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Keywords: global value chain, consumer-driven, multi-location, multi-plant operation, vertical integration, e-commerce, SME, apparel

JEL classification: L20, L67, M10

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From buyer-driven fragmented to consumer-driven vertically integrated value chains: A case study of Japanese apparel and accessory SMEs¹

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Abstract

This study provides foundations for the vertical integration strategy for global value chain (GVC) efficiencies, based on existing business internationalization theories in different academic disciplines and the evidence obtained from two Japanese small- and medium-sized enterprises (SMEs) in the apparel and accessory industry. Firms make strategic choices of production location, sourcing, functional placement, and value chain configuration according to market demands, affordable technologies, and other factor endowments. Moreover, their strategic choices are dependent on their own and partners' GVC governance powers and international political and economic environments. Although recent international economics emphasizes production unbundling, some big businesses dominating the current global apparel market substantially exert powers to integrate their GVCs vertically. The two Japanese SMEs under study have transformed their value chain structures toward international vertical integration to take advantage of in-house multi-location, multi-plant arrangements and market-side innovations, including sales channel diversification and e-commerce, given the domestic and international political and economic environments. Their strategic transformation is consumer-driven rather than corporate buyer-driven, but they take their unique supply-side advantage of production capacity in Japan. The in-depth case studies suggest the limitation of single literature of internationalization studies and the necessity of an interdisciplinary approach in illustrating international business realities and deriving practical managerial and policy implications.

Keywords: global value chain, consumer-driven, multi-location, multi-plant operation, vertical integration, e-commerce, SME, apparel

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1. Introduction

This study is initially motivated by a contradictory observation on location choice by Japanese firms in the apparel and accessory industry that the authors obtained from field research. On the one hand, Japanese firms in this sector have been relocating labor-intensive manufacturing activities to production sites where ample and cheap labor forces are available (Cohen et al., 2018), as suggested by industrial development in East Asia (e.g., Akamatsu, 1962; Kojima, 2000). On the other hand, Japan maintains non-negligible apparel and accessory production (Iwasaki & Ueki, 2018).

The other motivations of this study are the dominant position of large apparel and accessory retailers, such as Zara and Uniqlo, their apparel sewing activities in multiple sites, and the vertical integration (VI) structure of their global value chains (GVCs). However, Uniqlo does not own production capacity. Zara and Uniqlo's strong power over apparel GVCs is consistent with GVC studies focusing on leading roles of the large multi-national corporations (MNCs) in the governance of geographically dispersed cross-border fragmented value chains (Gereffi et al., 2005). However, the VI of their GVCs is different from international business and economic theories that emphasize vertical specialization and the structure of GVCs composed of specialized suppliers.

The associated issue is the potential of small- and medium-sized enterprises (SMEs) to be led by firms in GVCs. Most GVC analyses of manufacturing industries consider local and multi-national SMEs as suppliers for large MNCs, discussing the necessity of moving up toward more value-added activities due to business and policy challenges. However, to the best of the authors' knowledge, the GVC literature does not provide enough evidence of GVCs led by SMEs. However, some SMEs in the apparel and accessory industries have been developing their own brands and conducting direct sales to consumers using e-commerce.

This study aims to address the following questions: Why can Japan maintain domestic production while promoting overseas production (concurrent or plural sourcing)? What managerial arrangements are necessary for Japanese firms to benefit from domestic and overseas production? What are the advantages of VI strategy for apparel and accessory firms? Can SMEs be a lead firm of the international value chain? To answer these research questions and fill the gaps to help derive managerial and policy implications, the authors conducted a case study on two Japanese SMEs in the apparel and accessory industry.

This in-depth case study highlights their strategy for firm-level optimization of the entire value chain operation covering product planning, in-house and overseas production, logistics, and sales management. The results reveal the potential of these firms to retain the labor-intensive processes in Japan uneventfully. However, they utilize strategically multiple plants with different characteristics to respond to unpredictable behaviors of consumers who demand shorter lead time and on-time delivery of higher-quality, lower-priced products.

This paper consists of six sections. Following this introductory section, Section 2 briefly touches on this study's previous research and clarifies its limitations. Section 3 describes the method, including the criteria for selecting Japanese SMEs for the in-depth case study. Section 4 presents the findings from the case study of two Japanese apparel and accessory SMEs and compares the two SMEs. Section 5 discusses structural changes in the value chains and their driving forces for the SMEs under study. Finally, Section 6 summarizes the findings; contributions to the literature of the production network, value chains, and international management; and limitations of this study.

2. Theoretical and empirical backgrounds

2.1. Theories of business internationalization

The research questions of this study are entailed in the daily operation, growth, and downsizing process of a firm deciding to expand its original tasks and add new functions in its operation. These business issues involve the firm's location choices and investment decisions on whether to keep all activities in one place or expand its in-house operations domestically or internationally (i.e., location choice and internationalization).

David Ricardo's comparative advantage, the ownership, location, and internalization (OLI) framework (Dunning, 1980, 2000), and other theories of foreign direct investments (FDIs) in economics and international business studies present economic conditions, mostly given to a firm, for firms to choose trading and FDIs. From a firm-level standpoint, the two main factors affecting the location choice and decision on exporting or FDI are production costs and transportation costs (Brainard, 1993, 1997). Production costs can be decreased by taking advantage of concentration advantages when plant-fixed costs are high. New economic geography (Fujita & Krugman, 1995; Fujita et al., 1999) introduces these costs, benefits, and externalities that generate agglomeration and dispersion forces to elucidate the spatial placement and movement of economic activities in the core and periphery regions. The new economic geography is useful for understanding the movement of labor-intensive industries from urban to rural areas within a country. It also includes the movement from developed to developing countries across national boundaries, observed within Japan, between Japan and East Asia, and recently between industrialized and less-advanced ASEAN member states. Moreover, this theory is applied to develop a sub-regional development strategy to promote innovations in urban areas and central industrial districts, and narrow development gaps between urban and rural areas (ERIA, 2010, 2015).

Categorizing these economic factors by motivations helps us understand FDI from the viewpoint of firms' strategic choices of locations and division of labor. FDI can be categorized according to motivations (e.g., market-seeking, resource-seeking, and efficiency-seeking). Resource-seeking FDI aims to gain access to natural resources (e.g., minerals, agricultural products, and unskilled labor). Meanwhile, market-seeking FDI is referred to as horizontal FDI that will realize better access to local markets and transport cost savings. Finally, efficiency-seeking FDI enables firms to take advantage of factor prices differences between home and host countries and promote a more efficient division of labor (Dunning, 2000). Efficiency-seeking FDI is substantially identified as vertical FDI. Vertical FDI into developing countries is labor-seeking and a cost-reducing strategy where MNCs create intra-firm vertical divisions of labor (Hong et al., 2019).

Moreover, efficiency-seeking vertical FDI is feasible when transportation and other transaction costs are reduced enough to realize production fragmentation, which is the physical separation of each part of a production process into production blocks. According to fragmentation theory (Jones & Kierzkowski, 1990; Arndt & Kierzkowski, 2001) and the concept of second unbundling (Baldwin, 2011), production fragmentation can be brought about by infrastructure development, technological advancement of information, and suitable policy arrangements to reduce service link cost for connecting remotely located production blocks (Kimura, 2006). Production fragmentation enables firms to select the optimal location and specialize in a particular production block, depending on the characteristics of each production process, including capital and labor-intensive ones (ERIA, 2009, 1–12). The physical separation and specialization can apply to production and other value-adding activities. Meanwhile, the smile curve (Shih, 1996; Mudambi, 2008), which illustrates varying added

values along a value chain, suggests gains from functional specialization, outsourcing of low value-adding activities, and functional placement according to comparative advantages.

The concept of vertical FDI is extended to export-platform FDI. This FDI type is a strategy for MNCs to develop an international division of labor between two (i.e., home and host) countries. The export-platform FDI is characterized by an international division of labor among three countries (i.e., large, high-cost countries and a small, low-cost country), in which its affiliate in the low-cost country will ship its products to the high-cost country other than its home country. This division of labor among the three countries will happen under the condition where trade costs for intermediates and plant-fixed costs are moderate, and the small, low-cost country has a moderate cost advantage in assembly (Ekholm et al., 2007). This export-platform FDI model can be applied to categorize the low-cost host country as the country for exporting back to the home country (home-country export platform), both the home and third countries (global export platform), and the country exporting to the third country (third-country export platform) (Ito, 2013).

These theories are consistent with actual FDI inflows to East Asia attracted by local advantages in production costs (e.g., the appreciation of Japanese yen since the Plaza Accord in 1985 and availability of ample labor forces), geographical proximity to home countries (i.e., distance to Japan for Japanese MNCs), transportation cost, and other conditions (e.g., larger population, younger average age, higher birth rate, and higher potential for economic growth). These theoretical backgrounds also well explain the mechanics of evolving international production/distribution networks and the importance of intermediate goods trade in East Asia (Kimura & Ando, 2005, 318). It also explores the attempts by some Japanese firms to reform their production networks by introducing the so-called “China-plus-one” strategy (Ueki, 2010; Machikita & Ueki, 2013; Iida, 2015) and “Thailand-plus-one” strategy (Krainara & Routray, 2015; Norasingh et al., 2015; Kuroiwa, 2016) that develop a production capacity alternative or additional to China and Thailand. In other words, the “plus-one” strategy is characterized by a multi-location, multi-plant operation, which allows a leading firm in the value chain to relocate a part of the production process to a nearby country to optimally control the entire chain. Such relocation varies according to comparative advantages of each production site, travel time in knowledge transfer, transport, and coordination, and monitoring and uncertainty costs (Boeh & Beamish, 2012).

2.2. Gaps between the theories and real-world practice of big apparel businesses

2.2.1. Vertical integration and manufacturing in the home country

Empirical studies on international production networks have focused on specialization but paid little attention to how firms improve their management and operation to optimize the entire value chains. This limited research scope is particularly true for studies of the apparel industry in developing countries, many of which focused on location choice motivated by wage gaps for saving the cut–make–trim (CMT) process costs. However, the current leading companies in the apparel industry emphasizes the importance of strong linkages of manufacturing with retail operation, rather than manufacturing cost alone. Zara, which is a Spanish company, developed a fast-fashion business to lead the global apparel market. It integrates the entire value chain vertically, operating its own factories in high-wage Spain in addition to subcontractors in low-cost countries to balance the necessity for agile and lean production (Christopher, 2000; Ghemawat et al., 2003). Louis Vuitton and Hermès also continue to manufacture their luxury products in their own workshops in Western Europe, whereas Burberry replaced its production in the United Kingdom (Robinson, & Hsieh, 2016).

These value chains of the competitive European firms indicate the insufficiency of the described theoretical foundations for illustrating the competitive business model. To make up for the theoretical deficiencies, we must shed light on firms' sourcing strategies concerning whether to operate some functions in-house or outsource them from domestic or foreign suppliers. As indicated by the OLI framework (Dunning, 1980, 2000), a firm can choose between in-house production and outsourcing, including domestic and foreign supply sources. Outsourcing will allow the firm to specialize in a particular task in which the firm has comparative advantages. This sourcing strategy can become a choice for the firm to improve efficiencies in particular tasks when the service link cost is low enough for enabling fragmentation. The firm's make-or-buy decisions also depend on other transaction costs (e.g., uncertainty, supplier production cost, and competition among suppliers) (Walker & Weber, 1984) and the firm's strategy for controlling the value chain. This is because firms tend to prefer retaining powers over the critical processes of value creation (Mudambi & Venzin, 2010). These elements do not allow firms to choose in-house or outsourcing according to efficiency gains.

2.2.2. *Possibility of SMEs as lead firms*

These discussions suggest that value chain governance is an unneglectable issue in understanding the characteristics of value chains, why firms developed the present value chain configurations, and how they can manage the entire chains efficiently. The studies of global commodity chain (GCC) (Gereffi, 1994, 1999; Scholvin, 2020), GVC (Gereffi et al., 2005; Gereffi, 2014), and global production networks (GPN) (Henderson et al., 2002; Coe et al., 2008; Blažek, 2016) provide a sociological and geographical perspective on this governance issue in which geographically dispersed cross-border fragmentation is allowed. However, these studies mainly explained the dynamics of large MNCs. Pertaining to SMEs, almost all GVC analyses only refer to the local and multi-national SME participation into value chains, which were governed by large MNCs (Gereffi & Memedovic, 2003; Lim & Kimura, 2009; Gereffi, 2011; Elms & Low, 2013; Liu, 2016). This characteristic is common to the GPN approach. Even if SMEs are highlighted, both GCC/GVC and GPN approaches have not sufficiently investigated SMEs' roles as lead firms in the GVC governance but emphasized SME's participation (Knudsen, 2013) or roles (Egels-Zandén, 2017) in GVCs and GPNs led by MNCs. However, the literature suggests the necessity for SMEs to move up the value chains to create more values.

2.2.3. *Market-side influences on value chain configuration*

The characteristics of the exemplified European apparel and accessory companies, such as VI and in-house manufacturing in the parent country, are partially shared by Uniqlo that currently dominates the Japanese apparel market.

The conventional Japanese apparel value chains, established in the 1970s, consisted roughly of three types of specialized companies: material manufacturers, apparel companies, and retailers. Among these actors, apparel companies, which include specialized apparel companies and a business unit of general trading company (*sōgō shōsha* in Japanese), are responsible for a range of tasks in the apparel value chains that can cover product planning to production/quality control, distribution, and marketing. Apparel companies linked material and sewing manufacturers, bringing apparel to retail channels, such as department stores and general merchandize stores. These apparel firms have taken a leading role in increasing overseas production, particularly offshore outsourcing of sewing processes since the 1980s. Uniqlo took the market-dominant position of such conventional apparel companies in the Japanese apparel retail market by transforming its casual clothing store into a specialty store

retailer of private label apparel (SPA) in the 2000s. Differently from the conventional apparel companies, this company operates retail selling. Uniqlo substantially integrates the entire value chain without its own production capacity in cooperation with general trading companies, raw material suppliers, and sewing factories.

The structural change in the apparel retail has involved the shift of main sales channels from conventional ones, such as department stores and general merchandize stores, to SPAs and, more recently, e-commerce. This supply chain reform became necessary for Japanese apparel and accessory firms to retain market shares by responding to unforeseeable fashion trends, product lifecycle, demand seasonality, and other uncertainties in wholesale businesses and retail consumptions (Kato, 1998; Miao, 2014). The shift in marketing channels to SPAs and e-commerce enabled apparel firms to develop management systems to obtain market information accurately and timely and arrange product designing and other value-creating activities more responsive to market demands. In other words, these new business strategies for apparel and accessory firms are dependent on supply systems responsive to demand fluctuations. However, the theoretical arguments focus mostly on supply-side elements, without paying careful attention to the influences from the market (consumer) side elements (Sugihara & Somehara, 2017).

3. Methodology

3.1. Criteria for case selection

In-depth investigations of the facts, which are inconsistent with or out of theoretical considerations, are fundamental to fill the gaps between theories and realities and bring novelties to the related literature. Therefore, this study took a case study approach (Yin, 2009) for the Japanese apparel and accessory industry, applying the following three criteria for case selection to conduct interviews: (1) own factories in Japan and East Asia; (2) promote multi-location, multi-plant operations under the China-plus-one or Thailand-plus-one strategy; and (3) form VI from the supply to the market side to attain an optimal value chain structure and thus improve the efficiency of the entire value chain. To obtain novel findings, we must observe international business' real-world and complex practices. Thus, SMEs that (4) allow visitation of all their factories in Japan and East Asia are set as the fourth criterion.

The authors have encountered two anonymous Japanese SMEs (i.e., Firm A and Firm B) that satisfy these four criteria for the case study. These SMEs sell products only in the Japanese market, which helps narrow the analytical scope to the managerial arrangements necessary for linking multiple plants and logistics with the single market.

3.2. Research items

This study focused on (1) VI and (2) in-house apparel sewing in home countries as two overlooked strategic choices for apparel and accessory firms from developed countries. The overseas production is still indispensable to satisfy requirements for cost reduction; therefore, this study additionally focused on (3) strategies combining domestic and overseas production. By understanding these elements of vertically integrated apparel value chains operated by Japanese SMEs, this study will achieve the research objectives. Therefore, in the interviews with the two Japanese SMEs, the authors asked questions useful for the following three items, based on some assumptions derived from the theoretical and empirical observations.

3.2.1. In-house manufacturing in Japan and East Asia

Labor cost in Japan is higher than that in China and ASEAN. However, the two selected firms maintain in-house manufacturing in Japan. This implies comparative advantages neglected by such assessment on the competitiveness of plants in Japan and memorable roles assigned to the factories. The shortest distance to the Japanese market and the seasonality of the Japanese market necessitates elaborated delivery management, which are critical elements in maintaining domestic production in Japan.

3.2.2. Multi-location, multi-plant operation under China-plus-one or Thailand-plus-one strategy

Although firms can minimize labor costs by consolidating manufacturing in one production site with the lowest wage, transportation costs are decreased by operating factories in Japan when the firms target only the Japanese market. This gap between the theoretical observation and the reality implies the necessity of understanding differences in actual operations and management practices among plants in different locations, which utilize the comparative advantage of each production site. On this assumption, the authors visited all plants owned by each selected SME to identify the differences among the 'firm's factories in the production line layout, equipment, human resource management, logistics, and other arrangements that characterize each factory. The authors also attempted to identify the market demands that encourage the firm to introduce such factory management and the factory that has an advantage in addressing particular market demands. All obtained information is used to consider how the combination of the factories with different characteristics helps the firm in enhancing efficiency throughout the value chain.

3.2.3. Vertical integration covering from the supply side to retail selling

Production–sales integration or VI from production to retail selling, which includes the SPA business model and e-commerce, allows synchronizing actions across tasks along the supply chain (SC) and minimizing the delivery lead time. These new ways of sales also allow companies to obtain the sales-side information, identify good-seller products, and immediately reflect this information to the production side. By doing so, companies can increase the production of good-seller products and deliver them to the market timely without missing business opportunities. These ideas are the goal of fast-fashion in the European apparel industry. This study presumes that such prompt management based on the precise information of the sales side is a significant element for SMEs to maximize their profits, particularly in fashion apparel and accessory businesses whose production has seasonality in the Japanese market. Companies must sell out seasonal fashion products before ending one season to maximize sales and minimize warehouse costs.

3.3. Research period

The first round of the interviews was conducted from July 2016 to April 2017 at the 10 establishments, including the two headquarters (Firms A and B), three factories in Japan (Firm A), one delivery center in Japan (Firm A), and four factories in China and Vietnam (Firm A) and Thailand and Lao PDR (Firm B). The interviewees included executive board members at headquarters and managers at each factory and delivery center. Each interview took 2 to 3 hours, and both authors attended the interviews. Apart from the formal interviews, the authors had several chances to check previous interviews with each firm's executive board members in the fiscal year (FY) 2017–2020 and follow up the progress of their production and sales operations in the changing business environments in FY2018–2020. This

article is based mostly on the interviews conducted in the former period and supplemented by the discussions with the executive board members in the latter period.

4. Results of the case study

Based on the obtained information from interviews, this section summarizes the following for each firm: a brief history of the firm and its production network formation; multi-location, multi-plant operation (i.e., China-plus-one and Thailand-plus-one) strategy; production arrangement; and market-side elements. These findings will be used to understand how these firms attempt to optimize their entire value chain operating under the supply and market-side constraints.

4.1. Firm A²

4.1.1. Brief history

Firm A started its men's and women's apparel and accessory business in the 1950s. Before the 1980s, its factories were located in *Kyusyu*, *Chubu*, and *Tohoku* districts. In 2000, Firm A embarked on an overseas in-house production with the establishment of a factory in China, which grew to the main production base at present. In the latter half of the 2000s, the firm expanded its productive activity to Vietnam, resulting in China plus one. Although Firm A maintains three factories in Japan, the domestic production size had been decreased. The number of factory workers at the peak domestic production in the 1980s was more than twice the actual number. Even so, domestic factories in Japan had already passed the worst downturn³ and have established key roles in Firm A's production network to coexist with its factories in China and Vietnam, as described in the following.

4.1.2. Multi-location, multi-plant operation strategy

Firm A has its in-house production bases in Japan, China, and Vietnam. Each production site has different comparative advantages. China has advantages in ample supply of single-skilled laborers and agglomeration of apparel-related industries. Meanwhile, Vietnam provides lower-wage workforces than China but lacks domestic material suppliers. Moreover, Japan has disadvantages in the availability of workforces and wage levels but advantages in domestic material supplies, multi-skilled laborers, and accessibility to the Japanese market.

Among these elements, logistics management is fundamental in timely product delivery from the factories to the Japanese markets. Firm A collects all products in its single distribution center in *Kanto* district, Japan. Two of the three factories are located in Japan. Meanwhile, the factory in China and the distribution center are located near highway interchanges, despite the location of the bases in rural districts. The better connectivity with highways helps Firm A realize smooth logistics and minimize lead time. However, these location advantages were not intended strategically but the results of chance events. When the owner of Firm A chose each location, the infrastructure around these factories were not yet fully developed.

Even though the firm benefits from improved connectivity between the production sites and the distribution center, the different distances cause differences in delivery time to the distribution center from each factory. Domestic factories in Japan take locational advantage that requires land transportation of one or 2 days, whereas Firm A spends less than one week for product delivery from China and less than 2 weeks from Vietnam by ship. Firm A contemplates such different delivery times among production sites to place products in the apparel shops timely and efficiently.

Firm A considers the lead time for delivery, production, procurement, and other characteristics of factories to realize timely production and delivery, expedite time-to-market, and reduce costs. Firm A divides roles among these own factories, according to comparative advantages of the countries, market demands, and operational requirements that include production lot size, the complexity of production process (i.e., process time), obtainability of local materials, and availability of subcontractors or equipment necessary for secondary processing (e.g., embroidery process, print process, and washing process), worker skill level and sets, and accessibility of each production site to the Japanese market.

The availability of low-wage workforces is a fundamental condition for Firm A to use China and Vietnam as sites for mass production. Even though China has experienced rapid wage growth, the wage level for Firm A's skilled workers in China is still competitive in complex production processes. China also has single-skilled workers who favor large-lot production. Moreover, lower wages in Vietnam allow Firm A's affiliate to undertake complicated sewing processes. An advantage to China (and Japan) over Vietnam is the accessibility to domestic material suppliers and subcontractors for secondary processing. The agglomeration of the related industries enables the factory in China to respond to market demands quickly and flexibly.

The factories in Japan are competitive in a high-mix, low-volume production that requires flexible and timely production and delivery in response to market changes. Another productive activity in Japan, which has not been well recognized, is large-lot production of clothing that can be assembled with simple sewing processes. The factories in Japan are regaining competitiveness in the latter products due to high economic growth in China, economic stagnation in Japan in the last two decades, and the consequent narrowing wage gaps between the two countries.

4.1.3. Production process

All factories of Firm A conduct CMT manufacturing. Firm A can produce T-shirts in these three countries, using the same textile and clothing patterns. If the requirements for quality and delivery were the same, the firm would concentrate the CMT processes for T-shirts in the country where the wage is the lowest. However, this firm produces T-shirts in multiple countries. From the interviews, Firm A introduces different production equipment and line layout for each factory to properly use each factory's different characteristics, fulfill different quality, cost (i.e., price), and delivery (QCD) requirements and make manufacturing activities efficient at the firm level. In other words, Firm A continues a kind of innovation by making the new combination of production capacities installed in the three countries.

Machine introduction

Advanced countries used to be ahead of less developed countries in mechanization or automation due to the significant wage gap. Firm A also follows the same trajectory to mechanization. Japanese production bases have introduced the latest automated machines (e.g., cutters, embroidery machines, print machines). China is transitioning to automation, whereas Vietnam works manually.

Hanger system

A hanger system is a kind of overhead material handling equipment or conveyor placed throughout the ceiling of factories to bring materials and products in the process to individual workers. This equipment is the infrastructure to realize a single-piece flow or one-piece flow system, whose concept is included in the Toyota production system. The equipment visualizes products in-process and the

waiting time of individual workers. The hanger system improves the productivity of factories with single-skilled workers by decreasing inventories, tasks for handling products in process, and waiting time of productive workers. Firm A has introduced this equipment only in a plant in Japan, although the system has been introduced by factories of other firms in developing countries with high-wage skilled workers.

Toyota sewing system

This system was derived from the Toyota production system, which realizes just-in-time production. This system was developed by Aisin, Toyota's first-tier supplier, in the 1970s. The Toyota sewing system (TSS) mainly focuses on production efficiency by eliminating waste motions of workers, decreasing change over time, and letting the production line be more versatile. The TSS was developed to satisfy the needs for high-mix, low-volume production. The system is composed of standing sewing machines and multi-skilled workers. A factory of Firm A builds one production lane of four workers and five sewing machines. In order to align with the height of sewing machines, they make one group of the lane by almost the same height workers. Workers do not need to move a lot to complete all processes, including the packaging of the products.

4.1.4. Heterogenous worker characteristics

Based on several interviews, the average of workers' ability is highest in Japan, followed by China and Vietnam. Firm A assisted factories in Japan to the factory in Vietnam when it was newly established in the 2000s. However, the factory in Vietnam still needs technical assistance to improve manufacturing operations. Firm A assigns a Japanese factory manager, whereas the factory manager in China occasionally supports Vietnam to provide technical assistance.

Firm A had experiences in having difficulties improving labor productivity in China. The factory in China received technical assistance from the factories in Japan. Firm A employed a Chinese in Japan who is currently the factory manager of the factory in China and gave training in the headquarters in Osaka. Firm A dispatched to China this Chinese with Japanese senior staff who had rich experiences in production management when the firm started operating the factory in China. The factory in China finally solved the problem by introducing performance-based incentives in the salary system. Currently, the only factory in China has introduced the incentives.

In Japan, almost all workers are highly skilled and diligent, so measuring worker performance at the individual level is unnecessary. These situations in Japan allow factories in Japan to introduce TSS, and other group works for high-mix, low-volume production.

Meanwhile, Vietnamese worker skills are still immature; thus, performance-based incentives will cause significant salary gaps among workers but do not necessarily motivate Vietnamese to work harder. Therefore, Firm A has not adopted the Chinese payment system in Vietnam comprehensively but continues to seek incentive mechanisms.

4.1.5. Market and sales-side elements and their effects on the production side

The operation of Firm A's described multi-location, multi-plant production system is closely coordinated with sales and marketing activities. In Firm A's business, its retail shop network is a crucial factor affecting factory operations described earlier. Firm A makes product planning and new product design using market information obtained from its shops. Merchandisers (MDs) in charge of a particular brand of Firm A choose factories that produce new products, including their samples, considering product characteristics, available production capacities and equipment of the factories,

and lead time for procurement, and distribution.

Firm A had not put a great effort into having its retail shops nationwide since its establishment. According to the interview in 2016, Firm A could seize the moment to venture to build its shop networks when the firm confronted the fundamental structural change in the Japanese market where dominant retailers of apparel products have shifted from large-scale general merchandizing stores to specialty stores.

The other motive for Firm A to increase selling through its shops is to change in business terms and conditions of transactions between manufacturers/wholesalers and retailers in the Japanese apparel industry. Traditionally the main customers were corporate customers, such as department stores and general merchandising stores. These retailers used to place products on their store shelves to sell to consumers and build product stock by the retailers' responsibility and account. Seasonal exhibitions were essential occasions for Firm A to interact with these customers to know fashion market trends and promote newly designed products. Firm A and other manufacturers set sales figures when they entered into sales contracts with retailers and wholesalers who distribute the products to retailers.

This manufacturer/wholesaler-retailer relationship has been replaced by the new business practice, a kind of "consignment sales" contract in which department stores and general merchandising stores do not settle orders to their suppliers until final consumers purchase products at their shops. Retailers also rely on suppliers who provide sales supports by dispatching sales staff to the sales floors of their customers. This business practice imposes risks of leftover products on manufacturers and decreases the importance of seasonal exhibitions. Firm A started establishing their specialty retail stores in the department store, general merchandising store and original store. Such changes in market circumstances are consistent with Kato (1998).

Firm A still sells their products at their own shops and retailers and holds seasonal exhibitions. The firm starts product planning about one year before a seasonal exhibition or about 15 months before releasing new products for a particular season. Firm A organizes seasonal exhibitions several times in a year. This exhibition cycle suggests that the headquarters of Firm A manages the preparation for multiple seasonal exhibitions simultaneously in cooperation with its own factories that produce product samples developed for a seasonal exhibition and prepare a mass production after the seasonal exhibition.

The consequent VI helps Firm A obtain information on the consumer market, strengthen the relationship between product designers and factories for product development and facilitate coordination between the headquarters and in-house factories/distribution centers. Recently, Firm A started a new attempt of sales record analysis to identify hot-selling size and colors for the individual item and use such information to improve sales planning and decrease product variety to decrease costs.

4.2. Firm B⁴

4.2.1. Brief history

Firm B started its business in Japan in the 1960s as a handicraft maker. In the latter half of the 1980s, when faced heavy competition with imported products made by its Japanese competitors shifted production to China and other Asian countries, Firm B expanded its production base to a village in the central region of Thailand in 1990, which was the first overseas factory for Firm B. This firm also established an office in Bangkok, which focuses on supporting mass production in the province by

providing accounting, trading, and other back-office activities and small-scale production processes (e.g., cutting, pre-sewing process) before the final assembly. In the 2010s, Firm B started operating a factory in the southern region of Lao PDR as a Thailand-plus-one strategy.

4.2.2. Multi-location, multi-plant operation strategy

Firm B operates three factories. The factory in Japan is built on the property of the headquarters. The headquarters has a small-scale production capacity while outsourcing sewing processes to homeworkers near the factory. However, the factory takes the important role of the mother factory in the relationship with the factory in Thailand. Japanese skilled employees in headquarters can adopt new approaches to new products and production using new materials, which will be transferred to Thailand for mass production. The back office in Japan also provides its overseas factories through the Bangkok office with materials and accessories purchased in Japan. In addition to its factories, Firm B uses subcontracting factories in Bangladesh.

The factory in the central region of Thailand is the leading production site for Firm B. More than 20-year experience in producing leather products is enough for this factory in Thailand to develop skilled workers and become the main factory for mass production with more than 100 workers at the time of this study. However, due to the expected aging of Thailand, Firm B decided to build a new production base in Lao PDR. Firm B's Thailand-plus-one strategy is designed to assemble products that fall into the same product category (e.g., wallet) in Thailand and Lao PDR factories, a typical horizontal division of labor applied in China-plus-one strategy (Ueki, 2017).

4.2.3. Production management

The main products of Firm B are handicrafts. Products are substantially handmade, almost all manufacturing processes are still manually executed and labor intensive. The three countries' production equipment and tools installed exhibit not much difference. The gaps in the level of sewing skills make differences in the products and productivity between the new factory in Lao PDR and the rest. Cylinder-bed sewing machines, specialized machines for sewing leather and other heavy materials, require sewing machine operators with quite high skills who can receive higher wages than others. The background of this wage difference is that sewing stitches are an important part of a design for leather products, different from apparel sewing that conceal and buries suture. Workers in Lao PDR are still immature in sewing machine operation.

4.2.4. Heterogeneous worker characteristics

In terms of the level of worker skills, the headquarters in Japan still maintain a competitive edge. However, the production activities in Japan are engaged mostly by domestic pieceworkers who live near the headquarters, whereas the production site in Thailand is occupied with full-time factory workers. Some workers in Thailand have been working for the factory since its establishment, and their skills are high enough to compete with Japanese workers.

The expansion of Firm B into Lao PDR solved the aging. Although Firm B can secure workforces in Lao PDR, the fresh Lao workers from villages do not have working experiences even in company organizations. Lao worker skills could achieve not more than 70–80 per cent of the productivity, and the rate of a defective good is three to five times higher, compared with Japan and Thailand when the authors had an interview in April and May 2017. An additional problem unique to Lao PDR is the high absence rate of Lao workers. So far, the factory in Lao PDR can take on only the trial assembly of product samples and standard products.

Firm B has had enough experience in Thailand to expect such a situation in Lao PDR. The firm recognizes that it will take a decade for inexperienced workers to satisfy high-quality requirements from the Japanese market. Thus, Firm B did not immediately close the factory in Thailand but used it as a mother factory for the new factory in Lao PDR to gradually make a structural change of production network. This unique Thailand-plus-one strategy enables Firm B to gradually shift production of final products from Thailand to Lao PDR, according to the progress of the capacity building of Lao workers and the retirement of Thai veteran workers.

Common bases support Firm B's multi-location, multi-plant operation and knowledge transfer system to facilitate communication among factories in different countries. The most fundamental base is the similarity between Thai and Lao languages, allowing Lao people to understand Thai. This similarity is a main reason for Firm B to choose Lao PDR as a new production site. Thai workers have enough knowledge and experience for providing technical assistance to the factory in Lao PDR because the main production function has already moved from Japan to the factory in Thailand. Additionally, Firm B dispatched young Lao who can speak Japanese as factory manager of the new factory in Lao PDR. The factory in Thailand also temporarily dispatches Japanese or Thai to Lao PDR to give technical assistance. The Lao factory manager plays the role of communication facilitator to connect among Japanese, Thai, and Lao employees.

Firm B had found a gap in perception on quality requirements between employees from Lao PDR and the rest of the three countries where it operates its factories. Lao workers have not used the leather products designed for Japanese users, so they do not understand why their product quality is defective and unacceptable for Japanese consumers intuitively. The difficulty in specifying quality requirements numerically, a distinctive feature of leather manufacturing that cannot use testing equipment but relies on artisans' senses for quality inspection, causes a communication barrier associated with the transfer of quality management. To overcome these obstacles, Firm B has brought two types of samples to illustrate what Lao workers should achieve: "A products" (which are marketable in Japan) and "B products" (which are defectives and unmarketable in Japan).

Another feather of Firm B is the development of Internet infrastructure that allows 24-7-365 interconnection among all offices and in-house factories in Japan, Thailand, and Lao PDR via Skype. This connectivity allows Firm B to visualize activities in each office and factory and share experiences and knowledge to strengthen the operational ability of each factory. This working environment can bring and cultivate a sense of unity among all employees of Firm B in the three countries.

4.2.5. Market and sales-side elements and their effects on the production side

As introduced in the previous sections, Firm B has also confronted the fundamental structural change of main retail channels in the Japanese market from large-scale general merchandizing stores to apparel specialty stores and the disintermediation of apparel wholesalers. To catch up with this trend, Firm B had attempted unsuccessfully to have its stores sell directly to final consumers once. Firm B currently promotes e-commerce to achieve high profitability while maintaining business relationships with traditional wholesale dealers and retail sellers. E-commerce can be much more profitable than its conventional sales channels when Firm B can manage production and sales activities in an integrated manner.

The conventional business deals of Firms B are settled at trade fairs and exhibitions. Two weeks after the exhibition, Firm B can confirm the number of orders from the customers roughly and send this pre-order information to its back-office office in Bangkok, Thailand. The headquarters of Firm B

and its back-office in Thailand can place orders for leather, other materials, and parts, whereas the factories of Firm B can start production planning. For products to be made in Thailand, the office in Thailand imports leather from Italy and parts and accessories from Japan. It takes one month to procure leather, and an additional one month is necessary for manufacturing processes. Firm B spends 3 weeks to delivery products from Thailand to Japan. In this way, total manufacturing processes are completed in 3 months.

Firm B launches new products in the traditional Japanese market twice a year. Firm B has its exhibitions in April to promote new items for the autumn/winter season and spring/summer items in October. In addition to this regular wholesale market, final consumers generate seasonal peak demands in the gift market for Mother's Day and Christmas, which require special customization processing (e.g., putting names on the gifts) and short delivery lead times. An additional market segment for leather products, which forms the essential foundation of the leather and accessory industry, is regular products, which can provide Firm B with a steady sales amount without seasonality.

E-commerce and the new factory in Lao PDR allow Firm B to take a novel approach to seek SC efficiency. E-commerce allows Firm B to open channels to directly sell its product to final consumers. Firm B used to be a manufacturing subcontractor for its customer wholesalers who cooperate with retail shops to bear the risk of such demand uncertainty in the consumer market. Firm B is also aware of the risk of full-scale entry into online retail markets that can bring about competition with physical and online stores of its existing corporate customers. To avoid these risks, Firm B focuses its business-to-consumer e-commerce on selling its original brand and regular products marketable in all seasons, which allow Firm B to carry over unsold inventories to the season in the next year.

Firm B incorporated the development of the factory in Lao PDR into this e-commerce strategy by season-free standard products. The influence of seasonality to lead time is completely different between traditional seasonal business and e-commerce. Regular products are marketable in all seasons or can be carried over inventories, even though e-commerce sales peak twice a year during the periods of Mother's Day and Christmas. Firm B can schedule manufacturing of products for e-commerce according to the available production capacity of its factory without placing an unnecessary burden on factory workers to ensure delivery date. Firm B can also hold in-process materials, as in stocks of final products and converted into cash in the future. The factory in Lao PDR focuses on making simple products that are popular standard products. By starting with the production of regular products targeting e-commerce consumers, the factory in Lao PDR would be able to enter commercial production to make factory operation sustainable and then gradually increase production quantities or product varieties, according to the skill development and market.

The production in Lao PDR increases transportation lead time by 2 days (i.e., one day for material delivery from Thailand to Lao PDR and one day for product shipment from Lao PDR to Thailand). Firm B is supposed to transfer seasonal fashion products from Thailand to Lao PDR by easy stages. However, the additional cross-border logistics costs were high enough for Firm B to close the factory in the Lao PDR in 2020, although the firm could develop the skills of Lao workers enough to produce and ship regular products to the Japanese market. Alternatively, Firm B will increase the number of workers in the factory in Thailand and subcontracting plants in Bangladesh.

4.3. Cross-case comparison

Figures 1 and 2 present the regional value chains of the two companies and show the features and differences between the two cases. The gray parts of these figures highlight the in-house activities of

the two companies, and the rest presents the outsourcing activities.

The two figures elucidate several similarities in the regional value chain structures of Firm A and Firm B. Both firms maintain their in-house production bases in Japan and the functions of product planning and design, quality control, and direct retail selling at their headquarters, even though they have expanded the in-house production overseas.

The case studies indicate that these firms have structured their production networks intending to optimize the entire value chains that cover from upstream production to downstream consumption, rather than improving a particular element of the value chains. The seasonality of the Japanese market motivates these two firms to maintain domestic production in Japan. Paying attention only to the wage level is not enough to understand why to keep operating factories in Japan.

It is costly for these companies to have the only production in Japan. Japanese customers do not always require manufacturers to bring products within two weeks after placing orders, which is the short lead time forcing quick response (QR) on Firm A. Customer requirements for QCD are not homogenous but depend on final consumption. To satisfy heterogeneous QCD requirements, the two firms have established in-house production capacities in multiple locations and have introduced different production systems, set of skills, human resource management, and other managerial practices according to comparative advantages of each factory.

In addition to in-house factories, these firms outsource production processes. Firm A uses contract manufacturers in China to assemble clothing to decrease costs. The outside manufacturers charge cheaper processing fees at the expense of higher defect rates than in-house factories. Firm A also should subcontract particular processing to local firms in Vietnam due to insufficient production scale. Firm B also cooperates with a manufacturer of leather products in Bangladesh to use the country's comparative advantages in production costs and availability of raw materials, although the country is distant from the Japanese market.

Combining multiple factories with different characteristics in different locations enables firms to meet different QCD requirements more efficiently. However, detailed factory managements are not the same between firms and even between factories of the same firm because of the differences in various elements, such as products, production processes, necessary skills and machines, necessary learning period for skill development, and work behaviors.

The last remarkable similarity between the two firms is vertically integrated structure of value chains from manufacturing to retail selling. This VI enables these firms to take finely tuned responses to market demand fluctuations and flexible and efficient operation of the entire value chain. The two firms entered retail services from the 1980s onward when the structural changes in Japanese apparel and retail accessory services motivated manufacturers to create direct contacts with final consumers. Firm A moved toward transforming itself into a SPA, whereas Firm B has become an online retailer.

The two SMEs have clear differences. Regarding the “China-plus-one” and “Thailand-plus-one” strategies, Firm A provided technical assistance to its factory in Vietnam from a factory in Japan, whereas Firm B provided it from Thailand to Lao PDR. This difference may come from locations of the mother factory for these new factories.

Manufacturing	Headquarters	Retail
Materials	Design	Department Stores
Sewing Factory in VN	Planning	GMS
Sewing Factory in CN	Quality Control	Clothing Chain
Sewing Factory in CN	Sales Promotion	Stores (approx. 400)
Sewing Factory in CN		E-commerce
Sewing Factory in VN		
Sewing Factory in JP		

Figure 1. Firm A's in-house and outsourcing activities

Note: The grey parts represent the in-house activities of Firm A.

Manufacturing	Headquarters	Retail
Materials	Production	Wholesale Firms
Sewing Factory in BD	Procurement	Retailers
Sewing Factory in JP	Quality Control	
Sewing Factory in TH	Sales Promotion in the HQ	E-commerce
Sewing Factory in LA		

Figure 2 Firm B's in-house and outsourcing activities

Note: The grey parts show Firm B's in-house activities.

5. Discussions

5.1. Structural changes in the Japanese apparel retail market from buyer-driven to consumer-driven

The strategies of our cases had been less common to Japanese SMEs in the apparel industry amid the high-growth period of the Japanese economies. Japanese apparel and accessory industry had developed a division of labor between clothing suppliers (i.e., manufacturers and wholesalers) and retail shops. The former specialized in manufacturing or wholesaling had succeeded in mass production of ready-made clothes. In contrast, the latter that is dedicated to large-scale retailers, such

as general merchandizing stores and department stores, had boosted potential demands for clothes. Seasonal exhibitions used to be important opportunities for both manufacturers/wholesalers and retailers. Retailers severely checked sample products and decided what to procure at their own risk. Meanwhile, clothing suppliers obtained information on potential market demands through retailers having direct contact with final consumers.

The buyer-driven separation of tasks in the conventional Japanese apparel business sector has become outmoded to respond to fickle consumer behavior. To avoid risks associated with purchasing at seasonal exhibitions, major retail businesses invented of the “consignment sale” contract that allows retailers to place their supplier merchandize on the shelves without payment, procure the same number of items sold in their shops when final consumers purchase, and return unsold items to the supplier warehouses. This contractual mode also allowed department stores and other major retailers, including shopping malls, to focus on property management to earn rental income from their tenants and avoid inventory risks in the uncertainty of apparel demands. However, this new custom caused retailers to reduce their direct contact with final consumers and consequently lose information on consumer preferences.

Meanwhile, large wholesalers require manufacturers in Japan with considerable cost reduction by giving them intense competition with developing countries in Asia with much lower waged workers. Wholesales also require manufacturers shorter lead times. The behaviors of these intermediary corporate buyers who can obtain more commission revenues from their downstream business partners by selling more items result in over-supply of fashion clothing, price collapse, and a large volume of apparel disposals (Sugihara & Somehara, 2017). These structural changes to encourage themselves to be more final consumer-oriented. Demand-side factors have also become influential driving forces for changing business strategies and restructuring value chains that target the Japanese market to be more responsive to final consumer behaviors.

Consequently, some Japanese manufacturers found increasing risks of depending only on retailer capabilities of market research but are more attracted to entering into the retail business in Japan by themselves. E-commerce is expected to decrease costs for manufacturers to enter the consumer market. However, small- and medium-sized manufacturers still need to be cash-rich and take high risks when they embark on e-commerce to sell their label products. To overcome these difficulties, such manufacturers should develop competitive capabilities of factory operation.

5.2. SME survival strategies in the consumer-driven market

5.2.1. Vertical integration

This large buyer-driven fragmented value chain could pass partially inefficiencies caused by revenue maximization behaviors of the corporate buyers to upstream SME manufacturers. In such business environments where manufacturers cannot depend on large retailer requirements as a market signal to obtain accurate consumer market information, SME manufacturers should seek direct access to consumers. In the business environment in Japan where the wholesale and retail sectors are less productive (Ahearne, & Shinada, 2005; Jorgenson, & Nomura, 2007; Fukao, 2021), some of the SME apparel manufacturers opened their outlets to be SPAs, whereas more SMEs could enter into retail business using e-commerce, as exemplified by Firm A and Firm B, respectively. E-commerce can provide retailers with more information on consumer preference by analyzing consumer search and buying histories and self-reported comments and evaluations at their e-commerce sites and social media (Fraccastoro et al., 2021).

However, how to turn such richer consumer information into sales and profits is a different business challenge. Vertical integration can emerge due to a string of strategic choices by SMEs to make entire value chains responsive to consumer preferences and unpredictable demand fluctuations. Fragmentation (Jones & Kierzkowski, 1990; Arndt & Kierzkowski, 2001; Kimura, 2006), unbundling (Baldwin, 2011), smile curve (Shih, 1996; Mudambi, 2008), and other theories that highlight the economic rationality of vertical division of labor have undervalued such interruption of market information flows and its significant negative impacts on an upstream product, manufacturing and inventory planning, leading to value chain inefficiency. The seamless flow of information will also promote innovations by internal and external knowledge stocks when they pursue the VI simultaneously with strategic sourcing (Rothaermel et al., 2006).

Our study also suggests that their bodies' smallness helps SMEs manage their entire value chains in more integrated and efficient ways, although large SPAs and other categories of apparel businesses can adopt a VI strategy. Firm A controls all tasks from product design to logistics on one floor in the headquarters, which help improve the value chain coordination across departments. Firm B introduced another solution by connecting all offices and in-house factories via Skype 24-7-365 to manage production in an integrated manner and bring a sense of unity to employees worldwide. This compactness of SMEs maximizes the responsiveness, even though their offices and production bases are multi-located. The GVC/GPN literature has understated such advantages of SMEs in vertically integrated value chain management.

5.2.2. Multi-plant multi-location to ensure low-cost high-responsive operations

The other approach to responding to unpredictable market trends is to take a variation of multi-sourcing from multiple suppliers. Sourcing decisions are used to be investigated in either-or situations, such as “make or buy” (i.e., “insourcing or outsourcing”) and “onshoring or offshoring.” Previous studies have paid attention to outsourcing or offshoring, among these sourcing strategies, including FDI. The multi-plant multi-location strategy emphasizes the importance of a strategic combination of sourcing (i.e., “make or buy”) and location (i.e., onshoring or offshoring) decisions to provide a particular product to the market.

Studies on high-tech production have focused on the “make or buy” decision or outsourcing. Especially, some firms in semiconductor and other information communication technology products have become fabless firms that rely entirely on electronics manufacturing services to dedicate themselves to product design, marketing, and sales without their factories. Such business category has been recognized in the United States as factory fewer goods producers (FGP) (OMB, 2009). FGPs make considerable contributions to national economies in the United States (Bernard & Fort, 2015; Houseman & Mandel, 2015) and Japan (Morikawa, 2016). However, many firms retain their factories in these developed countries while using manufacturing service providers. Firms can choose to “make and buy” simultaneously to secure a range of control over sourcing strategically (Quinn & Hilmer, 1994).

Similar situations can be observed for the onshoring or offshoring decision. Manufacturing apparel in developed countries has advantages in quality control, flexibility, country of origin effect (i.e., “made in Japan” for Japan), and financing, whereas onshore sourcing has a disadvantage in high cost. By shifting to offshore sourcing, apparel firms can decrease labor cost, although they will have difficulties managing quality control, increased time, and reduced flexibility (Dana et al., 2007). Recently, onshoring (Warburton & Stratton, 2005; Jung, 2020), re-shoring (Ellram et al., 2013; Gray et al., 2013; Foerstl et al., 2016; Robinson & Hsieh, 2016), or back shoring (Kinkel & Maloca, 2009;

Kinkel, 2014; Stentoft et al., 2016) attracts attention as a new sourcing strategy that returns production operations to home countries to avoid increasing labor costs in developing countries and enhance controls over critical production processes in the SCs.

However, limited studies focus on multi-sourcing strategies that include concurrent sourcing (Parmigiani, 2007; Mols, 2010; Heide et al., 2014) and plural sourcing (Heide, 2003; Mols et al., 2012; Krzeminska et al., 2013; Puranam et al., 2013) that make and buy (i.e., in-house manufacturing and production outsourcing) the same goods simultaneously. Similarly, more studies will be needed to investigate a different multi-sourcing strategy that uses a hybrid approach (Theyel, Hofmann, & Gregory, 2018) to enhance company competitiveness by using both home-country and offshore in-house manufacturing. Thus, the multi-sourcing strategies in this study can include but are not necessarily the same as dual or multiple sourcing that is a sourcing strategy for corporate buyers to deal with supply risks by deploying two or more suppliers, respectively (Yu et al., 2009; Zeng, 2000).

Consistent with the previous studies (e.g., Warburton & Stratton, 2005; Theyel et al., 2018; Jung, 2020), the home and offshore factory operations adopted by the two studied Japanese firms support QR manufacturing and satisfy different demands for quality and delivery with lower costs. QR is a system that shortens lead time and enables retailers to place re-orders during the selling season without missing opportunities to sell hot-selling items. Production capacity in Japan helps SME manufacturers satisfy QR demands.

The two Japanese SMEs combine the production capacity in Japan with in-house and subcontracting plants abroad with different comparative advantages to satisfy Japanese consumers' requirements for timely supplies of low-price products. The home production in the geographical proximity of production capacities to the Japanese market facilitates QR operations. In contrast, domestic and overseas in-house factories with low defect rates ensure short lead times and on-time delivery simultaneously to the Japanese seasonal market. However, as suggested by the agency theory (Mols, 2010) and exemplified by Firm A, the QCD level of manufacturing subcontractors will depend on processing fees. Firm A incurs considerable costs to satisfy the firm's specifications, especially quality requirements.

The development of in-house production networks necessitates a significant transition period associated with skilled worker development, although in-house production can deliver value chain efficiency. The two selected Japanese SMEs maintain mother factory function in Japan, whereas Firm A's in-house factory in China and Firm B's in Thailand have been well-developed and reliable enough to conduct mass production with low defect rates to assure on-time delivery to the Japanese seasonal markets. New production sites in emerging economies like Lao PDR are still in the initial stage of sectoral development. Firms must be prepared for suffering from relatively high defect rates and transportation costs that offset the benefits from lower wages when they become the first income into undeveloped manufacturing sites.

5.2.3. Market-side management to determine the spatial placement of apparel production networks

The availability of accurate and timely market information (1) affects the accuracy of the product, procurement, production, and delivery planning and inventory control; (2) allows manufacturers to schedule sample and mass production and product delivery; (3) reduces delivery costs without using air freight, which will change according to cargo volume; and (4) reduces risks entailed in fabric procurement, which takes longer lead time than production and other downstream processes. Moreover, minimum lot size is sometimes outstripping the total volume necessary for an SME manufacturer to produce a particular clothing item in small quantities. Therefore, better access to

accurate and timely market information provides a more strategic choice for SMEs to overcome disadvantages caused by their smallness, while satisfying increasing demands from consumers who find more values in travel time savings (Zamparini & Reggiani, 2007). Firms can use factories in Japan to quickly respond to unforecastable market demands for seasonal products with the minimum inventories in retail shops, whereas overseas production with an adequate quantity of in-process and finished items.

E-commerce can track individual consumer behaviors and thus is expected to enhance forecast accuracy and allow SMEs to manage longer distant delivery of products. As exemplified by Firm B's Thailand-plus-one strategy, this spatial extension can be facilitated by online retailers who focus on (less seasonal) standard products sellable in all seasons, decrease the risk of having dead stocks faced by SMEs when they could sell only to corporate buyers. The emerging new digital technologies will enhance predictability and allow SMEs to strategically use the information for attaining greater customization, more accurate QRs, or concentration on standard products for online sales channels.

5.3. Domestic and international political economies as enablers for the SME strategies

The internationalization of Japanese firms or expansion of Japanese production networks has been subject to trade frictions between Japan and western countries and political responses. Diplomatic pressures from the United States accelerated Japanese overseas production and encouraged the Government of Japan to make a structural change in the Japanese economy from export-oriented to domestic-demand-led economic growth. The Japanese government had taken in advance of or took in response to diplomatic negotiations domestic and international support measures to induce corporate behaviors consistent with national economic agenda or help the private efforts for adapting new business environments. However, these elements tend to be neglected in studies of Japanese firm-level value chains, especially those of SMEs. For the two Japanese SMEs in the apparel and accessory business, regulatory reforms and deregulation in the retail industry, infrastructure development, and Japan's regional economic diplomacy toward Southeast Asia have significantly influenced the formation of the current vertically integrated value chains.

Concerning regulatory reforms in the retail industry, the described fundamental structural change of main retail channels in the Japanese apparel and accessory market is recognized as an outcome of the Japan–U.S. This study highlights that the repeal of the Large-Scale Retail Stores Law (*daitenhō*) increased shopping malls and retail stores specialized in apparel, which generated the chain repercussion on the entire apparel value chain structure governed by SMEs. Such policy impact has not been investigated well by industry studies that focused on a particular part of the value chains.

Infrastructure development, especially transportation connectivity with large industrial districts for procurement and large commercial districts for the product distribution, is crucial. The apparel sewing used to be one of the first comers to a new frontier among the Japanese industries. The enhanced connectivity promoted the relocation of manufacturing from major industrial districts near Tokyo and Osaka to the less densely populated prefectures. Firm A operates factories in Chubu and Tohoku districts with good access to the distribution center in Kanto district by highways and Shinkansen. Infrastructure development for overseas factory operations in Southeast Asia is strongly associated with international cooperation with the countries in the region. The countries in the region promoted bilateral and multilateral cooperation and have achieved gradual progress of cross-border transportation facilitation, mainly at the major border gates. However, the undeveloped physical and institutional infrastructure for cross-border movement and unavailability of regular logistics services in the southern region of Lao PDR caused the closing of the factory in the Lao PDR of Firm B in 2020,

although the firm could succeed in technology transfer to start commercial production as planned in their Thailand-plus-one strategy.

6. Conclusion

The cross-case comparison and discussions reveal new strategies adaptable by small and medium-sized manufacturers to optimize their value chain operations, which include both production side and market-side elements. The rest of this article summarizes these elements, the limitations of this study, and future research topics.

The first strategy is developing vertically integrated value chains to adopt a SPA-type business model. To materialize such a strategy, e-commerce provides new methods that enable manufacturers to create direct selling channels to the Japanese consumer market. Firms can obtain information on consumer behaviors that can be used to enhance accuracy in sales forecasts and improve production and procurement planning. The sales records enable firms to identify hot-selling sizes and colors for the individual item and use such information to improve product planning, narrow down the variety of newly designed products, and decrease materials and production costs for samples and selling products. Moreover, e-commerce reduces the cost and barrier to entering the retail business and provides efficient tools to obtain consumer and market information. This VI allows firms to maintain a conventional relationship with large retail stores as the two SMEs under study still do and use the new direct selling channels based on e-commerce. Firms can use e-commerce to sell regular assortments all through the year. This e-commerce use allows firms to carry a certain level of inventories at relatively low risk because firms can expect stable demands for such products without high seasonality.

The second is a multi-location, multi-plant operation to simultaneously pursue quick delivery and cost reduction. The two Japanese SMEs perform multi-location, multi-plant operations, in which their factories in Japan conduct high-mix, low-volume production to realize QR. Meanwhile, the main overseas plants are responsible for low-mix high-volume production to take advantage of reduced labor costs in less industrialized countries. The combination of factories with different advantages makes the production networks responsive to volatile market demands.

In other words, SC network design is important for international business strategy to manage the lead time of multiple products under uncertainty (Eskigun et al., 2005; Govindan et al., 2017; Aras & Bilge, 2018). This strategic idea has not been emphasized by FDI literature. Meanwhile, the VI, as a part of the SC network design, is not unique to the two Japanese SMEs but was seen in the Italian apparel industry, accompanying the decreasing role of converters or intermediaries during the progress of globalization (Guercini, 2004; Alberti, 2006; McCaffrey, 2013). The case study of the two Japanese SMEs shows that SC network designing extends into production line layout, worker skill development, and human resource management and is associated with market elements. Previous studies have not sufficiently investigated these close linkages among these elements.

Although the authors could enter the limited number of Japanese SMEs to derive novel managerial and policy implications for international management of labor-intensive businesses, this study still has limitations and remains a future research issue. The remarkable agenda includes the following.

The first is the preliminary analysis on the role of subcontractors to understand the entire SC of the two SMEs. However, to thoroughly understand the production networks of the two SMEs, future studies must investigate the costs and benefits for these SMEs to place production orders to in-house

factories or subcontractors. The second is the necessity of in-depth study on headquarters functions and their mediating roles between real/online store and factory floors.

The third is the weakness resulting from the method that depends only on the cases of the two SMEs. This study cannot escape the criticism that these two SMEs may be an extraordinary or rare case.

The last noteworthy limitation is that the validity of managerial implications from this study can be jeopardized by the ongoing digital transformation and other factors that will change business environments. Note that even the concept of QR can be out of date in this age when data on customer behaviors in real and online stores can be acquired and utilized on a real-time basis.

Notes

¹ The views and opinions described in this paper are those of the authors and do not necessarily reflect those of the organizations.

² We conducted interviews for executive board members on September 2016, April 2017, January 2019, and December 2020, and factory managers in Japan (July 2016 and January 2019), China (August 2016, August 2017, June 2019, and November 2019), and Vietnam (August 2016 and December 2017).

³ For example, a factory in Japan employed around 250 to 300 workers in the 1970s, which once decreased to around 50, then again increased and reached around 100.

⁴ This is based on the interviews with an executive board member on January 2016, January 2019, and December 2020 and factory managers in Lao PDR and Thailand in April 2017.

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