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Article

Why Are Labour-Intensive Factories Surviving in Japan? A Case Study of Apparel Sewing SMEs in the North Iwate

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Abstract: The choice between domestic and foreign production is one of the most important decisions not only for international business management but also for economic diplomacy and industrial policy. The reality is not a binary choice, but some firms use both. Why do companies maintain labour-intensive production in developed countries in the globalised world? To understand business challenges and strategies, this study examines small and medium-sized enterprises (SMEs) in the garment factory agglomeration in the North (Kenpoku) area of Iwate Prefecture, Japan. The in-depth case study, with a special focus on the six competitiveness factors of Japanese apparel firms, recognises that the 'Made in Japan' branding strategy is one of the effective ways to attract Japanese customers. This marketing strategy may motivate some firms to consider international market development. However, most Japanese SME apparel manufacturers play the role of original equipment manufacturer (OEM) for specific domestic market-oriented apparel companies. To meet customers' strict delivery requirements, our case SMEs are developing multi-skilled workers to cope with high-mix small-lot production and fast delivery simultaneously. This management innovation is essential for building long-term business relationships and trust with corporate apparel buyers and surviving competition from products made in China and other developing countries.



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1. Introduction

The choice between internationalisation and maintaining domestic business is one of the most important issues not only for international business studies but also for the management decisions of any companies. Internationalisation is a complex process (Santos-Álvarez & García-Merino, 2010) and the decision-making processes are also complicated, both inside and outside the companies (Anderssons, 2011; Larsen et al., 2023). It is easy to see that labour-intensive industries, such as the apparel industry with its labour-intensive sewing processes, are one of the sectors that companies need to quickly internationalise due to increasing labour wages compared to other sectors. Despite the mainstream trend, some apparel companies maintain domestic production in high-income countries, such as Japan, and still make some profits. The scope of this study is to understand how and why some Japanese apparel firms still maintain production in Japan by focusing on the strengths and characteristics of production operations in Japan and to attempt to indicate some difficulties with exploring overseas markets.

As a so-called labour-intensive industry, labour costs are one of the most important elements for the garment industry when deciding where to locate factories. The 1980s is generally considered to be the turning point for Japan's economic structure (Kojo, 1993). The Plaza Accord in 1985 and the resulting sharp appreciation of the Japanese yen against the US dollar affected the market and production of the Japanese manufacturing sector (Edgington, 1994). The Japan-US structural adjustment initiatives in the late 1980s and early 1990s are also the reason that Japanese firms started to make structural changes to their production processes, which simultaneously promoted the overseas expansion of their production bases in foreign countries such as China and the Association of South East Asian Nations (ASEAN). On the other hand, export-oriented domestic small- and medium-sized enterprises (SMEs) faced a difficult situation (Matsuura et al., 2003). Japanese companies were expected to take advantage of the abundant and cheap labour in Asian countries to become more profitable.

The apparel industry in particular has led the development and expansion of this Japanese production network in Asian countries. Because of its labour-intensive nature, the apparel industry always needs to look for a production base that allows companies to make products as cheaply as possible. As a result, this 'footloose' industry is always at the forefront of new frontiers in developing or expanding overseas manufacturing (Rolle et al., 2004). In other words, labour costs and workers' wages have been regarded as critical variables in determining the profitability of this industry.

The expansion of overseas production networks in Japan's apparel industry has had a significant impact on Japan's imports and domestic production of apparel products. According to the [Nikkei News Paper](#) (2018b), the import penetration ratio (the ratio of imports to domestic shipments) of apparel products has gradually increased since the 1980s, reaching about 97.6 percent in 2017, compared to about 60 percent in 1992. Another related survey conducted by the Japanese Ministry of Economy, Trade and Industry (METI) in 2018 (METI, 2018) shows the shrinking domestic market size of the apparel industry. On the other hand, Figure 1 also shows that the number of supply items is slightly increasing. These two facts mean that the value of each item in the Japanese apparel industry has been permanently decreasing for the last 20 years. Figure 2 shows that the number of enterprises and the total value of shipments in the apparel industry have decreased dramatically in 25 years, which also means that the market size is shrinking.

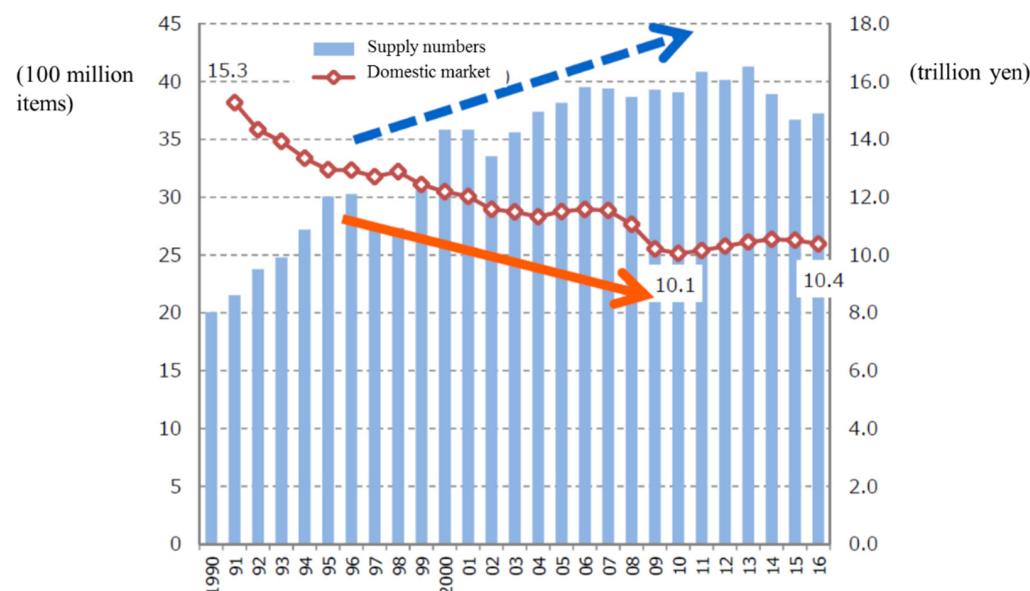


Figure 1. Number of supply items and size of domestic market. Source: [METI](#) (2018).

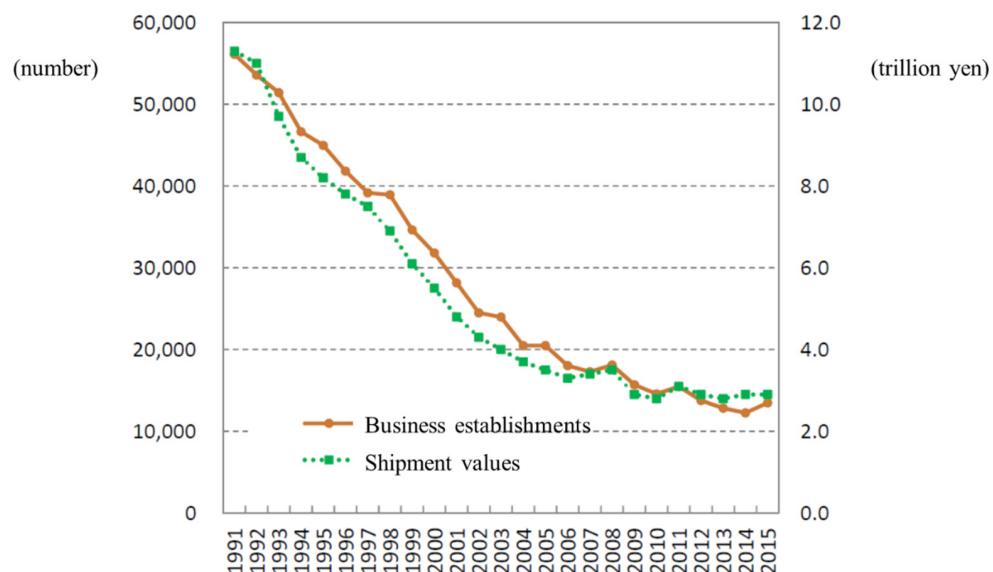


Figure 2. Number of business establishments and total amount of shipment values. Source: [METI \(2018\)](#).

Is the shrinking domestic market an irreversible trend for Japan's garment industry? The article in the [Nikkei News Paper \(2018b\)](#) also mentions that some Japanese companies are still maintaining domestic production in Japan through a branding strategy. These manufacturing companies attempt to utilise the 'Made in Japan' brand to present their products as 'good quality' products. Therefore, the 'high quality' branding strategy is one of the survival strategies for Japanese apparel companies to maintain domestic production bases. To support this strategy, the Japan Apparel Fashion Industry Council is promoting the *JooQUALITY* certification system.

Japanese companies are struggling to find better locations for their production capacity. However, the strategic choice is not as simple as the dichotomy between domestic and overseas production. It is not easy to decide whether to maintain overseas production bases or to return to domestic production based only on labour costs ([Nikkei News Paper, 2018a](#)). Through our interview-based research, it is gradually becoming clear that the apparel factories of Japanese SMEs need innovation on the management side to solve the management challenges for a long-term relationship with apparel companies. Therefore, the critical motivation of this study is to understand how and why the Japanese apparel industry continues to maintain production in Japan by focusing on the strengths and characteristics of production bases in Japan and attempting to overcome the dichotomous choice between domestic and overseas production.

In this study, we would like to analyse the activities of Japanese apparel manufacturers to consider the optimal management for survival. Specifically, we would like to focus on Japanese SME apparel manufacturers to understand managerial innovation ([Birkinshaw et al., 2008](#); [Damanpour & Aravind, 2012](#)) to cope with the demands of apparel companies and survive in competition with overseas (China, ASEAN, etc.) production. In Section 2, we present the previous research to understand our research motivation. In Section 3, we would like to introduce the reason or criteria for case selection. Section 3 will also illustrate results of the case studies of Japanese garment factories. In Section 4, we will show the cross-comparison and discussion from the results of the case studies. Section 5 concludes this study.

2. Literature Review

Japanese apparel companies and their domestic factories have faced a tough business environment over the past 30 years. As a labour-intensive industry, Japanese apparel companies are expanding their production bases overseas, especially in China, ASEAN, and South Asian regions (Figure 3). Several previous studies have suggested the hollowing out of the Japanese domestic industry (Nakano, 2014; Sakurai, 2013; Tsujimura & Mizoshita, 2004) to compete with developing countries. However, the reality is different to their suggestion, and it would not only lead to a dichotomy between the survival and closure of apparel factories in Japan. Some Japanese apparel companies still use Japanese apparel factories, while most items are produced in China or other developing countries. These companies are trying to optimise their business by using multiple factories inside and outside Japan (Iwasaki & Ueki, 2022).

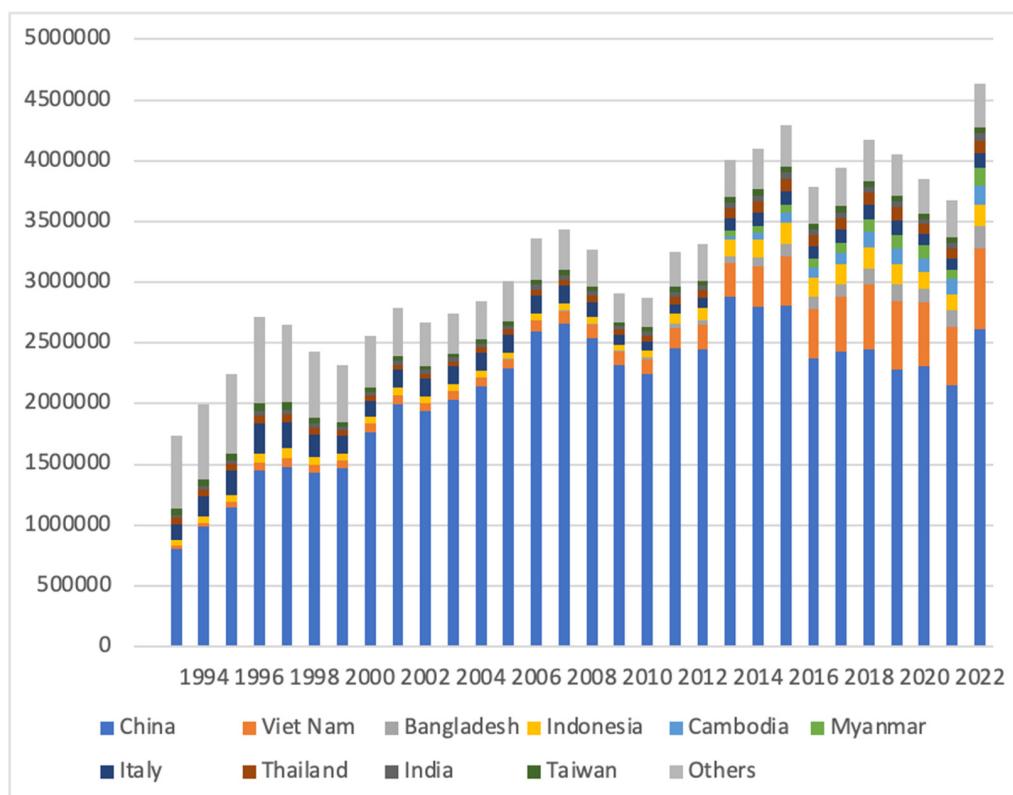


Figure 3. Japan's textile imports from major countries from 1993 to 2022 (in million JPY). Source: Statistics of Japan Textile Import Association (JTIA). <https://www.jtia.or.jp/toukei/toukei.htm>, last accessed on 3 November 2023. Note: The authors aggregated these data, and the data for Cambodia and Myanmar starts from 2008 and the data for Bangladesh starts from 2003 due to lack of data.

From the perspective of the use of multi-location, multi-factory production, the studies of global value chains (GVCs) or global production networks (GPNs) try to explain the dispersion of multi-factory locations of multinational corporations (MNCs) mainly from the perspective of sociology and management studies (Gereffi, 1994, 1999; Gereffi et al., 2021; Gereffi & Memedovic, 2003; Neilson et al., 2014; APEC, 2016). The process of value creation across borders is represented by chains or networks, and SME production units can engage in global value creation processes by participating in chains or networks driven by MNCs. Studies on GVCs or GPNs focus first on the apparel, textile, and accessories industry and mainly explain the dynamics of the activities of MNCs, which are mostly large firms. As far as the activities of SMEs are concerned, the discussion focuses mainly on the participation of SMEs in GVCs or GPNs dominated by MNCs. However, the sewing process is classified as

a midstream industry in the apparel and textile value chain, which tends to be a low value-added and labour-intensive process concentrated mainly in developing countries (Gereffi et al., 2021, Figure 1). Therefore, labour-intensive production in developed countries is not the main focus of research in the GVC or GPN literature, although the leading fast fashion MNC, Zara, maintains its production in its home country, Spain (Christopher, 2000). The explanation of GVCs or GPNs is not sufficient to understand how high labour-cost countries can maintain the labour-intensive process of the apparel industry.

To fill this knowledge gap, sourcing strategy is one aspect that gives a hint to the decision-making structure (Jung, 2020). The discussions of reshoring (McIvor & Bals, 2021; Pedroletti & Ciabuschi, 2023) and back-shoring (Huang et al., 2023) have been, in particular, flourished by the recent trade war (Pedroletti & Ciabuschi, 2023), as well as the COVID-19 pandemic, in line with the global value chains' restructuring (Barbieri et al., 2020; Niu et al., 2023). As Pedroletti and Ciabuschi (2023, p. 1) points out, reshoring is tightly linked with the previous offshoring decisions. When the potential benefits of offshoring begin to deteriorate, firms may start evaluating the option of returning their operations to their home country. Existing research on reshoring points out the various reasons and phenomena for why and how firms resume domestic production, however, it still lacks the dynamics behind the decision to keep high-cost productions.

An in-depth understanding of complex multi-plant operations (Lohmer & Lasch, 2021) is also an important approach to filling the knowledge gap. Iwasaki and Ueki (2022) explain the multi-location, multi-plant operation by Japanese SMEs, and the importance of production in Japan for the apparel, textile, and accessories industry to meet the diversified demands of Japanese consumers. Their studies describe how some SMEs make good use of production bases in Japan, China, and the ASEAN region, which include factories owned by themselves and subcontractors. The combination of factories with different advantages makes production networks responsive to volatile market demands. However, their study of multi-location, multi-plant operation lacks reference to original equipment manufacturer (OEM)-style production in industrial districts. The in-house factory has several advantages in terms of information sharing and close interdepartmental collaboration with headquarters to increase agility, while the use of subcontractors in the garment factory as OEMs helps to reduce costs. To understand the characteristics of the entire Japanese apparel production network, we need to include OEMs in our analysis.

The local characteristics of factory management are the other important issue to be studied in terms of firms' decisions on the division of labour, the management of the production network, and local industrial development. International economics and economic geography (Krugman, 1991) have developed models to explain the agglomeration and dispersion of production activities. The resulting geographical configuration of the production network is composed of factories operating in industrial clusters with different characteristics, reflecting the international division of labour. However, studies on clusters have mostly focused on large traditional industrial and high-tech clusters (Carvajala & Watanabe, 2004; Kondo, 2006). This observation will also apply to domestic production networks in Japan, which have developed as a result of the internal movement from traditional industrial districts around the major metropolitan areas, such as Tokyo and Osaka, to rural areas in less industrialised prefectures, such as the Kyushu and Northeast (Tohoku) regions. As shown by the observation of the automobile industry (Saeki, 2020), the newly developed industrial districts in rural areas in Japan have different structures from the traditional large industrial districts. Such different characteristics of industrial clusters in different places are incorporated into an apparel production network of a company that operates its own factories or uses OEMs that operate industrial clusters with different characteristics (Iwasaki & Ueki, 2022). However, to the best of our knowledge, previous

studies on industrial districts in Japan have paid little attention to the role of factories in small industrial districts in overall production networks. We need to fill the gap in our knowledge by taking a detailed look at factory operations in newly developed industrial districts.

The review of these previous research articles helps to derive the research questions that characterise the direction of our study as follows:

1. What kind of management innovations do factories in Japan, including OEMs, make to satisfy the diversified needs of Japanese consumers?
2. What are the advantages of factories in Japan compared to those in China and ASEAN in labour-intensive apparel industries, other than labour costs?
3. What are the characteristics of industrial districts for garment sewing in rural areas compared to the existing large industrial districts in Japan?

The careful study of these questions for garment sewing will help with understanding the business environment that allows Japanese manufacturing industries to maintain domestic production of products and avoid the simple dichotomous choice of domestic or foreign production not only for garment but also for other industries.

In the next section, we will introduce the research method of this study to select the cases that help to understand the discussion.

3. Research Methods

3.1. Selection of the Cases

The literature review in the previous section presented the three main perspectives of this study. Under the three viewpoints, we selected garment factories in the Kenpoku area or North area of Iwate Prefecture (North Iwate), Japan. The North Iwate area is one of the garment industry agglomerations in Japan, consisting mainly of Ninohe and Kuji City, two major cities in the area. Figure 4 shows the total population of Ninohe and Kuji City. The other two figures, Figures 5 and 6, show the total number of employees in the manufacturing and textile industries of Ninohe and Kuji City, which indicates a high proportion of the textile industry in the manufacturing sector in this area (i.e., about 10–18% of the total manufacturing sector).

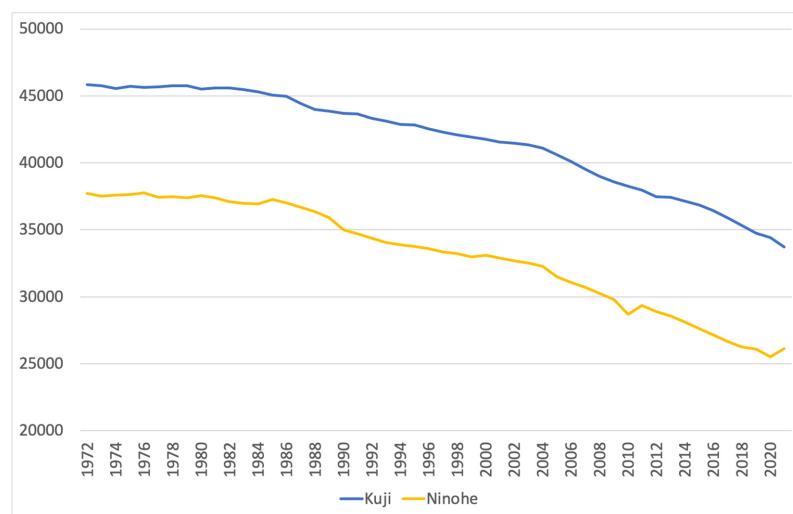


Figure 4. Populations of Kuji City and Ninohe City from 1978 to 2021. Source: Ninohe City and Kuji City statistics. Note, 1, These two cities experienced municipal mergers in 2005. The current Ninohe City and Kuji City are composed of the former Ninohe City and Zyojoji Town and former Kuji City and Yamagata Village, respectively. Note, 2, The number of populations is based on the current city areas.

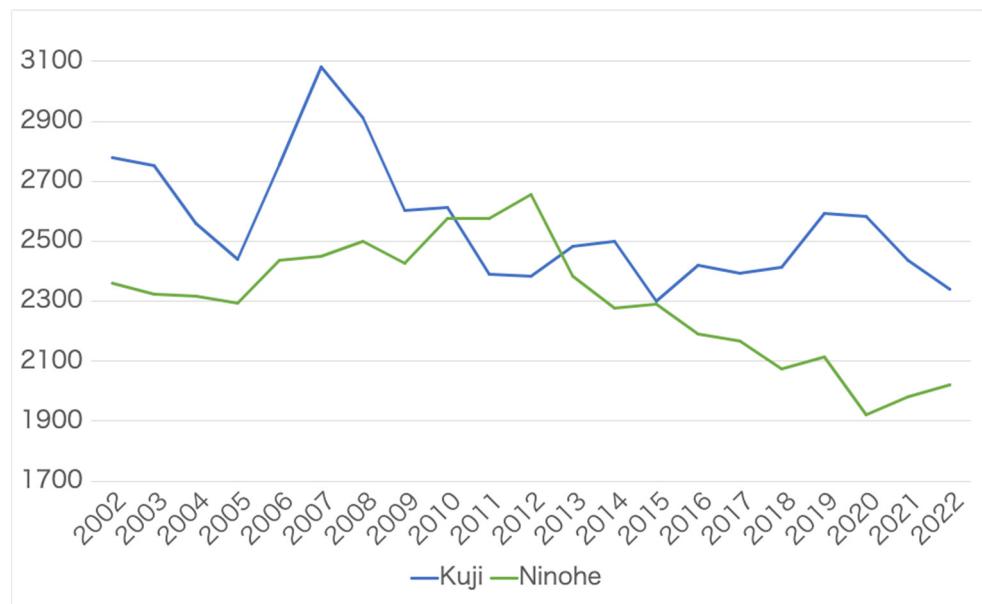


Figure 5. The total number of workers in the manufacturing sector in Kuji City and Ninohe City. Sources: Census of Manufacturing, METI, Japan, from 2002 to 2022. <http://www.meti.go.jp/statistics/tyo/kougyo/result-2.html>, last accessed on 21 November 2024. Note, 1, same as Note 1 in Figure 4. Note, 2, Only the numbers of workers in Ninohe City and Kuji City are reflected in the figure, so the data for 2002–2005 used the old city areas, whereas the data for 2006–2022 is based on the current city areas.

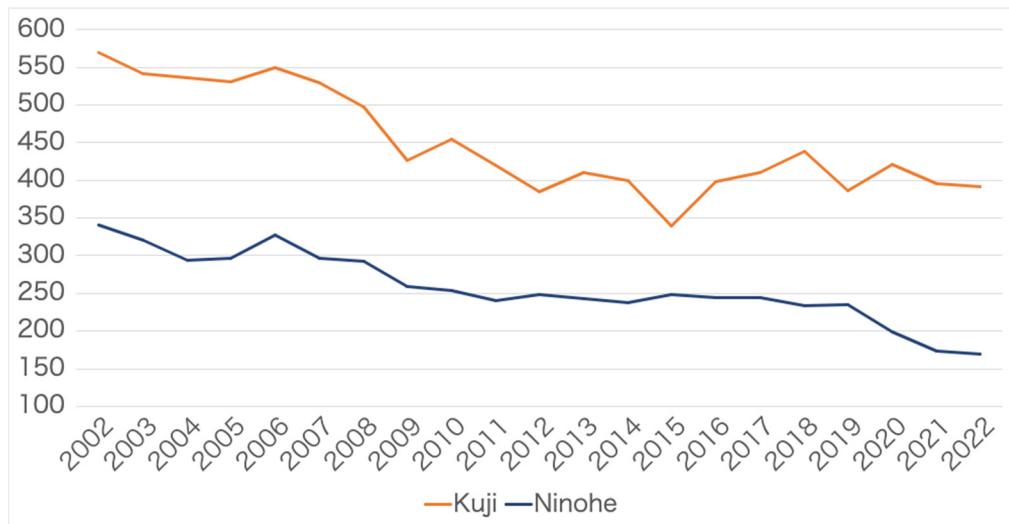


Figure 6. The total number of workers in the textile industry sector in Kuji City and Ninohe City. Sources: Census of Manufacturing, METI, Japan, from 2002 to 2022. <http://www.meti.go.jp/statistics/tyo/kougyo/result-2.html>, last accessed on 21 November 2024. Note, 1, same as Note 1 in Figure 4. Note, 2, same as Note 2 in Figure 5.

We selected this area as a possible research site with the expectation that the following backgrounds of this area would satisfy our research interests. First, the production activities in Ninohe City and Kuji City were formerly separated from Morioka City (i.e., the capital of Iwate Prefecture), the central region, and the southern region. Therefore, during the planning period of this study, we expected the garment sewing factory agglomeration in North Iwate to be newly developed compared to the traditional industrial districts in Japan. Secondly, the garment factories in Kuji City had jointly developed a website to promote garment manufacturing in the city when we started collecting information about the area. Apparel

factories in the North Iwate area also organised the North Iwate Apparel Industry Promotion Association (Kita Iwate Apparel Sangyo Shinko Kai) in 2015, which has 17 member companies as of November 2024 ([Kita Iwate Apparel Sangyo Shinko Kai, n.d.](#)).

3.2. Interview Questions

To analyse the characteristics of apparel manufacturing companies in Japan, we applied a semi-structured interview. We predetermined the six categories of questions regarding quality, cost, lead time management, human resource management, worker skill development, and internationalisation, which are consistent with the findings from [Iwasaki and Ueki \(2022\)](#). Their previous studies on the Japanese apparel firms identified these elements as key determinants of the competitiveness of their value chains that combined multiple factories with different comparative advantages in different locations, including Japan. Among the six categories, the first three are related to quality, cost, and delivery (QCD), which are the three basic elements of factory management in the Japanese production system. The fourth and fifth are worker-related issues. Internationalisation is related to the issues of constraints and forward-looking ambition and management.

3.3. Case Studies of the North Iwate Area

Following the six criteria listed in the previous section, we try to analyse the characteristics of each firm through the case study method ([Yin, 2017](#)). We obtained information about these firms through interview-based surveys at the level of factory manager or president.

Based on the findings from the on-desk preliminary study, it suggested that a kind of clustering effect was developing in the apparel manufacturing industry in this area and encouraged us to conduct qualitative research based on interviews with the industrial promotion offices of the local governments and each selected firm. We conducted several research trips in February and May 2018, for a total of five days, to conduct semi-structured interviews for eight firms in the area and draft the research findings. Each interview lasted 2–3 h, and the author discussed with each SME manager and recorded each discussion. After the interviews, the authors conducted follow-up research beginning in 2019, as a field trip, until the current time (March 2025) to update the firms' information, which included checking each firm's website to support the previous interviews.

3.4. Firm A

Firm A, which is located in the central part of the North Iwate area, started its business in Tokyo in the 1960s and moved to Iwate Prefecture in the 1970s (the factory in Tokyo was closed in the 1970s). Firm A has another factory in Iwate Prefecture, and the production capacity is the same between the two factories. Their main product is formal-style clothes (used on the occasion of funerals) for women. We interviewed the factory manager for three hours in May 2018.

3.4.1. Quality

The price of Firm A's product is around JPY 100,000; therefore, Firm A maintains the so-called *JooQUALITY*, which means that not only is the sewing process performed in Japan but also all the materials are made in Japan. However, during the interview, the manager said that it is not impossible for international competitors to produce the same quality if overseas factories continue to carry out *Kaizen* activities.

3.4.2. Cost

It is possible to see black formal-style clothes for around USD 100 in large mass retailers, and the price difference is more pronounced for regular products. It is feasible to

keep a certain amount of stock of the regular products so that imported products can be sold at half the price of Firm A's products. However, the cost of manufacturing in China is also rising, so these imported items are now more likely to be produced in Myanmar or Bangladesh.

3.4.3. Lead Time Management

Firm A does business with several clothing companies that order three seasons (spring, summer, and winter) or only two seasons (summer and winter). The basic process is 'making samples', 'showing samples', and 'ordering products' from the garment companies. Additional orders, such as different sizes, are covered by domestic production, while a large amount is produced in the ASEAN region. Firm A also covers the 'semi-order' style products, and the average lead time (from order to delivery) is less than 10 days.

3.4.4. Human Resource Management

Firm A has been employing high school (HS) graduates since its foundation. However, the declining birth rate is affecting the total number of high school graduates, and this employment is becoming increasingly difficult.

3.4.5. Skill Development of Workers

Firm A develops multi-skilled workers to cope with low-volume, multi-product production through an on-the-job training system and by inviting external trainers. Firm A encourages young workers to challenge the international convention of World Skills International. This encouragement helps to give young workers a good chance to learn all the processes of making clothes.

3.4.6. Internationalisation

Some volume of products is exported to the Middle East due to it being black colour formal wear. This is because Firm A's client companies want to increase their export products. According to the interview, it is difficult to frequently deal with some specification changes for export-oriented products, and due to a lack of labour force, Firm A does not have any plan to expand at present.

3.5. Firm B

Firm B is located in the eastern part of the North Iwate area. The main product of Firm B is a standard uniform for factory use. The production of uniforms requires different specific skills compared to the general sewing process. This firm started its business in the late 1980s, and its main business is to be a supplier for a big company. We had an interview with the factory manager in February 2018, which lasted about 2 h.

3.5.1. Quality

By continuing the *Kaizen* activities, the overseas factories of his large company develop their skills to make products under the strict requirements of their client company. However, according to factory manager B, the Japanese factory can deal with the implicit details that are not written in the specification documents or sample products.

3.5.2. Cost

Firm B is a subcontractor of a large company, so it does not need to stock several materials at its own cost. This arrangement reduces considerably the burden of stock management on the company.

3.5.3. Lead Time Management

Firm B's main business is to deal with multi-product small-batch production with short delivery times. The large batch production is carried out by the parent company's affiliated factories in Vietnam and China. However, due to the characteristics of the uniform products, this firm makes standard items with some customisation in Japan (i.e., almost every uniform needs a logo mark or the name of a company) before delivering the final products to the customers, so additional orders are likely to occur.

3.5.4. Human Resource Management

The number of employees is about 30–40, and the average age is about 40 (Japanese only). To balance the labour force, Firm B has started to accept foreign technical interns (FTIs) from Vietnam. Firm B would like to increase the number of workers to define each production line, but workers who arrive after changing jobs do not settle well. Some workers come from another factory that has already closed down; others come after taking care of their parents.

3.5.5. Skill Development of Workers

To cope with the multi-product, low-volume production, Firm B adopted the Toyota Sewing System, called TSS, and tried to develop multi-skilled workers. In general, the production of uniforms has a lot of sewing processes compared to general sewing products. One production line consists of about 20 workers, and each worker has two or three sewing processes. When there is a backlog with a process, other workers help the responsible worker to clear the backlog.

3.5.6. Internationalisation

Firm B has a stable business with one large company as a supplier, so it does not have a strong interest in internationalisation.

3.6. Firm C

Firm C started its business in the late 1980s and is located in the eastern part of the North Iwate area. The main products are underwear, including T-shirts, pants, etc. Firm C's main business is ordered from a large parent company, and some machines are borrowed from that company. The total number of workers is about 80 in two factories, and we had an interview with the factory manager in February 2018.

3.6.1. Quality

Due to the long-term business relationship with a large company, Firm C has followed the company's strict quality control, including factory inspections. The customers of the client company desire products that are made in Japan, so Firm C's products offer an advantage for them.

3.6.2. Cost

Due to the long-term business relationship or the difference in product characteristics, we cannot specify the cost difference between Firm C (Japanese production) and overseas production. However, as we will discuss in another category, the TSS and hanger line system contribute to cost reduction by checking the progress of work in a timely manner.

3.6.3. Lead Time Management

Firm C manufactures some seasonal products; therefore, samples are produced twice a year (i.e., summer and winter) for exhibitions. To maintain a long-term business relationship with the customer, delivery management is the most important factor in the meeting. To

fulfil the delivery, this firm has adopted the hanger line system to reduce the number of products in progress by moving the items individually and visualising the working status of the sewing staff and TSS to make a small-volume, large-variety production efficient.

3.6.4. Human Resource Management

The average age of the Japanese workers is around 50. Firm C also employs foreign technical interns from Vietnam, who account for about 20% of the total workforce. The salary is the same as that of Japanese workers. Firm C introduces a system that divides workers into four personal characteristics and tries to assemble production lines by not deviating from one or two characteristics.

3.6.5. Skill Development of Workers

As mentioned above, Firm C is developing TSS and is trying to make workers multi-skilled. Each worker oversees two or three production processes and needs to cooperate on a production line. The skill difference between Japanese and Vietnamese is not so big, but the characteristics can be different, according to the interview.

3.6.6. Internationalisation

Firm C also does most of its business with one large company, so it has no strong incentive to internationalise its business. However, some products are sold abroad due to the overseas expansion of the client company.

3.7. Firm D

Firm D is located in the southeastern part of the North Iwate area, and its business started in Tokyo in the 1960s. In the 1970s, Firm D started its business in Iwate Prefecture, supported by the local government's policy of inviting businesses to Iwate. Firm D has around 40 employees, but in the 1980s it had more than 200 employees across two factories. Its main product is physical education (PE) clothing for schools.

3.7.1. Quality

About 80–90% of business is ordered by one sportswear company, and the quality control and factory inspection are conducted by that sportswear company. The contract is OEM style, but 'the company uses Firm D as an in-house factory', according to the interview. Firm D will become a supplier to a famous international brand, but the quality requirements and factory inspections will be more stringent.

3.7.2. Cost

For a school PE kit, the number of batches depends on the number of pupils in a class. Of course, some products, such as white colour T-shirts, are the same standard for each grade, but almost all products are 150–200 lots for one school, including the size difference. Each school has a different design and colour, but once the design is fixed, it does not change very often. Therefore, the large-batch products are covered by overseas factories, and Firm D deals with the small-batch products. To cope with the small batch, Firm D introduced a cutting machine for only one sheet of cloth by using the subsidy from the Agency for Small and Medium-sized Enterprises of Japan.

3.7.3. Lead Time Management

According to the interview, the strength of Firm D is that it ensures its promised delivery date, no matter how busy it is. Due to its product characteristics, there is only one delivery date schedule, which is before the school entrance in April. Firm D's year-round work is to meet the April delivery date, but the final number of new students is decided

around March, so some numbers are handled by quick response (QR). The busy season starts in January, and the only holidays are Sundays during this season.

3.7.4. Human Resource Management

The average age of the workers is around 50, and when they retire at the age of 65, Firm D hires them back for part-time work during the busy seasons. It is becoming increasingly difficult to recruit school leavers, and they do not tend to stay long-term. Two or three years ago, Firm D offered only full-time jobs, but now it has changed its policy to allow 4- to 6-h part-time jobs. Firm D also introduced foreign technical interns from Vietnam.

3.7.5. Skill Development of Workers

Firm D is also developing workers' skills in dealing with small batches and multitasking due to the high-volume production process of school PE clothing.

3.7.6. Internationalisation

Due to the characteristics of the products for school PE clothing, Firm D does not have a strong intention to become international. On the other hand, Firm D has started to deal with some requirements of an international brand that a client company has decided to promote.

3.8. Firm E

Firm E started its business in the 1970s, and its main product is clothes for children. Firm E is located in the eastern part of the North Iwate area. The total number of workers is about 60 when we conducted our interview (and currently around 30 through the company's website information). Their work is OEM style. We had an interview with the factory manager for about two hours in February 2018.

3.8.1. Quality

The factory manager had also conducted business in China, and according to his experience, the level of the workers and the quality of the products are almost the same as those made in Japan. The only thing that is difficult to imitate is the communication with the customers or to understand how the customers feel about the product.

3.8.2. Cost

The cost difference between China and Japan is becoming smaller, but in China, all the processes, such as sourcing, printing, and embroidery, can be carried out in one order. From the customer's point of view, it makes sense to leave everything to subcontractors.

3.8.3. Lead Time Management

The main work of Firm E is to deal with the conventional business style of the clothing industry (sample production and exhibition). The products have four seasons (spring, summer, autumn, and winter). It takes two months to complete the fabrics from the order and one month for the sewing process. According to the interview, it is difficult for firm E to respond quickly. In terms of delivery time, because of the location, Firm E's products can go directly to retailers' stores in Tokyo without using a warehouse in Tokyo. It distinguishes the functions of domestic production and overseas production.

3.8.4. Human Resource Management

The average age of the workers is around 40, and Firm E also takes on foreign technical interns from Vietnam. The group leaders of the production lines prepare each production

plan, but it has gradually become difficult to retain the workers at the group leader level due to their ageing.

3.8.5. Skill Development of Workers

The factory manager believes that it is unavoidable to deal with multi-product, low-volume production to maintain the domestic product. The costs of training the workers are covered by subsidies from the public employment service (called 'Hello Work'). It enables workers to try out production processes that are unusual for everyday work.

3.8.6. Internationalisation

The manager had previously run a business and owned a factory in China. The manager has strong internationalisation ambitions, not only to sell overseas but also to become a manufacturing company for several high-end international brands. Firm E tried to sell its products in China through the Internet, emphasising the quality of 'Made in Japan', but the result was 'miserable', according to him. Now the number of exports to the Chinese market is gradually increasing due to the overseas expansion of the client company. According to the interview, it is possible to compete with the products of a Chinese luxury brand, so the manager has a special intention to work for the emerging market.

3.9. Firm F

Firm F is located in the eastern part of the North Iwate area and started its business in the 1980s. The main product of Firm F is standard uniforms for factory use. In May 2018, we interviewed the factory manager for about 3 h.

3.9.1. Quality

Firm F has the function of producing sample products for each group factory. Regarding the defect rate between Firm F, its own factories in Vietnam, and other overseas subcontractors, its own Vietnamese factories are 100 times higher than Firm F's defect rate, and the subcontractors are 2–3 times higher than the Vietnamese factories. However, this does not mean that the quality of A-level products (i.e., sellable items) produced overseas is poor. According to the interview, the quality of the products is almost the same.

3.9.2. Cost

Labour costs in Firm F are 5–7 times higher than in Vietnam. Japanese factories cannot easily compete with overseas factories, so Firm F concentrates on the products needed in Japan. The low-volume items, such as 20–50 pieces, are very difficult and unproductive to make in overseas factories. To reduce costs, Firm F checks how long each production process takes by recording videos and analysing them.

3.9.3. Lead Time Management

As mentioned above, this Japanese factory concentrates on the products needed for the Japanese market. In terms of seasonality, there are three delivery dates in a year: at the end of March for the shipping of spring outfits; May for the change to summer clothes; and September for the change to autumn and winter clothes. Therefore, from October to the following January is a quiet period for Firm F, but the procurement of fabrics needs to be carried out about 6 months before the peak time. Firm F makes its factory operation gradually busier to accumulate the inventory of products in progress for two months, while the manager wants to reduce them for one month.

3.9.4. Human Resource Management

The average age of the workers is around 40 years old. To secure a workforce, Firm F introduces foreign technical interns from Vietnam. They come from the group's factories in Vietnam, and after this training in Japan, they will become group leaders in the Vietnamese factories. The firm also changed the terms of employment. By 2015 or 2016, Firm F only offered full-time jobs, but now it is changing its policy to allow part-time jobs. After this change, a certain number of candidates applied, but the labour market is still tight.

3.9.5. Skill Development of Workers

Firm F introduces TSS and tries to develop multi-skilled workers. However, Firm F does not use a salary system that depends on the productivity of each worker, while in Vietnam and China, additional salaries are paid for TSS workers. The skills of the workers meet the requirements of multi-product, low-volume production. Firm F strengthens the activities of the quality control (QC) circle. Each line forms a circle and has the opportunity to present at the QC circle tournament among all group companies. Firm F also strengthens *Kaizen* activities. Each worker is required to submit at least two *Kaizen* papers per month, and a prize is awarded to workers who submit excellent *Kaizen* suggestions.

3.9.6. Internationalisation

The manager of Firm F has some intentions to cooperate with another in-house factory of a group company abroad, but the focus of Firm F is on the Japanese domestic market. The interest in internationalisation is mainly limited to production issues.

3.10. Firm G

Firm G is located in the eastern part of Kuji City and started its business in the 1980s. The reason for choosing this area is simply because it is the founder's hometown. Firm G's main products are swimwear and casual shirts. The total number of workers is about 30 people. Their work is OEM style, but there are not many competitors in Tohoku. We had an interview with the factory manager for about two hours in May 2018.

3.10.1. Quality

According to the interview, the manager believes that the reason Firm G survives is because of its ability to make good quality products. He said, 'If you keep making 'Made in Japan' products, it will definitely survive'. Firm G's swimwear products have elasticity, and it requires high skill to sew them. Therefore, Firm G can compete for the quality of products with overseas factories.

3.10.2. Cost

Regarding the cost between China and Firm G, it cannot compete with the Chinese factory, so Firm G only focuses on producing small-batch products for the Japanese market. Due to the OEM contract, the processing fees are fixed at a few percent of the retail price, so it is better to produce high retail price products despite the small lot.

3.10.3. Lead Time Management

Firm G's main products are swimwear and casual shirts. Regarding swimwear, the seasonality is only one time in a year—the summer season. Therefore, from January to July, it is too busy to produce them, but after August, it enters a quiet period. As for the casual shirts, the seasonality is as usual, which is four times a year. It is necessary to fulfil the short delivery times and small quantity orders.

3.10.4. Human Resource Management

The average age of workers is around 50. The labour market is very tight, and it is very difficult to hire workers, although Firm G will employ workers over 50 years old. After the Tohoku Great Earthquake in 2011, the labour market has become much tighter. Firm G also accepts foreign technical trainees from Vietnam. Now almost all the sewing staff are full-time.

3.10.5. Skill Development of Workers

Regarding the training of multi-skilled workers, the group leaders of the production lines have the discretion to do so. Firm G does not provide special training for workers, but it maintains the skills to produce good quality products. One of the reasons for this, according to the interviewee, is that Firm G has been able to recruit experienced garment sewing workers.

3.10.6. Internationalisation

The manager of Firm G emphasised that imported products do not fit the Japanese body shape and the colours of Japanese trends, but the manager has no interest in exporting his products.

3.11. Firm H

Firm H started its business in the 1970s. At first, Firm H started in Tokyo to create jobs for workers from the North Iwate area, but in the 1980s, Firm H moved its factory to this area. The total number of workers is 40 and the main products are women's clothes. In February 2018, we had an interview with the factory manager for about two hours.

3.11.1. Quality

Firm H produces high-end women's clothing. According to the factory manager, the number of factories capable of producing luxury women's clothing in Japan has gradually decreased in the last ten years due to the expansion of overseas production. Firm H has developed its own brand and has been selling through the Internet for two years. The demand for 'Made in Japan' is gradually increasing, but the number of items sold is still small.

3.11.2. Cost

According to the factory manager, garment companies consider the appropriate use of both domestic and overseas factories depending on capacity, capability, and cost. Due to competition from overseas, Firm H focuses on producing high-end products.

3.11.3. Lead Time Management

One of the strengths of manufacturing in Japan is that it can produce when the apparel companies want to sell. The role of apparel companies is to order products that can be sold in the Japanese market. Therefore, delivery time is the most important factor in doing business. Firm H's business is conventional Japanese-style 4-seasonal clothing products. However, to compensate for the low seasons, Firm H is trying to develop its own brand by using Internet sales.

3.11.4. Human Resource Management

The average age of the workforce is around 40–50 and rising slightly. The number of workers is gradually decreasing from 70 to around 40. Firm H compensates its labour force by employing part-time workers, while it does not employ foreign technical trainees.

3.11.5. Skill Development of Workers

Firm H also trains workers in multi-skills, but according to the interviewee, it is more difficult to do so now than in the past. However, due to the decline in the number of factories in Japan, some garment companies are thinking more than ever about paying fees to continue to produce 'Made in Japan' products. Therefore, the skills and abilities of workers and factories are inevitably important, said the factory manager.

3.11.6. Internationalisation

With the overseas expansion of a client company, some of Firm H's products are also sold abroad. However, according to the interview, new challenges such as private label or internationalisation are limited by the lack of workforce. The manager also said, 'The number of customers who prefer to buy 'Made in Japan' products is still limited'.

4. Discussion

Following the previous section, in which the case studies of the eight companies were described individually, this section makes a comparison between the eight companies (Table 1) and briefly outlines the common features in each category. We also introduce the role of industrial clustering in factory operations and industrial development in this rural area.

4.1. Common Managerial Features

4.1.1. Quality

Quality is one of the key factors in location decision-making (Pedroletti & Ciabuschi, 2023; Tsai & Urmetzer, 2024) as Japanese manufacturing has the most stringent quality control. Some consumers trust and prefer 'Made in Japan' products to enjoy their high quality. Some manufacturing areas in Japan are trying to turn their local products into brands (Tsukada, 1995). All the interviewed companies consider product quality to be one of the most important factors in differentiating themselves from competitors. 'Made in Japan' products are profitable for the market, and the branding strategy is also effective in promoting their high quality. However, most companies also fear that overseas factories will quickly catch up with Japanese quality. Therefore, while the strategic focus on quality remains important, it is by no means a sufficient condition for the survival of Japanese manufacturing.

4.1.2. Cost

Because of its labour-intensive nature, the clothing industry is keen to reduce labour costs, as previous studies (Jung, 2020; Pedroletti & Ciabuschi, 2023; Tsai & Urmetzer, 2024) pointed to this factor as the reason for offshoring. However, all companies mention that they are not competitive with overseas production in terms of labour costs. Almost all companies focus on high-mix, low-volume production with a short lead time to differentiate themselves from competitors with lower labour costs in developing countries. This finding is consistent with the cases of Japanese SMEs operating factories in Japan and developing countries in Asia that do not only consider labour costs to determine their production sites to enhance the competitiveness of their entire supply chains (Iwasaki & Ueki, 2022). Although this study focuses only on production sites, firms arrange logistics and distribution centres to achieve cost efficiencies (Moradlou et al., 2021).

Table 1. Summary of the eight interviewed firms.

	Firm A	Firm B	Firm C	Firm D	Firm E	Firm F	Firm G	Firm H
Products	Formal-style wear	Uniform for factories	Underwear	PE clothes for school	Children's clothes	Uniform for factories	Swimwear	High-end ladies clothes
Initial Capital	JPY 30,000,000	JPY 3,000,000	No Data	JPY 3,000,000	No Data	JPY 40,000,000	JPY 10,000,000	No Data
Number of Workers	Around 100	Around 30–40	Around 90 (two factories)	Around 40	Around 60 (currently around 30 from the website)	Around 80	Around 20	Around 40
Quality	'Made in Japan' JPY 100,000 products	Japanese quality, implied details, unwritten specifications	Strict quality inspection by the contract company	Strict quality inspection by the contract company	China's and Japan's qualities are the same	Sample for all group factories	Keep 'Made in Japan' quality to survive	The needs of 'Made in Japan' are increasing, but the factories are decreasing
Cost	Regular import items are USD 100	No stock materials	Not important variables for the contract company	Small lot production, introducing new cutting machines	Cost difference between China and Japan becomes smaller	Labour costs are 5–7 times higher than Vietnam. Focusing on small volume	Small batch products. Processing fees are fixed by retail price	Capacities, abilities and costs are important for proper use of factories
Lead Time Management	Semi-order products, such as different sizes, within ten days	Short delivery, customer-made type	Delivery management for long-term business relationship	Promise delivery dates. QR	Conventional-style work, QR is difficult, direct delivery for customers	Three seasons (March, May and September), stock for 6 months	January to July is a busy season (one season)	Strength is to produce when apparel companies want to sell items
Human Resource Management	Continuing to hire HS students after graduation, no foreign technical interns (FTIs)	Accept FTIs. Want to increase the number of workers.	Accept FTIs around 20% of workers. Personal characteristics separation of teams	No FTIs, the average age is 50, using part-time for the busy season	Accept FTIs, difficult to maintain group leader level	FTIs from group factories for training. Allowing part-time job	The average age is 50. After the Tohoku earthquake, it became difficult to hire. Accept FTIs	The average age is gradually increasing, but not introducing FTIs
Skill Development of Labour	Multi-skill for multi-production, small volume	TSS for multi-product small volume	TSS for multi-skills and tasks. Skill is not different between Japanese and FTIs	Small lot multi-task work	Multi-product small lot, training by using Public Employment Security Office subsidy	TSS for multi skill. QC circle and Kaizen work (incentive)	No special training but hiring experienced workers	Difficult to maintain multi-skilled workers
Internationalisation	Some volume of products is exported to the Middle East. Buyer companies want to increase the exporting products	Only does their business with one large company as a supplier, so it does not have strong interest in internationalisation.	Business with mostly one large company, no strong incentive to internationalise. But some products are sold abroad because of the buyer company's overseas extension	Does not have a strong intention to be internationalised. Started to cope with requirements of international brand that a buyer company decided to promote	Have the ambition of internationalisation, not only selling abroad but also becoming a production firm of international high-end brands	The interest in internationalisation is mainly limited to the production matters	Firm G does not have an interest in exporting products	Internationalisation is limited due to a shortage of labour force

Note, 1, Regarding the information of initial capital, authors access each firm's website to obtain this information. Note, 2, Regarding the number of workers, authors access each firm's website and check that there has been no big difference between our interviews and now except Firm E.

4.1.3. Lead Time Management

Japanese apparel companies force their manufacturing department to achieve strict on-time delivery with production costs competitive with factories in China and Southeast Asia for the Japanese market, which has obvious seasonality in consumption. As [Iwasaki and Ueki \(2022\)](#) mentioned, some Japanese apparel firms satisfy this complex customer demand by appropriately developing a multi-location, multi-factory operation with different production and delivery lead times. Although such complex production and delivery management are costly, manufacturers take supply chain risks ([Niu et al., 2023](#); [Tsai & Urmetzer, 2024](#)) and reliability ([Huang et al., 2023](#)) into account.

Satisfying the delivery date is a very important factor in maintaining a long-term business relationship with the customer apparel companies. As Firm D said, the busy season for sewing factories is synchronised, and only manufacturing companies that can respond to customer demands will survive. Geographical proximity to Japanese consumers helps to differentiate factories in Japan from their competitors. In terms of transport days, it takes less than two days from the North Iwate to anywhere in Japan, compared to at least 5–7 days from China and ASEAN. Combining this location advantage with local sourcing and multi-skilled labour, Japanese factories have developed an advantage in handling QR orders for the Japanese domestic market. Previous studies ([Christopher, 2000](#); [Jung, 2020](#)) also emphasise agility and quickness as determinants of supply chain competitiveness.

4.1.4. Human Resource Management

With the progress of the ageing society, the labour shortage and the problem of hiring new employees are increasingly important for not only apparel companies but also other sectors in Japan, especially in rural areas. Some companies have adopted the policy of hiring technical interns from overseas to secure younger workers ([Tsukada, 1995](#); [Murakami, 2009](#))¹.

The average age of the workforce is around 40–50 years old and is gradually increasing as Japan's society ages. And the birth rate is decreasing, so fewer young workers are entering into the job market. To cope with this labour environment, more than 50% of companies accept foreign technical trainees, mainly from Vietnam, through case studies. However, some companies still try to hire Japanese high school graduates to inherit skills within a company.

4.1.5. Skill Development of Workers

Almost all companies cannot spare time for training processes alone, but to meet the requirements of client apparel companies, respondent companies are working to develop multi-skilled workers through on-the-job training (OJT) style. Multi-skilled workers, such as TSS, are inevitably important to satisfy the multi-product, small-quantity, and short-delivery date orders from client apparel companies ([Kalaoğlu & Sarıcam, 2007](#); [Pan, 2014](#)). Therefore, skill development is not only related to quality control but also to lead time management. Previous studies (e.g., [Tsai & Urmetzer, 2024](#)) focused on skill development but were not associated with production line arrangement for supply chain flexibility. Similarly, little attention was paid to the relationship between delivery frequency in the study on supply chain reconfiguration ([Niu et al., 2023](#)). Differently to this case study, interdependent elements of supply chain determinants have been separately discussed and made the comprehensive and realistic understanding of supply chain operations difficult.

4.1.6. Internationalisation

As explained by [Tan et al. \(2018\)](#), SMEs have many constraints to internationalise their business. The manufacturing firms have more difficulties to do so, especially in exporting. The ambition to internationalise is one of the key points for forward-looking management.

Some companies are considering increasing their sales abroad to expand their business opportunities or are at least concerned about their competitiveness in the international market. Others insist on maintaining their domestic market because of the characteristics of the products. Inertia or lack of knowledge is one of the important factors for the apparel sewing SMEs in this case study to keep themselves OEMs for the domestic market. Fragmented value chains make it difficult for OEMs to collect information on final consumers. To sell clothes abroad, producers need to know the differences in colour sense and body shape of foreign people. Labour shortages make it impossible to devote people to developing overseas sales channels. In other words, Japanese domestic production is embedded in the global supply chains of large companies and specialises in dealing with the Japanese domestic market. The 'Made in Japan' branding strategy is still not good enough for the international market, according to these interviews.

4.2. Cluster Characteristics

Interviews with individual companies and local government offices provided the background to the agglomeration of garment factories in the North Iwate. The history of this industrial area began in the post-war reconstruction period. Since that time, the rural areas of Iwate and other prefectures in the Tohoku region had not been the site of modern manufacturing industries but rather a source of labour for Japan's metropolitan areas such as Tokyo and Osaka. New graduates from junior high schools and high schools in the Tohoku region moved to the metropolitan areas in search of jobs, contributing to the re-industrialisation of the industrial districts and the reconstruction of Japan. This one-way movement of people changed in the late 1970s and early 1980s, just before Japan's economic bubble of the 1980s, when manufacturing activities moved out of Tokyo to avoid the congestion exacerbated by rapid urbanisation. The emergence of garment manufacturing in the North Iwate area coincides with the relocation of factories from Tokyo.

The North Iwate area was one of the good candidates for some of the companies interviewed in the early stages of their relocation planning because their factory workers included migrants from the North Iwate area. The Iwate Prefectural Government provided incentives for these companies to invest in labour-intensive production in the prefecture, especially in the northern part. The relocation of factories was supported by the improved connectivity between Tokyo and the Tohoku region during this period, which was promoted by the national government to narrow the regional development gap and achieve balanced development. The construction of the Tohoku Expressway and the Tohoku *Shinkansen* (high-speed railway) in the 1970s and early 1980s, respectively, significantly reduced the travel time between Tokyo and Morioka, while the road links between these major transport systems and the North Iwate area were improved ([Kuchiki, 2024](#)). All these factors led to the agglomeration of garment sewing in the North Iwate area.

Reflecting the agglomeration process, the North Iwate area has not developed apparel manufacturing based on local production of raw materials and parts for apparel products and local vertical linkages. Apparel production in this area is not specialised in a particular product category, but each factory produces different products from other factories in the same area. This industrial structure does not create complementary producer-supplier relationships within the agglomeration, nor does it create intense competition for the OEM market between factories in the area. Some factory managers interviewed mentioned a kind of clustering effect. This inter-firm relationship in the North Iwate area has created a

business environment that facilitates information exchange, mutual understanding among factory managers and business owners, and inter-firm cooperation within the industrial district to address common business challenges such as promoting business-to-consumer (B2C) business, developing local brands, attracting local young talent to the apparel industry, and accepting foreign trainees. The North Iwate Apparel Industry Promotion Association acts as a platform for these regional cooperation activities.

5. Conclusions

This study aims to understand how and why the Japanese apparel industry continues to maintain production in Japan by focusing on the strengths and characteristics of production bases in Japan and trying to overcome the dichotomous choice between domestic and overseas production. As many studies on Japanese SMEs have highlighted the internationalisation of Japanese manufacturing since the 1980s, this case study fills a part of the lack of information on Japanese SMEs' strategies for domestic manufacturing and the roles of policies in the last 40 years. This research focus allows us to conclude this study with realistic business and policy implications, with limitations and future research topics.

As suggested by the case studies and mentioned in the discussions, not only the product quality but also other factors can be optimised to strengthen their business. The apparel sewing SMEs in Japan have been developing capabilities of arranging skills and resources to survive in a changing business environment, as dynamic capabilities emphasise. The case studies also presented that such capabilities have been nurtured by the factories in the North Iwate area in the international competition with large factories in Asia.

The hollowing out of industries that has occurred in Japan since the 1980s has resulted in the relocation of industries within Japan from urban to rural areas (Okamoto, 1989). In line with this trend, MITI promoted the policy of relocating local industries throughout Japan, and the local governments promoted industrial development by taking advantage of regional characteristics.

Japanese quality and the 'Made in Japan' branding strategy are still effective ways for some Japanese customers, but to win the trust of customer apparel companies, SME apparel manufacturers need to meet the delivery deadlines, even if they are very short. Our case companies are trying to improve QCD management and develop multi-skilled workers to achieve multi-product, small-volume, and short-term production. This management innovation is inevitably important for building long-term business relationships with apparel brands and customer trust. To ensure the long-term sustainability of the Japanese apparel industry in a shrinking domestic market due to an ageing society, factories need to internationalise their business. However, the drive for internationalisation is not a dominant wave and is mainly focused on the existing domestic market. Some manufacturers are selling their products abroad through the marketing of client apparel companies, but they face some challenges due to the low attractiveness of 'Made in Japan' products.

Therefore, the implication of this case study is how the skill development and multi-skilled workers satisfy not only the product quality but also small-volume and short-term production, which are important to business relationships with apparel brands.

These business challenges raise several policy issues, but the following two will be of particular importance. First, the declining working-age population and domestic consumption are key policy challenges. This is because the competitiveness of factories in Japan will depend heavily on Japan-specific factors, such as production management that relies more on human factors than on technology and high-quality, low-priced products that meet the diverse and detailed needs of Japanese customers. The limited availability of the working-age population is a constraint on the expansion of production capacity needed for exports. This problem will be common to other industries, although the Japanese

government is promoting re-shoring and in-shoring in response to the Sino-US conflict and economic security challenges (Katada et al., 2023). Second, improving domestic connectivity is crucial to maintaining a certain scale of domestic production in various industries, as SMEs can only secure workers at an affordable wage level in rural areas without competing for labour with large enterprises, which are mostly located in large industrial districts near urban areas. Improving digital connectivity will be essential to ensure the future sustainability of garment sewing at enterprise and regional levels. These policy implications will have implications for industrial development in rural areas in developing countries such as the Mekong sub-region.

Finally, we would like to briefly mention the limitations of this study and introduce the future research topic. First, our paper could not analyse with detailed evidence how and why the area has developed the agglomeration of the garment manufacturing industry. Of course, some interviews briefly sketch a part of it through its history, but we should investigate more to understand the benefits of agglomeration in this area.

Second, in addition to the limitation of the small number of cases, we need to develop a comparative analysis among other agglomerations of the apparel industry in Japan. This will contribute to a vivid understanding of the characteristics of the North Iwate area and the effectiveness of the regional branding strategy.

Third, in terms of internationalisation, we do not precisely distinguish the forms of internationalisation, such as export (direct export or export through intermediary firms such as trading companies) and investment (direct investment or indirect investment). In this case study, we use 'internationalisation' as the future ambition or future direction of each firm, but we must seriously consider that these four categories may have different motivations when analysing the mechanism of SME internationalisation.

The fourth limitation related to the second one results from our qualitative analysis. The case studies are insufficient to generalise the findings, although we could obtain in-depth observations on management practises, which are unavailable from public statistics and financial statements. We need to develop a questionnaire survey to make a quantitative analysis of the findings from this study.

Fifth, this study did not focus on the effects of emerging business challenges, such as changes in socio-economic environments surrounding the Japanese domestic market (e.g., the elderly and decreasing population) and geopolitical risks, on manufacturing activities across industries in Japan. Instead of investigating these issues, this study aimed to identify management practices that helped Japanese labour-intensive manufacturers maintain their productive activities in the globalisation period of Japanese manufacturing and intensifying competition with developing countries. Based on the findings from this study, we need to investigate these issues and carefully consider strategies to overcome them in future research.

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Note

¹ Regarding the foreign technical intern trainees for the apparel industry, see [Sato \(2013\)](#). That paper analyses the foreign technical intern trainees in Okayama and Shimane prefectures in Japan and shows that half of the firms think about trainees as the immediate workforce.

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