing joint dining services such as social dining, and dinner engagements. Until recently, food supply has mainly been the responsibility of private businesses; however, when the problem of individuals having shopping difficulties become more serious, various entities must play a leading role.

Furthermore, even if areas that can be serviced solely by private business or government are limited, areas where businesses can be maintained are expanding through the cooperation of private businesses, local residents, and government. For example, in the moving stall business, companies and cooperative organizations promote the development and support the introduction of efficient management methods, such as one-person systems with light vehicles. Furthermore, the areas where moving stalls are implemented have expanded significantly in recent years. In many cases, these businesses have a deficit or a marginal surplus, but profits have improved in cases where residents support purchasing and neighborhood community associations are actively drawing customers to the shopping areas. In addition, subsidies for vehicle purchases by national and local governments have been arranged, and municipalities that subsidize operating expenses for monitoring functions for older adults in the moving stall business are emerging.

There are, however, also matters that are dependent upon the cooperation of various actors. There is the difficulty in achieving both efficiency in private businesses (which increase or decrease market areas, or are limited to customers who purchase for more than a certain amount) and fairness in administration (equal service to all residents, and long-term sustainability), as well as the issue of government support resulting in a decreased sense of urgency and ownership among local

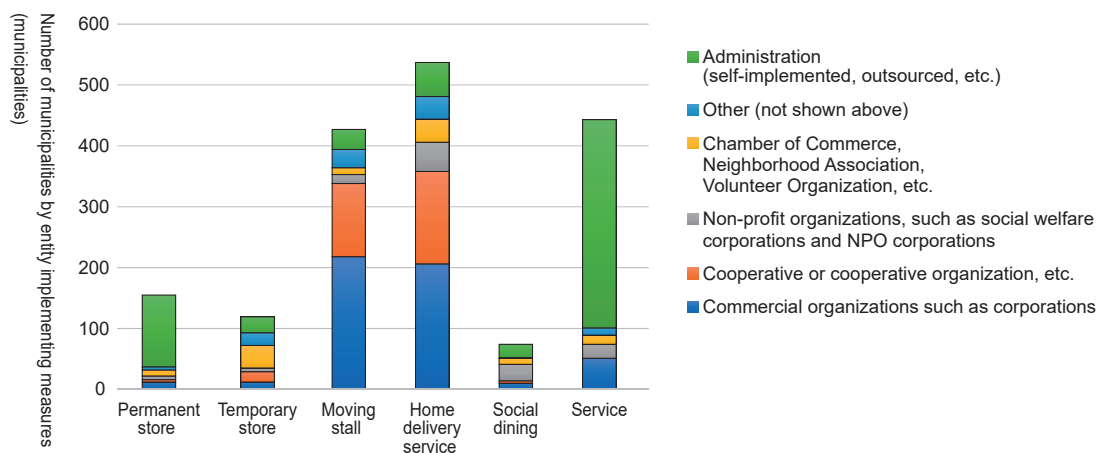


Figure 2. Number of municipalities implementing each measure and its implementing entity

Source: Created from the "Food Desert" National Municipal Survey (2017) by the Ministry of Agriculture, Forestry, and Fisheries

Note: 1) Number of responding municipalities: 1,172.

2) Regarding "administration (self-implemented, outsourced, etc.)," we counted municipalities where business did not implement measures in which the government "self-implemented projects," "outsourced management," or "jointly invested." We did not count municipalities in which the government only provided support such as "subsidies for expenses."

residents, a decreasing number of customers, and a low sense of purchasing support. With regard to these concerns, the drivers and businesses responsible for moving stalls are conducting business, while considering the balance between efficiency and public interest. For example, they are making an effort to reach distant areas with poor delivery efficiency as often as possible, and procure from local shopping districts. Furthermore, there have been cases in which municipal staff and NPO corporations such business and industry associations coordinated various entities.

Balance between efficiency and public interest is important for people having difficulty shopping, and it is critical for local residents, including residents with private cars, to utilize their own abilities to solve problems, such as providing purchasing support. In addition, it is important to create a framework that can utilize the ingenuity and consideration of public interest for efficiency among businesses and municipal leaders responsible for the measures implemented.

#### 4. Conclusion

In this paper, we introduced the results of a survey on the shopping habits and health of urban residents, and the results of a survey on implemented municipal measures for persons having difficulty shopping. For more information on survey results, see the bibliography below.

#### [References]

- Ohashi, M., Takahashi, K., Kikushima, R., Yamaguchi, M., Yakushiji T. (2017) The Effect of Food Access on Elderly Women's Food Consumption and Health: Results of Mail Surveys from the City Center of Shirakawa, Fukushima, Japan. *Journal of Food System Research* 24 (2): 61–71. [https://doi.org/10.5874/jfsr.24.2\\_61](https://doi.org/10.5874/jfsr.24.2_61)
- Ohashi, M. (2017) Trends in municipal food dessert measures - From the “National Municipal Questionnaire Survey of Food Deserts” – *Current status and issues of food desserts – A multifaceted study in terms of the elderly, health, nutrition, and other viewpoints (Research data on the “Food Desert” food supply project)*, No. 3: 31–44.