

# **CONSIDERATION ON THE SUPPLY CHAIN APPROACH FOR RESTRICTED SHOPPERS IN A HYPER-AGED SOCIETY -A CASE OF ONLINE WHOLESALING SYSTEM-**

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## **Introduction**

Since world population has been ageing, some issues including health, wealth and mobility of the elderly have been under the spotlight. In addition to those general issues, the current situation with restricted shoppers would be a sensational issue in Japan, a hyper-aged society. The restricted shoppers refer to those who have difficulties in daily shopping and they are called even more sensationally as “shopping refugees” in Japan.

Unlike “food deserts” issues in Europe and U.S., the restricted shoppers’ problems in Japan derived from the increasing withdrawal of retail stores and shrinking public transport in especially depopulated sparse rural areas. The elderly cannot easily access to the stores nor handle the goods because of their physical features.

Recent studies have showed some measures for the restricted shoppers, such as rolling stores and delivery service (Sugita, 2008; Takahashi, 2012; Lee, 2013 a). Lee (2014) also suggests that government and volunteers as well as companies should be involved to help the restricted shoppers from the perspective of humanitarian logistics.

Above measures can improve the situation because they can give the elderly an access to retail outlet right in front of their doors and/or delivery service. That would be considered as one of the logistics missions in an ageing society. Supplying goods is a basic mission of logistics and this would be quite important in the last-mile, especially in an ageing society.

Although the last-mile logistics is essential to help the restricted shopper, this paper focuses on the measures for helping retailers. That is because some retailers are also underserved by wholesalers or manufacturers. The retailers, often in sparse rural areas, have been “restricted retailers” or “stocking refugees”. They cannot help but order a small amount since the demand in sparse rural areas in an ageing society has been decreasing. That makes the retailers find themselves as restricted retailers, who have difficulties in stocking or purchasing goods from wholesalers or manufacturers. The restricted retailers are forced to end up withdrawing their business, which makes consumers the restricted shoppers. In order to help the restricted shoppers in an ageing society, measures for the restricted retailers should be discussed from the perspective of supply chain.

This paper, therefore, aims to examine the measures for the restricted retailers. With this purpose, a cooperative solution in supply chain is introduced.

## **Review on the measures for restricted shoppers and Supply Chain Approach**

### *Issues on restricted shoppers in an ageing society*

World population has been ageing. Although longevity is a reason for celebration, an ageing society has some challenges. Japan, as a hyper-aged society, has also some issues that there are so many people who have troubles in daily shopping. They are called in Japan as restricted shoppers. According to METI (Ministry of Economy, Trade and Industry, 2011) and Food Access Research Team of MAFF (Ministry of Agriculture, Forestry and Fisheries, 2011), the ratio of restricted shoppers would be 5% to 35% of Japanese population.

There are several reasons for being a restricted shopper in sparse rural areas. First of all, the shrinking retailers gave the poor accessibility to the elderly. Another reason is that a public transportation network has dwindled. Dysfunctional community and single elderly people are also major causes. The elderly, in general, could neither drive by themselves nor walk a long way. Furthermore, they have no one to help them (Lee, 2013 b).

These reasons raised the issues on the restricted shoppers in Japan. Many elderly people in a hyper-aged society appear to be in distress. They face two difficulties in daily shopping; difficulty of gaining access to a store and carrying goods to their house (Fig.1).

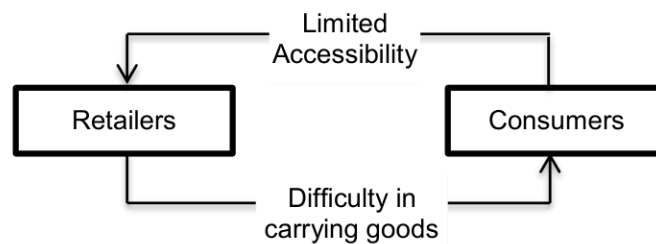


Figure 1: Restricted shoppers' problems

### Review on the Measures for Restricted Shoppers

Rolling stores or mobile shops have significant roles to alleviate the burden of restricted shoppers. Rolling stores refer to movable outlets literally. They use a truck for selling grocery, daily necessities, and miscellaneous goods, so that they can go close to the elderly's door. A rolling store gives restricted shoppers a physically direct access to outlets and laboriously significant alleviation of carrying goods. In Japan, many experiences of rolling stores -as one of measures for restricted shoppers- have been observed especially in rural areas.

Another one is home-delivery service. Home-delivery service has been common in Japan with an expansion of e-commerce. The elderly, however, is not quite familiar with e-commerce, so that some retailers provide an acceptance of telephone ordering system. This type of home-delivery service is often observed in rural areas by small and middle sized retailers. On the other hand, several large-sized retailers have started home-delivery service -as one of customer service- in urban areas. They give a delivery service in two ways. Consumers can request the service at a store. Customers can also order on a net-store if the retailer is a bricks-and-clicks company.

As described above, rolling stores and home-delivery service are obviously reliable measures for restricted shoppers. And these measures could also be a new business chance in a hyper-aged society, although they still have some challenges such as profitability.

### Another Issue on Restricted Retailers

The most primarily reasons for being restricted shoppers is the limited accessibility to retail outlets. In other words, they have no retail stores in their neighborhood. The number of retail stores in Japan hit the pick in early 1980s and has been decreasing steadily. This number decreased by 34% to about 1.1million in 2007 from the peak (about 1.7million in 1982). By the type of retailers, though, individual bodies declined by 56%, in contrast to the 30% increase of incorporated bodies. On the other hand, the spaces for sales have been increasing and the annual sales of retailers have risen up to about 50% (Fig.2). This implies that the issue of limited accessibility for restricted shoppers are related to the withdrawal of small-sized individual retailers.

According to an analysis on the changes of retailers between 1994 and 2007 by the number of staffs, there are 34% down of the number of stores with 1-2 staffs and 46% down of annual sales (Table 1). In spite of decreasing number, they have still 44% in ratio in Japan. As of 2007, Japanese retailers consist mostly of fewer than 4 staffs stores that would be individual bodies. Those small-sized individual retail stores are called "neighborhood stores" hereinafter.

Why have neighborhood stores in Japan been decreasing, then? Komoto (2009) considers the decrease in sales as one of primary factors. And he points the effect of increasing large-sized retailers. He also adds ageing entrepreneurs as well as the lack of innovations in neighborhood stores.

It is, however, should not be overlooked that neighborhood stores in spars rural areas have difficulties in restocking or purchasing goods to sell to customers. They tend to make a small-lot order because they do not have much demand of customers. They are forced to suffer from searching some wholesalers that respond to any order without compulsory minimum quantity or extra charge. In

addition to a difficulty in ordering small lots, they also face a low efficient delivery no matter who conducts it, which brings them a budget impasse (Fig. 3).

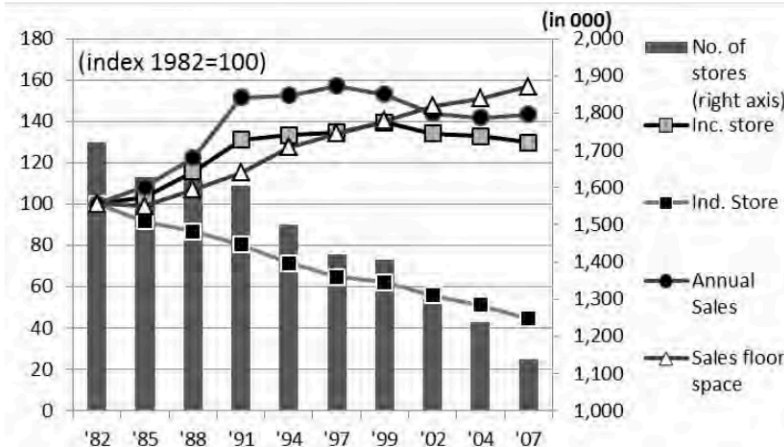


Figure 2: Trends in retailing in Japan  
Data: Commercial Statistics, Ministry of Economy, Trade and Industry, Each year

No. of staff	No. of stores	Annual sales
1~2	▲ 34.1	▲ 45.6
3~4	▲ 31.9	▲ 40.7
5~9	▲ 9.3	▲ 17.2
10~19	27.6	15.4
20~29	22.8	4.6
30~49	10.1	3.2
50~99	50.6	46.4
100~	64.5	5.9
Total	▲ 24.1	▲ 6.0

Table 1: Changes in the number and the annual sales of retail stores (2007/1994)

Data: Commercial Statistics, Ministry of Economy, Trade and Industry, Each year

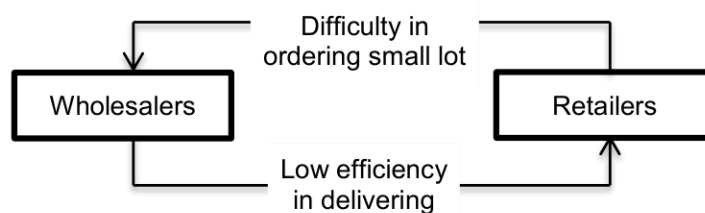


Figure 3: Restricted retailers' problems

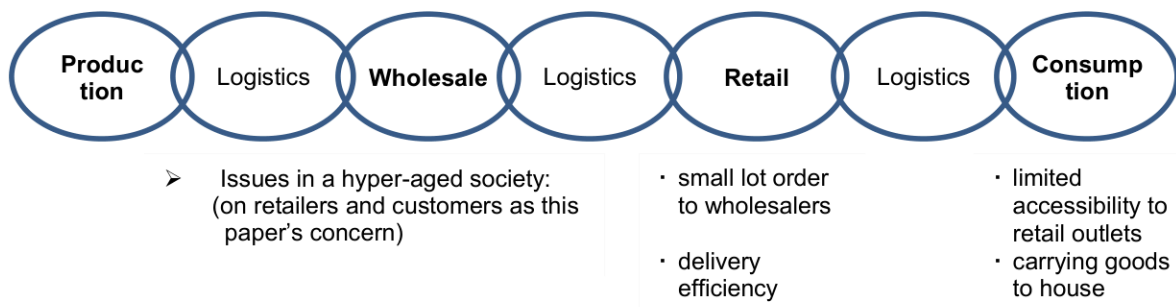


Figure 4: Functional supply chain and issues in a hyper-aged society

### **The necessity of supply chain approach**

All goods are flowing from producers to the final consumers. In terms of player, producers or manufacturers create goods and sell them to wholesalers and/or retailers. Wholesalers purchase goods from manufacturers and sell them to retailers. Later, retailers sell goods to the consumers. Logistics companies provide transportation, inventory management service, and etc. to other players. These connections are called a supply chain. A basic supply chain is shown in figure 4 in terms of functions. Although there is no commonly agreed definition of supply chain as Waters (2010) notes, it is near-universal recognition that relationships and cooperation between the players are essential in a supply chain. Supply chain approach, therefore, is defined as a cooperation initiative that is conducted by plural players on a supply chain. The players can expect a win-win business from supply chain approach.

If any function or player happens to fall into dysfunctional situation, the whole supply chain will be out of gear. That is because "a chain is no stronger than its weakest link". Japan as a hyper-aged society may be experiencing a dysfunctional supply chain due to the steadily decreasing small-sized retail stores. As described above, there are many restricted shoppers especially in depopulated areas where have few stores. It could be described in figure 4 that the retail chain and the logistics chain are the weakest links. This brings the measures such as rolling stores and delivery service.

Such efforts are expected to support the restricted shoppers. However, it is even more important that retailers can manage to play their own role in a supply chain and, as a result, consumers can easily access to the stores. A small-sized retailer, for instance 1-2 staffs store in rural area, is in general a private business, so that it has a limitation in managing business and gathering information. It needs to cooperate with other players, expecting a win-win business.

Retail industry in Japan has increased since 1980s in terms of annual sales, sales floor space and the number of large-sized stores. Several largest retailers including chain stores have tried to control their supply chain, so that they prefer direct deals with manufacturers. Urakami and Wu (2010) point out the trend toward bypassing wholesalers has accelerated rapidly in recent year. That resulted in struggles of wholesalers. For their competitive advantages, wholesalers have supported largest retailer with various assortment of merchandise, secure transportation, and physical activities in stores and etc.

These wholesalers' supports would be a trigger to contribute to survive from the competition, as Sugimoto and Nakanishi (2002) point out. Wholesalers should find themselves as partners with retailers in a supply chain. Especially in a hyper-aged society, small-sized retailers have a difficulty in ordering small lots to wholesalers as well as traditional disadvantages. Therefore, the partnership or cooperation between wholesalers and retailers is essentially needed. That is also the importance of supply chain approach: the players in a supply chain can expect a win-win business and the customers can easily access to a retail store.

### **A case of cooperation on an online wholesaling system**

#### *Two players of Kokubu and Yamato*

Here is a fascinating case of measure to help neighborhood stores in sparse areas restock in small amount. That is called "Kokubu net-wholesaler", which was established in 2010 by the cooperation between KOKUBU & CO., LTD (hereinafter called Kokubu) and YAMATO TRANSPORT CO., LTD (hereinafter called Yamato).

Kokubu is one of leading wholesalers in Japan. It has been engaged in food distribution for more than 300 years. In 2013, it made 1,567 billion yen in sales, representing a rise 4.3% year-on-year. Among its sales, food products account for 51%, alcoholic beverages 44% and others 5%. In more details, processed food products stand out 73% out of food sales and frozen/chilled products 11%. In alcoholic beverages, beer and beer-flavored alcoholic beverages are 56% and others 44%.

Considering its food distribution activities as a part of the basic infrastructure of a society, Kokubu has been trying to support retailers with advice on products, the allocation of shelf space, and other general things about store.

Yamato is also one of the biggest transport companies. It was established in 1919 as a local trucker. It is its home delivery service "TA-Q-BIN" that makes Yamato boost its value as well as revenue. TA-Q-BIN started in 20<sup>th</sup> January 1976 with 11 parcels and sequentially expanded to major cities across

Japan. Its transport network reached remote isolate islands of the *Izu* islands in 1996 and finally completed its national wide network to the Bonin Islands in 1997.

Yamato delivered about 1.7 billion parcels in FY 2013. A survey conducted by MILT (Ministry of Land, Infrastructure, Transport and Tour) shows that Yamato's record accounted for about 43% in total home delivery service in Japan in FY 2012. Operating revenue from delivery in FY 2012 was 1,028 billion yen, increasing by 1.3% year-on-year. Yamato provides home delivery service 365 days a year and basically makes the parcels to be delivered on following day to consignee's house.

Since Yamato has placed importance on corporate social responsibility (CSR), it has been trying to contribute to the issues in an ageing society. For instance, Yamato has been working with a local government and local stores to revitalize a so-called "marginal village", where a majority of the population is aged 65 or over, through delivering the ordered goods to the customers' home and doing watch-over services. This is nothing less than a measure for restricted shoppers.

#### **A build of "Kokubu net-wholesaler"**

Kokubu says in an interview by the author in May 2014 that it made a start on building "net-wholesaler" in 2009, assuming that internet would still have a high possibility of being more used. Since KGC (KOKUBU GROCERS CHAIN CO., LTD), one of Kokubu's subsidiary companies, has operated and supported voluntary convenience store chain named Community Store, Kokubu noticed the demand from small-sized retailers. Consequently, Kokubu planned an online business with an aim of initiating an ongoing relationship with small-sized retailers, which had been difficult to establish before, and turning out to support the restricted shoppers. Kokubu focused intensively on the demand from the following; neighborhood stores in an inconvenient location with no transportation, company store or concession stand, novelty goods seeker, and internet users for rare items.

While Kokubu has examined its plans, it has to manage logistics process and financial procedure. Generally speaking, wholesalers handle large-lot delivery to contracted retailers, so that wholesalers could avoid inefficiency of delivery and the risks of allowing credit. The net-wholesaler, however, would be accessed by unspecified users to order small lot. In the middle of 2010, when Kokubu discussed on logistics process with Yamato, two companies found that they had a common objective of supporting the restricted shoppers. Kokubu and Yamato, therefore, made a decision to establish an online wholesaling system in joint. Kokubu provides products and its company value as a leading food wholesaler, while Yamato engages in creation of the website, logistics process including sort and delivery, and payment system provided by Yamato group. Half a year later, Kokubu net-wholesaler is finally launched in the end of 2010. The net-wholesaler is an "e-procurement system" from the viewpoint of retailers.

Although Kokubu had alternatives of using the existing internet malls, it made a decision to target a niche market ordering small lots. It intended to play rolls as a wholesaler to support retailers, i.e., B to B. Kokubu declares that it has to manage to make a successful business with neighborhood stores. It says that the net-wholesaler goes with B to b, and b represents the small-sized retailers as its niche market. (Even though Kokubu targeted retailers, there is no limitation to access. An individual consumer can make an order from the net-wholesaler, which means B to C.)

#### **Features and process of "Kokubu net-wholesaler"**

The net-wholesaler has about 9,000 items on its website. Almost of the items are food products, alcoholic beverage and daily goods, which have been handled in Kokubu *Kantou* center located in *Ibaraki* prefecture. Others are perishable or special products such as fresh vegetables, fruits and local specialties. These items are shipped out from each distributor engaged with Kokubu.

Only subscribers are allowed to check the prices and order by the case. Subscribers do not have any cost or obligation. The number of subscribers has been rising to 20,000 for about three years. 80% of subscribers fall into business, primarily retail business such as grocery stores and restaurants, and 20% into institutions such as schools or community clubs.

Subscribers can make an order less than 50 items and 300,000 yen so as to be delivered at the given rates. The rates are settled even lesser than the minimum charge of standard TA-Q-BIN rates, which bestows a benefit upon subscribers. The ordered goods will be delivered after a couple of days.

The processes go basically as shown in figure 5; a subscriber orders from the net-wholesaler, net-wholesaler communicates ordering data to Kokubu *Kantou* center at 11 a.m. every day, the ordered goods are gathered by total-picking, Yamato takes the goods off the Kokubu center at 10 a.m. every day and carries them in *Ibaraki* Yamato center, Yamato engages in sorting, packaging and delivering, the ordered goods are delivered to the subscriber's house the following day in TA-Q-BIN service.

Regarding payment, consumers are offered alternatives by Yamato Financial Co., Ltd (YFC). Consumers may use a cash-on-delivery service and a credit card payment, which are now the general ways in TA-Q-BIN service. In addition to those general ways, sales-on-credit is guaranteed by YFC for the retailers after a credit check. It is sales-on-credit that wholesalers have offered but not for unspecified small-sized retailers. Kokubu can shift off the procedures and the risks of credit management. Meanwhile, the retailers can benefit from the cash flow.

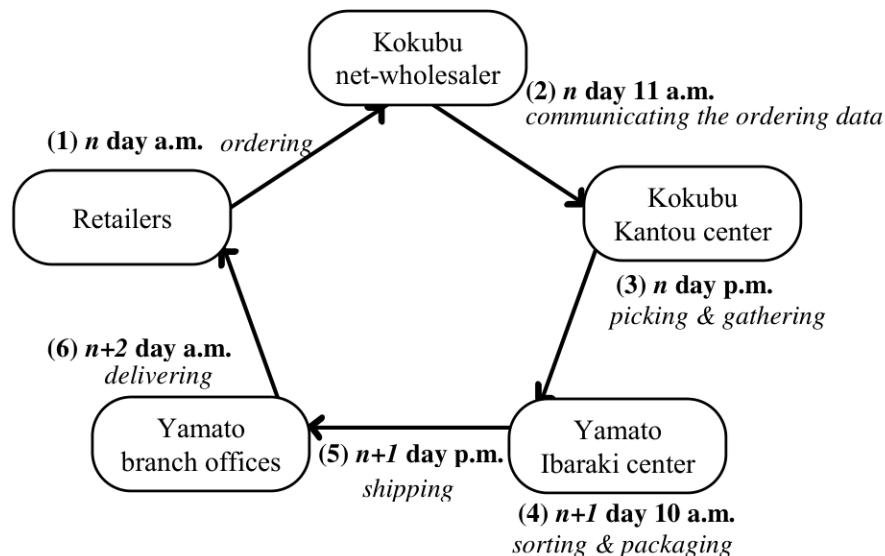


Figure 5: Processes of Kokubu online wholesaling system of net-wholesaler

### Effect of the net-wholesaler

Among 3,000 ordered subscribers in 2013, retailers are the majority accounting for 38%, followed by food service like restaurants and wholesalers with 26% and 18% respectively. It is notable that neighborhood stores in remote islands and isolated hamlets have enjoyed the net-wholesaler. They purchase overall food products from the net-wholesaler. That implies the net-wholesaler would help not only the restricted retailers to restock and survive, but also the restricted shoppers to have an access to a store in their neighborhood.

Yamato (2014), as a contact point with consumers, reports the feedback from the retailers who had been too small to do business with major wholesalers. The retailers said that they feel lucky to join the online wholesaling system. They also added that if the neighborhood stores could procure stocks smoothly, the restricted shoppers would be eliminated. That is a collaborative supply chain approach to alleviate problems of the underserved retailers and consumers as well.

As mentioned above, supply chain approach may be required a win-win business for the players. For Kokubu, it could establish its online wholesale system at a low cost by virtue of the cooperation with Yamato, and expand efficiently and effectively its business to small retailers who had difficulties in doing business with. Wholesalers used to consider retail supports as a mission of wholesaler and now wholesalers reckon retail supports as crucial to boost its business in an ageing society. Kokubu can also benefit from its online business system by applying to other companies.

Yamato also gain advantages from the net-wholesaler while it is involved the system. The net-wholesaler would be one of steady markets for TA-Q-BIN. Moreover, Yamato is able to inspire the neighborhood stores to be a TA-Q-BIN agency in depopulated areas, in where delivery business is still

underdeveloped. Yamato has many different convenience store chains such as Seven-Elven, Family Mart, Circle K-Sunkus offering TA-Q-BIN in many cities. Those stores gather and distribute the parcels instead of Yamato. In a particular area without convenience store chain, however, it costs a lot to gather and distribute the parcels. If a neighborhood store would be an agency, Yamato will have advantages.

As like the net-wholesaler, when the companies benefit by cooperation and when significant problems in a society would be alleviated by the cooperative business, we can identify their cooperation as a win-win solution.

### **Challenges of the net-wholesaler**

For further development of initiatives for the restricted retailers and the restricted shoppers as well, the net-wholesaler should be more discussed. For one, it may clear its double-handling; the orders are picked and gathered in Kokubu center, and are sent to Yamato to be sorted and shipped. In spite of knowing that double-handling may take more cost and time, Kokubu gave priority to large quantities business regarding the space and the labor in its center. Yamato has a sufficient space to sort the net-wholesaler's goods in its cross dock center. Nonetheless, it is necessary to improve the efficiency of the process. For another, the logistics network would be more discussed. It may take a long time and unnecessary travel to gather and deliver the ordered goods because the only one center handles the net-wholesaler. Preparing the increase of business, Kokubu and Yamato should go over their network.

Another challenge would be in its sales market. Kokubu should find its potential buyers in a hyper-aged society. Not only neighborhood stores but also facilities for the elderly like welfare institutions, for instance, will be users of the net-wholesalers. In addition, it is the rolling stores that will be important business partners to help the restricted shoppers. This is because a rolling store will be a common retailer in a hyper-aged society and it also has difficulties in assorting various items in small amount. In order to enhance its categories, Kokubu may establish a business partnership with other wholesalers and/or manufacturers such as medical supplies and daily sundries. This also would be another cooperative business in supply chain.

### **Conclusion**

This paper first reviewed the significant issues on the restricted shoppers in a hyper-aged society and addressed the necessity of supply chain approach, focusing on the decreasing neighborhood stores as a primary reason of the issues. A practical initiative to support the increasing restricted retailers was described in a case of the net-wholesaler.

To sum up, the net-wholesaler system was efficiently established through the cooperation of the two players and has contributed to alleviate the difficulties for the restricted retailers in restocking. Meanwhile, the two players benefit from the system. This is a win-win solution of supply chain approach.

Despite of some challenges, the online wholesaling system like the net-wholesaler would be an effective and efficient measure in a hyper-aged society. And the success could come from the cooperation of the players on supply chain.

For further research, more practices and the possible applications should be discussed. And the analyses on the channels or supply chain management should be conducted from various viewpoints such as freight movement, inventory, business and distribution, in order to find more effects and challenges.

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