



Chapter 13

Consolidation of the Supporting Industries under International Economic Integration

Mai Fujita



1. Introduction

Viet Nam, exhausted by prolonged warfare, the central planning system, and international isolation, embarked on industrialisation under a market-oriented transition only in the mid-1990s, far after its Asian neighbours. After nearly 3 decades, Viet Nam has transformed itself into a fast-growing middle-income country that is becoming a global manufacturing hub (Eckardt, Mishra, and Viet Tuan Dinh, 2018). One of the reasons behind this remarkable transformation is the country's participation in international production networks. The fact that Viet Nam emerged as a major production site for both multinational corporations (MNCs) seeking efficient production for the global market and those seeking to capture the domestic market has been a major driving force for the growth of the manufacturing sector and the expansion of exports.¹

Viet Nam now aims at achieving further development, setting a goal of becoming a developed country with high income by 2045. In its continued drive towards industrialisation and modernisation with increasing emphasis on technology and innovation, as outlined in the documents adopted at the 13th Communist Party Congress in 2021, the country seeks to develop key industries including the mechanical industry, create global and domestic value chains, and strengthen the linkages between foreign direct investment (FDI) and local firms. The development of robust supporting industries is crucial in all these endeavours.

The discussion surrounding the supporting industries in Viet Nam emerged in the early 2000s, when their development constituted one of the key issues within the debate over industrialisation strategies under international economic integration, culminating in numerous surveys and studies. Since then, Viet Nam's participation in the international economy has entered a new phase, bringing about new dynamics to the machinery industry including the remarkable growth in exports of electronic products. While recent studies primarily provide crucial insights into the localisation of key products such as mobile phones and automobiles (Sturgeon and Zylberberg, 2016; Kobayashi, 2017; Truong Thị Chí Bình, Phạm Hải Phong, Nguyễn Trường Minh, 2021), limited attempts have been made to analyse the transformation of the supporting industry in the machinery industry as a whole.

¹ Viet Nam's export value index (2000=100) reached 1,952.1 in 2020, the fifth-highest amongst countries for which World Bank data are available. The percentage of merchandise trade to gross domestic product was 184.1% in 2021, ranking fifth after Hong Kong, Singapore, Djibouti, and Slovenia (World Bank Open Data, <https://data.worldbank.org/>, accessed 25 October 2022). Foreign-invested enterprises account for over 70% of exports (General Statistics Office of Viet Nam, www.gso.gov.vn, accessed 25 October 2022).

This chapter attempts a comprehensive analysis of the supporting industries in the machinery industry in light of the recent transformation of the industrial sector in Viet Nam. A dominant approach for studying the supporting industries, both in general and specifically in Viet Nam, has been to look at them from the demand side, focusing in particular on the sourcing practices of machinery product manufacturers to which parts and other inputs are supplied and the manufacturers' relationships with the suppliers of such parts and inputs. However, an alternative approach, which focuses on the supplier side, has also been advocated on the grounds that the supporting industries in the machinery industry serves as the base supporting the production of a variety of end-products. By adopting the supplier-side perspective in addition to the demand-side, this paper sheds a new light on the characteristics of Viet Nam's supporting industries and considers their implications.

The remainder of the paper is organised as follows. The next section discusses the concepts of supporting industries and the main analytical approaches. Section 3 provides the historical background of industrial development and the evolution of policies for the development of supporting industries in Viet Nam. Section 4 analyses the status of the supporting industries in the machinery sector from the demand and supply sides to shed light on their characteristics. The last section concludes with a summary of the findings and their implications.

2. What is a Supporting Industry?

2.1. Historical Background

The term 'supporting industries' has been used since the 1980s. The term came up in a 1985 report on Japan's economic cooperation in connection with the development of local small and medium-sized enterprises (SMEs) that could supply parts to foreign firms (Ministry of International Trade and Industry, 1985). This happened within the context of developing countries increasingly promoting FDI for industrialisation. While FDI, by transferring a package of capital, technology, and management, provides an efficient way of building production capacity in the host country, it also creates difficulties such as limited linkages for the rest of the economy, dependence on imported imports, and rising trade deficits. As early as the 1970s, Watanabe (1972) argued for the development of SMEs as subcontractors for foreign firms to overcome these problems by encouraging the acquisition of skills, creation of jobs, and efficient utilisation of resources.

As Japanese companies expanded into Asia in the 1980s, the development of supporting industries became one of the focal areas of Japan's economic cooperation with the region. The development of local subcontractors met the needs of Japanese companies faced with the requirement to promote domestic production, as well as the needs of host country governments wishing to promote industrial development.

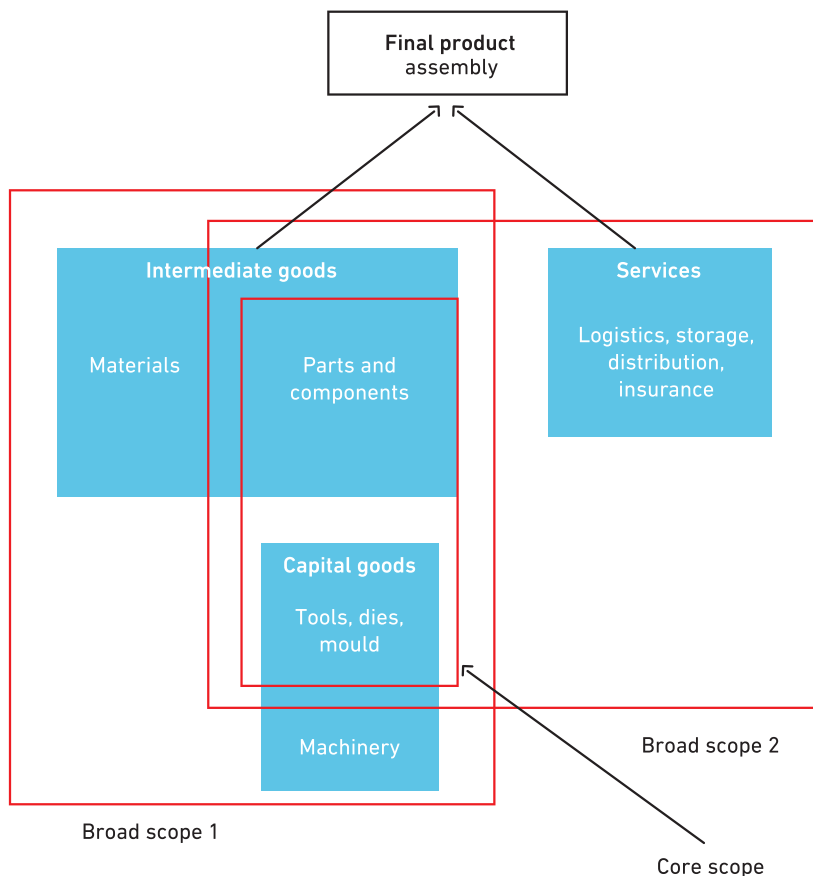


2.2. Concept and Analytical Approaches

Although the term 'supporting industries' is widely used, its definition and usage vary depending on the context and the focus. Furthermore, there is a large body of research that has analysed similar subjects without using the term. Such studies, typically those using concepts such as parts transactions, manufacturer-supplier relationships, production networks, or value chains (Asanuma, 1989; Ernst and Kim, 2002; Schmitz, 2004), provide crucial insights into the analysis of supporting industries.

One crucial issue concerns the concept and scope. In general, supporting industries refer to those that supply inputs necessary to produce final products. However, the production of machineries, the focus of this paper, requires a broad range of inputs, as shown in Figure 13.1. Nguyen Thi Xuan Thuy (2007), who reviewed the concept of the supporting industry in view of providing practical inputs for the Vietnamese government's policy making, considered 'parts and tools' to be the core scope of the supporting industry, while presenting two versions of the broader scope: 'the core scope plus materials and machinery' and 'core scope plus services'.

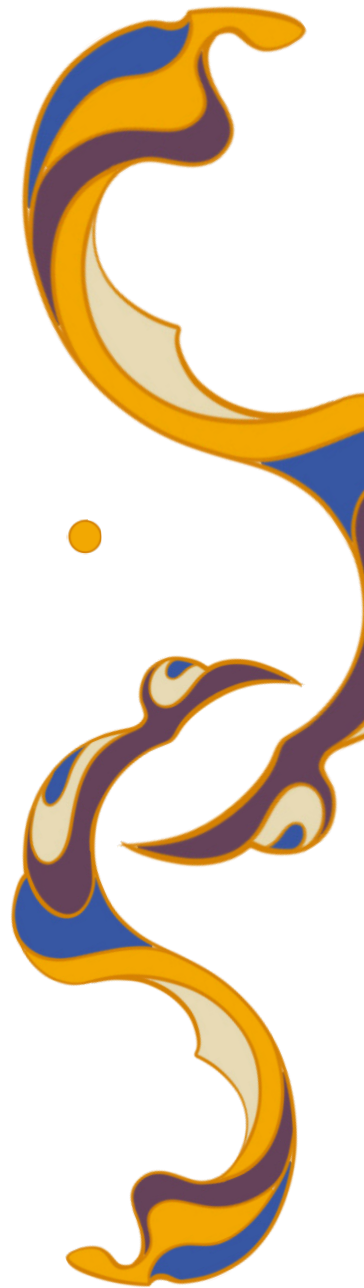
Figure 13.1. Scope of Supporting Industries



Source: Prepared by the author with reference to Nguyen Thi Xuan Thuy (2007).

Another issue concerns the analytical approach. The dominant approach has been to focus on the role of manufacturers of final products in organising and governing networks of suppliers. Following this approach, supporting industries are typically depicted as a pyramid-like structure. Taking the automobile industry as an example, the automobile manufacturer is at the top, followed by large first-tier suppliers, then smaller second- and third-tier suppliers, and lastly, firms producing materials, dies and moulds, jigs and tools, and equipment at the bottom.² The focus of the analyses has been on the relationship between manufacturers and the suppliers who directly provide inputs to them, including the role of manufacturers in setting standards, transferring knowledge, and incentivising and disciplining suppliers (Ernst and Kim, 2002; Schmitz, 2004).

There is yet another approach that focuses on the overall structure of the supporting industries in a particular country or region. Put differently, this approach examines supporting industries from the perspective of suppliers of intermediate goods and capital goods. This is typically illustrated by Watanabe (1997), who discussed the social division of labour in the Japanese machinery industry. In this industry, it is argued, subcontractors specialise not in specific products (e.g. automobiles) but specific processes, thereby receiving orders from producers of a variety of machinery products. The study presents a mountain-chain structure, consisting of numerous producers of final machinery products forming summits of varying heights and widths, followed by firms that supply parts primarily to each of the final product markets, and finally, firms that specialise in specific processes at the bottom. In contrast to the previous approach, it brings to light numerous SMEs at the bottom of the multi-polar structure, which serve as the basis for a broad range of machinery products.



² A typical example is the structure of Indonesian automobile industry depicted by JICA (2021: 13).

3. Development of Viet Nam's Machinery Industry and Policies Concerning Support Industries

3.1. Development of the Machinery Industry

The history of Viet Nam's machinery industry dates to the late 1950s, when socialist industrialisation was launched in the North with a focus on heavy industry. Although progress was constrained by capital and technology shortages and prolonged periods of war, state-owned enterprises were established in the machinery sector with Soviet and Chinese assistance. From 1976 onward, socialist industrialisation was extended to the whole country, and factories in the South were nationalised. Still, the progress of industrialisation was hampered by the demise of the centrally planned system and international isolation.

With the official launching of Doi Moi in 1986, the country's priority shifted from heavy industry to the production of food, necessities, and export goods. Having achieved economic stabilisation by the early 1990s as a result of early reforms, Viet Nam began to explore the next stage of development. In 1996, the Eighth Communist Party Congress acknowledged that Viet Nam was moving into an era of industrialisation and modernisation, striving to make Viet Nam basically an industrialised country by 2020 (Shiraishi, 1999).

The machinery industry became one of the focal sectors in Viet Nam's industrialisation drive. Along with establishing state-owned enterprise groups in industries such as shipbuilding, electronics, and agricultural machinery, the government encouraged foreign companies to launch production in Viet Nam, mostly by establishing joint ventures with state-owned enterprises. In order to protect domestic production, tariffs and non-tariff barriers were introduced, which made import-substituting production of machinery-related products highly attractive to local and foreign-invested enterprises (CIE, 1999a, 1999b; IMF, 1999). By the late 1990s, the government also introduced the policy to promote the localisation of motorcycles and mechanical-electric-electronic products by specifying preferential import tariff rates for these products contingent upon localisation ratios (WTO, 2006).

Since the early 2000s, such protective measures started to be adjusted. In 2001, the Politburo promulgated Resolution No.07 on international economic integration. The US–Viet Nam trade agreement, which granted significantly improved access of Vietnamese goods to the US market, came into effect in the same year. As this triggered the rapid growth of the exports of labour-intensive manufactures such as textiles and garments and leather and footwear, Viet Nam announced that it would speed up the process of negotiations for accession to the World Trade Organization (WTO). During the negotiation process, Viet Nam was compelled to reduce/eliminate tariff and non-tariff barriers and adjust its policies in accordance with WTO rules, including localisation policies, export performance requirements, and export subsidies (WTO, 2006).

In the 2010s, Viet Nam's international integration entered a new phase. The country actively participated in free trade agreements (FTAs), including state-of-the-art frameworks led by major economies or regions known for comprehensive coverage and high quality such as the Trans-Pacific

Partnership and the FTA with the European Union (EU). The combination of domestic and external factors, i.e. low labour costs, the progress of domestic reforms and, more recently, US–China trade tensions, resulted in successive inflows of large-scale, export-oriented manufacturing investments and the country’s integration into the international production networks (Leung, 2022). In the meantime, the reduction of tariffs has led to an increase in imports, forcing producers engaged in import-substitution to restructure their operations.

3.2. Emerging Debate on the Development of Supporting Industries

The debate over supporting industries in Viet Nam began in the early 2000s when trade liberalisation within the Association of Southeast Asian Nations (ASEAN) region was underway, arousing concerns over the consequences of international economic integration on domestic industries. In such a context, Japan and Viet Nam launched joint research on Viet Nam’s industrialisation under international integration. In this research, the development of supporting industries became one of the key issues (Ohno and Nguyen Van Thuong, 2005; Ohno and Kawabata, 2005), focusing in particular on the supply of metal, plastic, and rubber parts, as well as moulds and tools, to the three machinery sectors: automobiles, motorcycles, and electrical and electronics. This corresponds to the ‘core scope’ of the supporting industries discussed in Section 2.2. Concerning the structure of the supporting industries, several studies assumed the ‘multi-polar’ structure in which material processing and mould-making firms are shared by multiple product sectors such as electrical and electronics, motorcycles, and automobiles (Ohno, 2005: 51; Pham Truong Hoang, 2009; Nguyen Thi Xuan Thuy, 2007). Mori and Ohno (2005: 131–2) explicitly argued developing such firms were the most realistic route for Viet Nam for the following reasons. First, material processing technologies can be applied to multiple product areas and, even if technological changes transform the composition of final products, demand for such technologies would last. Viet Nam could thus expect to maintain its competitiveness as a manufacturing base for a long time. Second, by moving towards high-precision processing, firms would be able to increase the value added. Third, limited agglomeration of material processing industries existed in neighbouring ASEAN countries, providing scope for Viet Nam to establish a competitive edge in the region.



3.3. Evolution of Policies for the Development of Supporting Industries

Viet Nam has introduced a series of policies to promote supporting industries. The first one, promulgated in 2007, was the Masterplan for the Development of Support Industries for 2010 (Ministry of Industry Decision 34/2007/QD-BCN). Acknowledging that the development of supporting industries is a breakthrough for the rapid and sustainable development of core industries, the masterplan stated that supporting industries should be promoted for the international division of labour, cooperation, and the development of SMEs under international integration, and should be developed selectively in accordance with Viet Nam's potential and competitiveness. While the masterplan did not define what 'supporting industries' meant, it specified the goals, development directions, and general solutions for five industries: textile and garments, leather and footwear, electronics and computers, automobile production and assembly, and machinery manufacturing.

In 2011, the Prime Minister issued Decision 12/2011/QD-TTg on the development of supporting industries. It defined a supporting industry as 'an industry that produces materials, parts, accessories, and semi-finished goods for supplying to industries manufacturing and assembling complete products which are production material or consumption products.' With respect to the target, the decision included 'supporting industries to high-tech industries' in addition to the five sectors specified in the masterplan in 2007. It was stipulated that the government would provide support for market development, infrastructure development, and human resources and training, as well as financial support in accordance with existing policies such as the High Technology Law and the SME Development Support Policy (Government Decree 56/2009/ND-CP).³ A list of supporting industry products to be given priority for development was also promulgated in the same year (Prime Minister's Decision 1483/QD-TTg). In the machinery sector, moulds, tools, machining, and welding machinery parts, measuring and inspection equipment, and machine parts were included in the list.

Furthermore, the Government issued Decree 111/2015/ND-CP on the development of supporting industries in 2015. In this document, supporting industries were briefly defined as 'industries that produces raw materials, materials, and parts for supplying to the production of complete products,' which corresponds to the 'core scope' discussed

³ In 2012, Prime Minister promulgated Decision 1556/QD-TTg approving the programme for the promotion of SMEs in supporting industry.

in Section 2.2 plus materials. The target industries were not specified; it instead provided a 'list of products of supporting industries to be given priority for development' in six sectors identified in the decision in 2011. In addition, a programme for the development of supporting industries was established to support activities such as capacity building, human resource development, research and development, and technology application and transfer, with funds from the state budget and other sources.

In the policies discussed above, the scope of supporting industries is not limited by sector or markets served, or the nationality of supporting industry firms or customer firms. Since the 2010s, however, the development of supporting industries has come under increasing emphasis in the Vietnamese government's policies towards FDI. For instance, the foreign investment cooperation strategy for 2021–30, promulgated in 2022 (Prime Minister's Decision 667/QĐ-TTg dated 2 June 2022), included the development of supporting industries and promotion of local linkages and spillovers as one of the solutions for raising the effectiveness of FDI. In practice, the government has worked closely with major foreign-invested firms to boost the local supply of parts, particularly from local firms (Viet Nam News, 2022).

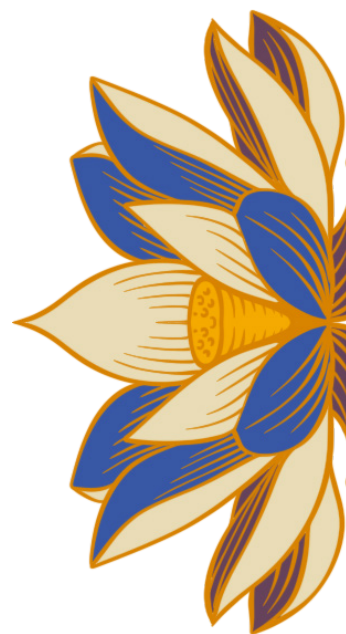
4. The Transformation of Supporting Industries in Viet Nam

This section analyses how Viet Nam's supporting industries have been transformed since the early 2000s from the demand and supply sides.

4.1. The Demand Side: Transformation of the Machinery Assembly Industry

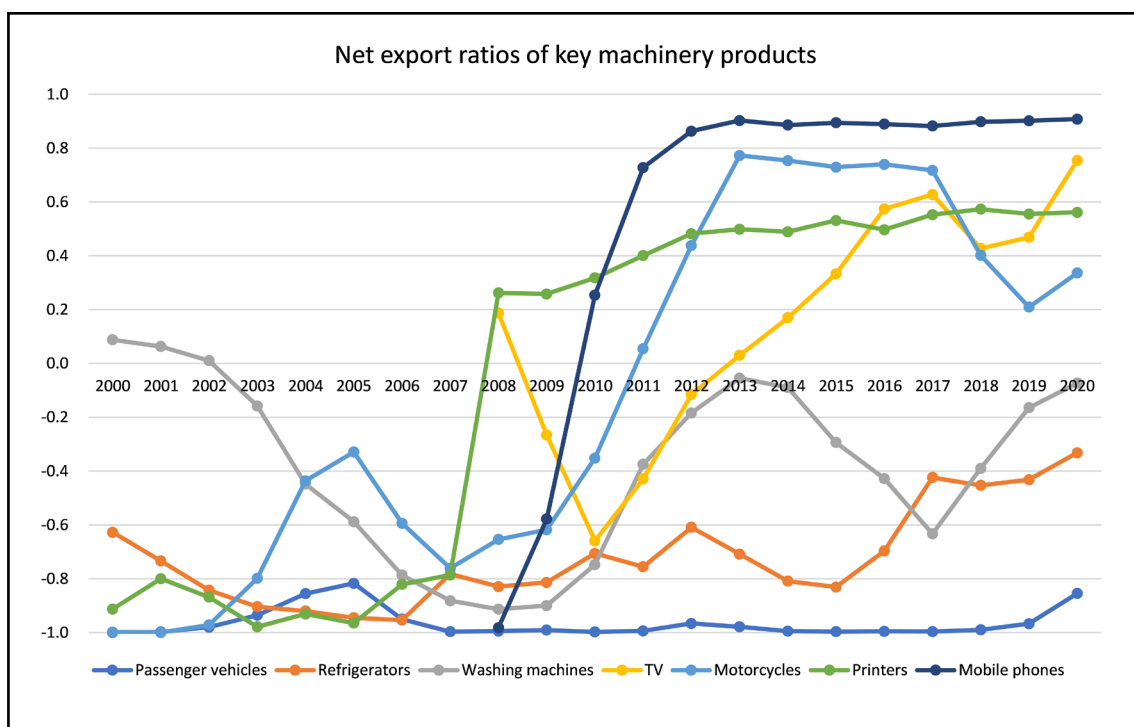
We start the demand-side analysis of the supporting industries by reviewing the situation in the early 2000s. Vietnam Development Forum (VDF 2006: 2–3) reported on the underdeveloped status of the supporting industries for the automobiles, motorcycles, and electrical and electronics industries. The motorcycle industry was most advanced in the localisation of parts, with an average local procurement ratio of 75%, while the respective ratios ranged between 20%–40% for TVs, and only 5%–10% for automobiles.

The report suggested that differences in the progress of localisation reflected the development of the assembly sector. With the exception of the motorcycle industry, which had experienced the rapid growth of the domestic demand, the underdeveloped domestic market remained an obstacle to promoting local procurement. Ohno (2005: 60, 62) argued that, in order for the development of supporting industries to become a realistic policy issue, the scale of production in the downstream assembly sector must be sufficiently large, and that the vital first step for strengthening the supporting industries was to attract a large amount of assembly-type FDI.



Over the subsequent decade and a half, the machinery industry in Viet Nam was substantially transformed. Most notably, the electronics industry achieved phenomenal growth, driven by foreign-invested enterprises producing mobile phones, computer parts and printers for export. In the meantime, import-substituting industries have been affected by growing imports due to the progress of trade liberalisation. In order to observe differences in competitiveness outcomes across products, Figure 13.2 shows the net export ratio of major machinery products, calculated as the ratio of net exports (exports minus imports) to total trade value (the sum of exports and imports). The ratios range from minus one to plus one. Having values close to plus one implies that the product is internationally competitive, while the opposite applies to values close to minus one.

Figure 13.2. Net Export Ratios of Key Machinery Products



Note: The products correspond to the following HS codes: passenger vehicles 8703; refrigerators 841810, 841821; washing machines 845011, 845012; TV 852871, 852872; printers 8443; mobile phones 851712; motorcycles 871110, 871120, 871130, 871140, 871150.

Source: Prepared by the data using data from United Nations, UN Comtrade Database (<https://comtrade.un.org/data>, accessed 31 August 2022).

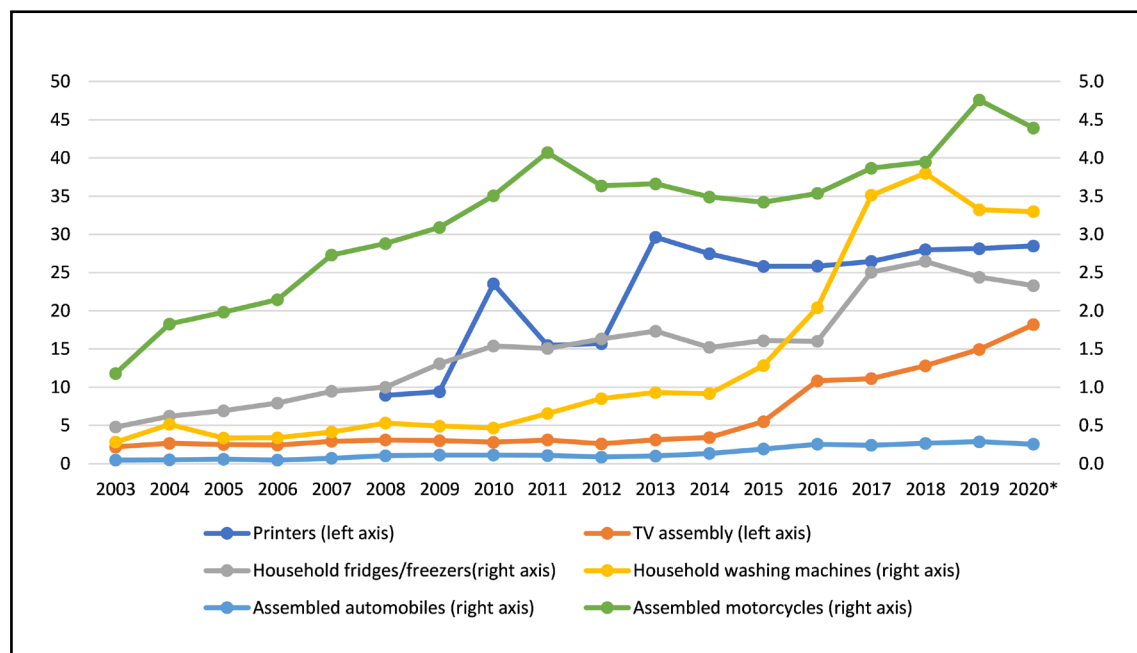


Until the mid-2000s, the net export ratios were lower than zero for almost all the products, suggesting that Vietnamese machinery products were not internationally competitive. Developments after the late 2000s show divergence in performance across products. On the one hand, mobile phones, printers, motorcycles, and televisions exhibit sharp increases in net export ratios. The net export ratio for mobile phones, in particular, reached an extremely high level, close to plus one. Of these products, the production of mobile phones and printers has been oriented primarily for export since it started in Viet Nam. By contrast, the production of motorcycles and televisions was initially launched for import substitution. In the motorcycle industry, foreign-invested manufacturers gradually improved their operations to become internationally competitive, driven by the rapid expansion of the domestic market combined with intense competition (Fujita, 2013). Faced with the saturating domestic market and economic downturn in the early 2010s, manufacturers were able to expand exports to compensate for the slower growth of the domestic sales. The television sector, by contrast, experienced a turnover of the main players. Sony, Toshiba, and Panasonic, which were amongst key players in the 2000s producing TVs for the domestic market, announced the suspension or reduction of TV production in Viet Nam (Vnexpress, 2021). By contrast, Samsung and LG made investments in cutting-edge factories in the mid-2010s,⁴ becoming the main drivers of the country's TV exports. On the other hand, the net export ratios of washing machines, refrigerators, and passenger cars continue to stagnate. Manufacturers of these products, continuing to cater primarily to the domestic demand, are faced with growing competition from imports. In particular, the net export ratio of passenger cars remained virtually unchanged at nearly minus one.

Figure 13.3 shows the volume of production for major machinery products, which, as discussed in Section 3.2, has been regarded as a precondition for the development of supporting industries. Caution is required that different scales are applied to the left axis (for products destined primarily for exports) and the right axis (for those primarily sold in the domestic market). Mobile phones, which exhibited exceptional speed of growth in production from almost zero in 2008 to more than 200 million units within a decade to become the country's largest export product, could not be included in this graph. The figure shows rapid expansion of production for products primarily destined for exports as well as some import-substituting products with sizeable domestic market such as motorcycles.

⁴ Samsung established a new factory in Ho Chi Minh City in 2014, and LG in Hai Phong in 2015 (LG Newsroom, 2021; Vietnam Investment Review, 2020).

Figure 13.3. Production of Main Machinery Products (million units)



Source: General Statistics Office of Viet Nam, www.gso.gov.vn, accessed 25 October 2022.

The significant transformation of the machinery industry discussed above raises questions on the consequences for the supporting industries. The surveys conducted by the Japan External Trade Organization (JETRO, 2010, 2021) provide information on the procurement structure of Japanese-affiliated companies. The local procurement ratio (average of surveyed companies, which may change from year to year) increased from 22.4% in fiscal year (FY) 2010 to 37.4% in FY2021, while the ratio of procurement from Japan decreased from 42.5% to 35.0%. However, the figure for FY2021 (37.4%) is lower than China (69.5%), Thailand (56.4%), and Indonesia (50.6%). The ratio of local companies in local procurement was 43.4% in FY2021, lower than China (65.4%) and Indonesia (45.5%) but higher than Thailand (41.4%). A salient feature of local procurement of Japanese companies in Viet Nam is the role played by non-Japanese foreign-affiliated suppliers (11.5% in FY2021⁵). Suppliers from Taiwan and ASEAN countries, in particular, have made significant contribution to local procurement of Japanese companies in Viet Nam. Of the respondents in Viet Nam, 86.0% indicated they were planning to expand local procurement in the next 1 to 3 years, second only

⁵ This is roughly double the figures in China, Indonesia, and Thailand. The ratio was 14.5% in FY2020.

to China (91.9%). In short, although local procurement by Japanese companies is still below other countries in the region, it is on the increase, and Japanese-affiliated companies plan to expand local procurement in the near future.

With respect to the firm-level situation of local sourcing, Trương Thị Chí Bình, Phạm Hải Phong, Nguyễn Trường Minh (2021) provides data for three major MNCs. Honda Viet Nam, the leader in the motorcycle industry, further advanced local procurement, which had already reached a high level in the 2000s. In 2020, Honda held a 79.7% share of the domestic market while exporting 181,600 units, and production reached 2.6 million units. The local procurement ratio reached 98%; with the exception of special raw materials and some engine parts, almost all parts could be sourced locally. The number of suppliers in Viet Nam had reached 240, 105 of which were Vietnamese. The authors mention that the number of suppliers increased only very slightly over the past 3 years because the domestic market had already been saturated.

In the automotive industry, where producers based in Viet Nam struggled to compete with imports, local procurement made limited progress. Even in the case of Toyota, which holds the largest market share amongst foreign-invested automakers, the local procurement rate ranged between 19% and 37% depending on the model. The company had 34 parts suppliers in Viet Nam, of which only six were Vietnamese companies.

With respect to the electrical and electronics sector, where exports have increased rapidly, Trương Thị Chí Bình, Phạm Hải Phong, Nguyễn Trường Minh (2021) examine the case of Samsung Viet Nam, covering mobile phone, home appliance, and telecommunications equipment segments. The local procurement ratio reached 59% in 2019, with three plants in Bac Ninh, Thai Nguyen, and Ho Chi Minh City using a total of 201 suppliers in Viet Nam. The number of first-tier local suppliers increased from four in 2014 to 35 in 2018, and second-tier local suppliers numbered 157 as of 2018. However, most local firms are suppliers of metal or plastic parts for consumer electronic products, with few supplying parts for mobile phones.

4.2. The Supply Side: The Development of Supporting Industry Firms

Turning to the supply side, the Ministry of Industry and Trade (MOIT) provides basic data on the supporting industries in mechanical, automobile, electronics, garments and textiles, and footwear and leather product sectors as summarised in Table 13.1.⁶ As of 31 July 2022, there were 3,977 enterprises in the supporting industries, slightly less than half of which belonged to the three machinery-related sectors (mechanical, automotive, and electronics). The sum of the number of enterprises in five sectors substantially exceeds 3,977, suggesting that many enterprises are engaged in more than one sector. This characteristic is particularly salient amongst companies in the three machinery-related sectors. Examining these three sectors in detail, the number of enterprises are larger for the electronics and mechanical sectors than the automotive industry,

⁶ However, there is no clear statement as to what types of enterprises are covered. The fact that the website also uses the product categories of 'final products' and 'supporting industry products' suggests that the scope of data coverage is broader than the standard definition of 'supporting industries' discussed in Section 2.

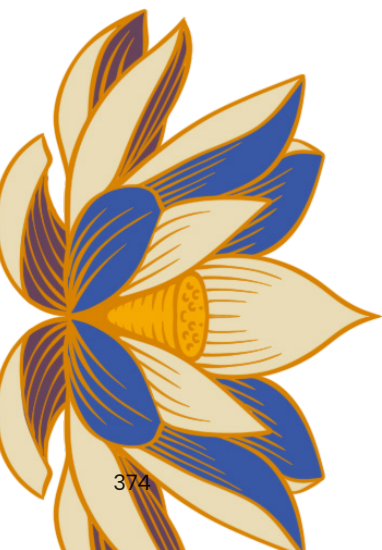
suggesting differences in levels of development of supporting industries across sectors. Foreign firms account for a high percentage in the electronics and automotive sectors, while local firms account for most firms only in the mechanical sector.

**Table 13.1. Overview of Supporting Industries in Viet Nam
(as of July 2022)**

	Number of firms	State- owned	Type of firms Non-state	Foreign investment
Total number of firms	3,977			
of which: Textiles and garments	1,314	13%	45%	42%
Leather and Footwear	969	0%	57%	42%
Automobiles	358	3%	50%	46%
Mechanical	763	2%	84%	14%
Electronics	898	5%	30%	66%

Note: Since the data include firms engaged in multiple industries, the numbers of firms by industry do not add up to the total number of firms.

Source: VASI (<http://vsi.gov.vn/en/statistic.html>, accessed 31 August 2022).



Another related set of data is provided by the Viet Nam Association of Supporting Industries (VASI). It estimates that there are over 1,800 businesses engaged in supporting industries in Viet Nam, which is slightly less than the total of the three machinery-related sector in Table 13.1 (VietNamNet, 2019). Considering the overlap of companies engaged in the three industries, MOIT and VASI figures seem broadly consistent with each other. VASI also estimates that 300 businesses have joined production chains of MNCs.

To gain a more in-depth understanding of supporting industries, we now conduct an analysis of the database of supporting industry

firms developed by the author. The database draws on the supplier directories prepared by JETRO Hanoi Office (2017a, 2017b, 2018) and Ho Chi Minh Office (2018a, 2018b), from which as many as 538 firms (348 local and 190 foreign-invested firms) were extracted (Table 13.2). Prepared with the aim of assisting the local sourcing of Japanese companies in Viet Nam, the directories provide detailed information on extensive numbers of firms that primarily produce metal, rubber, and plastic parts and dies and moulds and are likely to meet the requirements of Japanese customers.⁷ These features of the data nevertheless suggest possible omissions. One group of firms that is not covered is local affiliates of MNCs playing integral roles in the parent companies' global production networks. As these firms typically produce core parts on a large scale, they make significant contribution to the country's exports (in case they engage in direct exports, e.g., Denso and Nidec) or to local sourcing of MNCs in Viet Nam (in case they serve MNCs in Viet Nam, e.g., Samsung SDI) in value terms. Another group of firms is smaller foreign-invested and local firms that are unlikely to qualify as suppliers of Japanese customers. Accordingly, the analysis of the database focuses on a sub-group of firms in supporting industries in Viet Nam, namely, those primarily engaged in the metal, plastic, and rubber processing and the manufacture of dies and moulds for foreign-invested manufacturers, particularly Japanese ones. Nearly two-thirds of the firms are Vietnamese, while the remaining one-third are foreign-invested firms primarily from Asia.



⁷ For instance, JETRO Ho Chi Minh Office (2018a) states it was compiled by sending and collecting questionnaires directly from Vietnamese firms considered to be promising in terms of meeting the quality and delivery needs of Japanese companies in Viet Nam.

Table 13.2. Basic Profile of Supporting Industry Firms

	Viet Nam	Japan	Taiwan	Rep. of Korea	Others	Total
North and Central	210	64	44	12	29	359
Metal, plastic, and rubber processing	128	48	31	9	18	234
Electric/Electronic Parts/ Electronic Controls/Parts Assembly	16	13	12	2	8	51
Packaging	16	3	0	0	0	19
Dies, moulds, jigs, and tools	36	0	0	1	3	40
Production goods	14	0	1	0	0	15
South	138	28	4	8	1	179
Metal, plastic, and rubber processing	101	25	2	5	0	133
Electric/Electronic Parts/ Electronic Controls/Parts Assembly	21	1	0	3	0	25
Dies, moulds, jigs, and tools	16	2	2	0	1	21
Total	348	92	48	20	30	538

Note: 'Others' includes Hong Kong, China, Singapore, Thailand, Malaysia, Indonesia, India, Italy, the United Kingdom, Germany, France, and Australia.

Source: Supporting Industry Database prepared by the author (JETRO Hanoi Office, 2017a, 2017b, 2018; JETRO Ho Chi Minh Office, 2018a, 2018b).

Table 13.3 shows that the timing of firm establishment differs by nationality. Vietnamese firms consist of two groups. One consists of firms, mostly state-owned, established before or in the early stages of Doi Moi (many of which have been equitised and transformed into private entities). Many transformed products and customers over time, focusing increasingly on supplying parts to foreign-invested manufacturers in Viet Nam. The other group consists of firms established in recent years. This group includes spin-offs, i.e., firms established by people who had previously worked for foreign-invested companies in Viet Nam.⁸ Amongst foreign-invested firms, the majority of Taiwanese firms were established by the 2000s. Japanese-affiliated companies were established mainly in the 2000s and 2010s, while Republic of Korea (henceforth Korea)-affiliated companies were mostly established in the 2010s, which corresponds with the wave of large-scale Korean investments.

Table 13.3. Basic Profile of Supporting Industry Firms

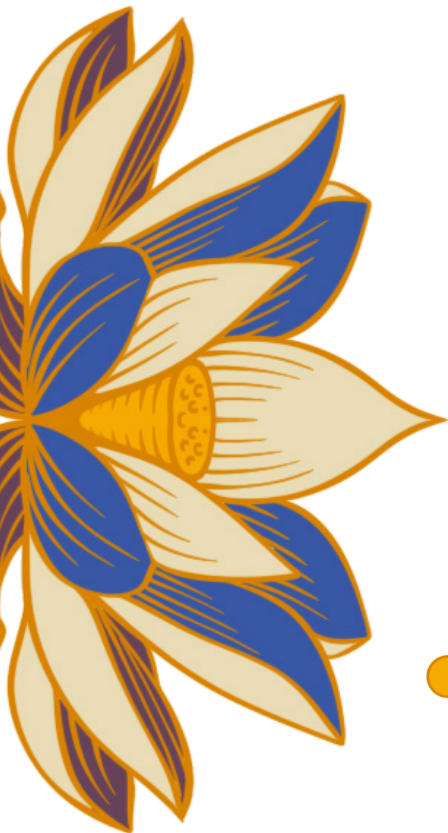
	Viet Nam	Japan	Taiwan	Rep. of Korea	Others	Total
-1985	41	0	0	0	0	41
1986-99	67	0	3	0	0	70
2000-09	151	36	38	3	14	242
2010-	78	55	4	17	14	168
no data	11	1	3	0	2	17
Total	348	92	48	20	30	538

Source: Supporting Industry Database prepared by the author (JETRO Hanoi Office, 2017a, 2017b, 2018; JETRO Ho Chi Minh Office, 2018a, 2018b).



⁸ On the basis of the information provided in directories and the author's interviews, six firms in the North and two firms in the South could be identified as cases of spin-offs. In addition, six firms in the North explicitly state in the directories that their engineers or employees had worked for foreign-invested companies in Viet Nam or had been trained overseas.

Table 13.4 shows firms named by supporting industry firms as amongst the main customers.⁹ Most of the top customers are foreign-invested companies in Viet Nam producing motorcycles, printers, home appliances, or mobile phones. Few supporting industry firms named automakers, which are still struggling to expand production, as their main customers. The table also points to a salient feature of the sourcing patterns of foreign-invested companies, i.e. the diversity of suppliers' nationalities. For example, Japanese manufacturers' suppliers include, along with Japanese and local suppliers, certain numbers of Taiwanese, Korean, and other suppliers, which is consistent with the results of the JETRO survey mentioned above. This contrasts with previous studies on local procurement by MNCs, which classified suppliers into so-called 'follow-source suppliers', which followed the client companies from their home country, and local suppliers (Humphrey and Memedovic, 2003; Ivarsson and Alvstam, 2005, 2009). It should be noted that 'customers' in this table are limited to firms with direct transactional relationships. If indirect transactions, i.e. those between final product manufacturers and second or third-tier suppliers, are included, the number of suppliers having transactions with customers named in Table 13.4 would be expected to be substantially larger.



⁹ The directories provide space for either four or six customers. Nevertheless, some firms list more than one customer name in one space, and the total number of customers listed varies substantially. Some firms only provide information on industry or nationality (e.g., 'automobile manufacturers' or 'Japanese companies') without providing specific company names. The table excludes such data.

Table 13.4. Main Customers of Supporting Industry Firms

	Viet Nam	Japan	Taiwan	Rep. of Korea	Others	Total
Honda	31	3	15	1	5	55
Samsung	21	1	2	15	5	44
Yamaha	23	3	14	0	3	43
Canon	25	4	7	1	5	42
Panasonic	21	7	8	0	4	40
Brother	5	6	9	0	7	27
Piaggio	9	1	11	0	3	24
LG	8	0	2	3	2	15
Kyocera	4	2	3	0	5	14
Toyota	10	0	0	0	0	10
Total number of firms	348	92	48	20	30	538

Note: The figures denote the number of supporting industry firms that identified the respective machinery product manufacturer as amongst their main customers (multiple answers).

Source: Supporting Industry Database prepared by the author (JETRO Hanoi Office, 2017a, 2017b, 2018; JETRO Ho Chi Minh Office, 2018a, 2018b).



These findings suggest that foreign-invested manufacturers and motorcycles and printers, in particular, played key roles in driving the development of supporting industries in Viet Nam. The two sectors are common in that leading foreign manufacturers arrived in Viet Nam early on, i.e. the late 1990s or early 2000s, and expanded production rapidly. They promoted localisation of parts, creating opportunities for both foreign-invested companies of diverse nationalities and local ones to join their supplier networks (Mori and Ohno, 2005; Fujita, 2013; Truong Thi Chi Binh and Nguyen Manh Linh, 2013). Over time, however, circumstances grew increasingly difficult for suppliers. On the one hand, entries of new suppliers and improvement of existing suppliers' capabilities have made competition between suppliers increasingly intense. Serving the largest players, in particular, offered the attraction of large orders yet suppliers were at the risk of price squeeze and dependence on particular customers.¹⁰ On the other hand, under the existing international division of labour within the MNCs' global networks, suppliers in Viet Nam had limited prospects for moving beyond production to engage in high-value-added activities such as product design.

Faced with such challenges, supporting industry firms are seeking new customers and markets as a means of creating new business opportunities and reducing dependence on particular customers. Table 13.5 shows the incidence of exports by supporting industry firms.¹¹ About 70% of the firms are engaged in exporting. A higher percentage of exporting firms are found in the South than in the North and amongst foreign-owned firms than amongst local firms. Even in the north, where numerous large foreign-invested customer firms are located, 60% of local firms engage in exports. Export products vary but consist primarily of machine parts and moulds, largely similar to those destined for the domestic market. Most exports are to East and Southeast Asia, Europe, and the US. In the South, 79% of all exporting firms and 85% of local exporting firms listed more than one country as export destinations, suggesting that firms export to diversified markets.



¹⁰ A Taiwanese-invested supplier remarked that it competed intensely for orders from Japanese motorcycle manufacturers, particularly with Vietnamese firms that have cost advantages and improved capabilities (interview, 27 November 2019).

¹¹ Firms that provide information on 'export destination' and/or 'exported goods' in the directories were identified as engaging in exports.

Table 13.5. Exports by Supporting Industry Firms by Region

	Exporting	Ofc which: exporting to only one country	Of which: exporting only to Japan	Non- exporting	Total	% of exporting firms	% of firms exporting to more than one country
North	235	78	44	124	359	65%	67%
Foreign	108	37	19	41	149	72%	66%
Local	127	41	25	83	210	60%	68%
South	144	30	21	35	179	80%	79%
Foreign	39	14	10	2	41	95%	64%
Local	105	16	11	33	138	76%	85%
Total	379	108	65	159	538	70%	72%

Notes: '% of exporting firms' refers to the ratio of exporting companies to the total number of firms. '% of firms exporting to more than one country' refers to the number of firms exporting to more than one country to the number of exporting firms. Source: Supporting Industry Database prepared by the author (JETRO Hanoi Office, 2017a, 2017b, 2018; JETRO Ho Chi Minh Office, 2018a, 2018b).

Many supporting industry firms simultaneously engage in business with foreign-invested firms in Viet Nam and exports. Table 13.6 shows the incidence of exports for firms that supply to foreign-invested firms producing motorcycles, printers, home appliances, and mobile phones/consumer electronic products in Viet Nam. At least half of the firms supplying foreign-invested customers in Viet Nam are also engaged in exporting.

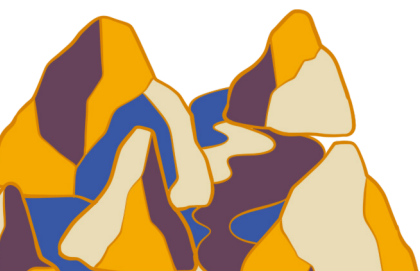


Table 13.6. Exports by Supporting Industry Firms by Domestic Industries Supplied

Domestic Industries Supplied	Nationality	Exporting	Non-exporting	Total	% of exporting firms
Motorcycles	Foreign	23	12	35	66%
	Local	41	7	48	85%
Printers	Foreign	22	7	29	76%
	Local	15	12	27	56%
Home appliances (Japanese)	Foreign	20	5	25	80%
	Local	21	9	30	70%
Mobile phones/home appliances (Korean)	Foreign	16	9	25	64%
	Local	17	9	26	65%

Notes:

1. Domestic industries supplied' refers to products manufactured by the supporting industry firms' main customers in Viet Nam (multiple answers).
2. Customers covered under each industry are as follows: motorcycles (Honda, Yamaha, Suzuki, SYM, Kymco, Piaggio); printers (Canon, Brother, Kyocera, Fuji Xerox), home appliances (Japanese) (Panasonic, Sanyo/Aqua/Haier, Sony), mobile phones/home appliances (Korean) (Samsung, LG). As for Samsung and LG, it was impossible to distinguish whether the firms supplied mobile phones or home appliance parts.

Source: Supporting Industry Database prepared by the author (JETRO Hanoi Office, 2017a, 2017b, 2018; JETRO Ho Chi Minh Office, 2018a, 2018b).

Moreover, suppliers have developed diversified customer portfolios even for business with foreign-invested firms in Viet Nam, simultaneously serving customers across multiple industries (Table 13.7). Strikingly, combinations of industries served are not limited to sets of industries having similar technological characteristics and partial overlap amongst producers such as ‘motorcycles and automobiles,’ but include patterns such as ‘motorcycles and printers’ and ‘motorcycles and home appliances’. Each of the products in the latter patterns requires product-specific parts as well as a range of metal, plastic and rubber parts and dies and moulds. While requirements vary by customers in terms of precision, quality, or environmental standards, such parts can be manufactured with common sets of equipment and human resources. Accordingly, such suppliers, after having developed business with foreign-invested manufactures in one industry, could leverage the capability to respond to the MNC customers’ requirements as well as the records and reputation built through the transactions to acquire additional MNC customers in different industries.

Table 13.7. Sharing of Supporting Industry Firms across Industries

Domestic Industries supplied	Shared	Shared with customers in:					Not shared	Total
		Motorcycle	Passenger vehicles	Printers	Home appliances (Japanese)	Mobile phones/home appliance (Korean)		
Motorcycles	23 (28%)	-	6	13	6	8	60	83
Passenger vehicles	7 (70%)	6	-	2	3	1	3	10
Printers	31 (55%)	13	2	-	17	13	25	56
Home appliances (Japanese)	31 (56%)	6	3	17	-	18	24	55
Mobile phones/home appliances (Korean)	28 (55%)	8	1	13	18	-	23	51

Notes:

- 1) Amongst 83 motorcycle suppliers, 23 (or 28%) also do business with customers in one of the four industries while 60 do not.
- 2) Customers covered under each industry are as follows: motorcycles (Honda, Yamaha, Suzuki, SYM, Kymco, Piaggio);

¹² This combination is widely seen elsewhere. Kobayashi (2017) discussed the transformation of motorcycle parts supplier to auto parts suppliers in Viet Nam.

passenger cars (Toyota), printers (Canon, Brother, Kyocera, Fuji Xerox), home appliances (Japanese) (Panasonic, Sanyo/Aqua/Haier, Sony), mobile phones/home appliances (Korean): Samsung, LG. As for Samsung and LG, it was impossible to distinguish whether the firms supplied mobile phones or home appliance parts. These two client companies are classified as 'Mobile phones and home appliances (Korean).'

Source: Supporting Industry Database prepared by the author (JETRO Hanoi Office, 2017a, 2017b, 2018; JETRO Ho Chi Minh Office, 2018a, 2018b).

This is confirmed by the interviews with Vietnamese, Taiwanese, and Japanese motorcycle parts suppliers in Viet Nam conducted by the author in 2019. A local supplier of plastic parts provides a case in point. This firm, which had produced household plastic products, started supplying plastic motorcycle parts to MNC customers in Viet Nam in the mid-1990s. Particularly in the early years, the firm benefited from technical assistance provided by motorcycle MNC customers. While serving them still offered the attraction of large orders, the firm remarked that it faced intense competition and was under strong pressure to reduce prices. By 2019, alongside supplying motorcycle parts to three foreign-invested manufacturers, the firm supplied home appliance and printer parts to Panasonic and LG in Viet Nam and auto parts to Toyota Viet Nam, and even started to supply electric scooter parts to Vinfast. In moving beyond the motorcycle customers, the firm had to upgrade its processes to meet stringent precision, quality or environmental standards required by new customers, some of which offered hands-on assistance. Although there were other cases in which diversification constituted a desperate attempt for survival rather than a proactive strategy, it nevertheless offered a viable option for suppliers depending on large MNC customers in an industry where the domestic market is increasingly saturated.



4.3. 'Shared Supporting Industries'

The above discussion points to the emergence of supporting industries firms of diverse nationalities, primarily supplying parts, moulds, and tools to various machinery product sectors in both domestic and export markets. In other words, these firms are 'shared' by various machinery industries in Viet Nam and abroad.

Why did Viet Nam's supporting industries come to have this structure? Simply put, in Viet Nam, varieties of machinery industries were launched and transformed within a short period of time. The process was driven primarily by MNCs in the context of a series of key policy transitions, from import substitution to export promotion, from the introduction of local content rules to their elimination, from the protection of domestic industries to their liberalisation. With rising production costs in China and other neighbouring countries and Viet Nam's efforts to promote international economic integration, the country has emerged as one of the promising destinations for cross-border outsourcing of machine parts and moulds.

Under such circumstances, only a few companies that arrived early on sought to nurture their own networks of suppliers in the country over extended periods. For end-product manufacturers arriving later, it made sense to use the existing supporting industry base that had grown through transactions with foreign firms in other industries while, if necessary and possible, bringing in their affiliated suppliers from home. This is because it enabled the manufacturers to expand local sourcing quickly while saving the costs of finding and developing suppliers. Suppliers, too, saw the benefits of diversifying into different markets and industries in terms of increasing sales, diversifying risks, and reducing the dependence on existing customers. Caution is needed, however, as the consequences of diversification on firms' performance may vary across cases. While some may have the capacity to choose customers strategically, others may diversify desperately to compensate for the loss or decline in sales to existing customers, which may even involve product or process downgrading. Nevertheless, even in the latter case, firms would still be better off by acquiring additional customers than the situation without them. Further research is needed to shed light on the consequences of diversification on the firms' upgrading and overall performance.



5. Concluding Remarks

Viet Nam's machinery industries have experienced dynamic transformation over the past few decades. Whereas previous studies had suggested developing supporting industries having a 'multi-polar' structure as an appropriate strategy for Viet Nam, few studies, if any, have examined if supporting industries in Viet Nam were indeed taking such a structure. In order to fill this gap, this paper has engaged in a comprehensive analysis of a sizeable sample of supporting industry firms in Viet Nam, primarily consisting of firms engaged in metal and rubber processing and the manufacturing of dies and moulds for foreign-invested – particularly Japanese – companies. Through a detailed analysis of the product and market structure from the suppliers' perspective, we have found that supporting industry firms not only serve multiple end products, as suggested by the previous studies, but also serve multiple customers within a given product sector and, more importantly, both domestic and export markets, typically more than one country.

Our findings suggest that clusters of supporting industry firms have emerged in Viet Nam, primarily engaged in metal and rubber processing and the manufacturing of dies and moulds for diverse machinery end product sectors in domestic and export markets. Compared to large-scale foreign-invested suppliers such as Denso, Nidec or Samsung SDI, the current contribution of such firms to direct exports or local procurement of major foreign-invested manufacturers in Viet Nam may be limited in value terms. Nevertheless, such firms constitute an integral part of the country's supporting industries and should be encouraged to develop further so as to lay a solid foundation for the machinery industry. In the light of recent developments in Viet Nam, such as the US–China tensions, supply chain restructuring under the COVID-19 epidemic, and the rise of electric vehicle manufacturer Vinfast, changes in the demand for mechanical parts are expected to continue and even accelerate further over the coming years. Particularly in such a context, the recognition that Vietnamese supporting industry firms have developed linkages with industries producing a wide variety of machinery products for the domestic and foreign markets provides an important premise for understanding the development paths of such firms as well as for formulating policies for further promoting their development.

Although circumstances specific to Viet Nam were conducive to the emergence of a multi-polar structure of the supporting industries in the country, 'developing linkages with diverse machinery product sectors in domestic and foreign markets' has general relevance as a development strategy for suppliers in the machinery industry. Indeed, our findings illuminate how the analysis of the supporting industry firms' businesses in entirety, rather than their relationships with main MNC customers, sheds new light on the development paths of such firms, particularly where they face limited prospects for shifting beyond manufacturing to higher value-adding functions within their business with their existing MNC customers. While linking with diverse product sectors in different markets, at the very least, enables suppliers to increase sales and diversify risks, further research is needed to examine the consequences of diversification on the firms' performance.

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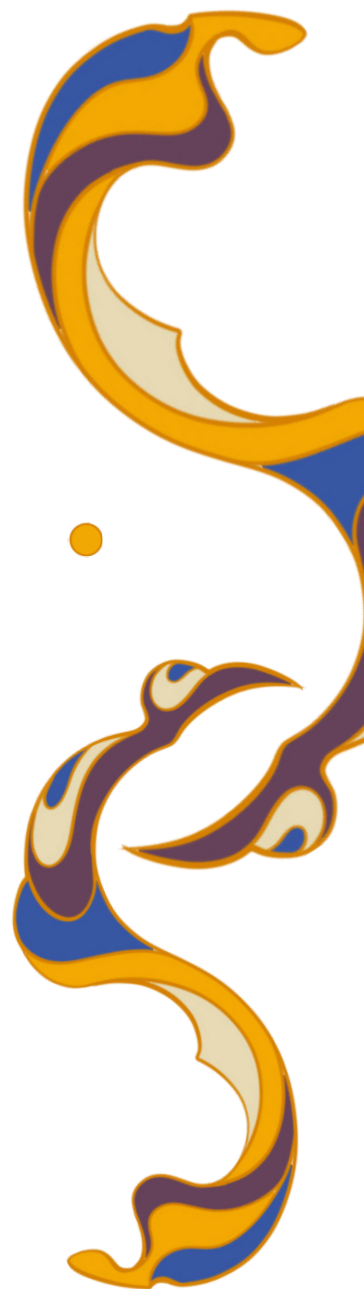
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