CHAPTER 4

THE CURRENT STATE AND FUTURE OF THE AUTOMOTIVE PARTS INDUSTRY IN VIET NAM: ANALYSING THE PRODUCTION PROCESS SPECIALISATION OF SUPPLIER FIRMS

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Introduction

Viet Nam attracted significant attention in 2019 as a result of the proliferation of businesses transferring production from China to Viet Nam in the midst of the China–United States (US) trade war. The scope of such a transfer has extended from the electrical, general goods, and textile sectors to the automotive sector. Accordingly, Viet Nam is rapidly increasing its industrial production as an assembly base. Local businesses, as represented by VinFast, are also newly entering into automobile production. The carmaker also intends to produce electric vehicles (EVs) from 2021. However, whether one is engaged in conversion to EV production or gasoline-powered automobile production, given the characteristics of the automotive parts industry – which produces over 10,000 parts – not all automotive parts can be procured from overseas; in particular, for large and heavy automotive parts, there is no choice but to wait for local production, and for less technically advanced automotive parts, relying on local procurement gives a cost advantage. Whilst there are those who think that the necessary automotive parts can be imported, when one considers the fact that automobiles are composed of various parts, the expansion of the automotive industry in a given country is predicated upon having a fully developed automotive parts industry.

On the transportation industry in Viet Nam, one can refer to Ueda (2003), Fujita (2006), and Mishima (2010) for discussion of the motorcycle industry; when it comes to the automotive industry there are limited sources, including T. Kobayashi (2015), H. Kobayashi (2015, 2016), and Jin (2016); there are even fewer contributions to the discussion that focus on the automotive

parts industry, with only H. Kobayashi (2015, 2016) and Schröder (2017). Therefore, this study examines the current state of the motorcycle and automotive parts enterprises in Viet Nam and discuss challenges to the future of the Vietnamese automotive parts industry.

1. Method

1.1. Data source on manufacturing-related enterprises in Viet Nam

To understand a detailed picture of the automotive parts industry in Viet Nam, it is essential to obtain a dataset that covers the production capabilities of parts suppliers. Research reports from the Japan External Trade Organization (JETRO) Hanoi and Ho Chi Minh offices are useful in this endeavour. The JETRO Hanoi office has created local and foreign-affiliated (excluding Japan), and Japan-affiliated parts supplier lists, called *The Excellent Vietnamese Companies in Northern and Central Vietnam* since 2009, *Northern Vietnam Foreign Investment Supplier List* since 2013, and *Northern and Central Vietnam Supplier Directory for Japanese Manufacturing Industry and Related Trading Companies* since 2014. The JETRO Ho Chi Minh office has maintained the list *The Potential Vietnamese Companies in Southern Vietnam*[1] since 2008 and has created *Southern Viet Nam Japanese and Foreign Supplier List* in 2018. As a result of these research, it emerges that there are 661 manufacturing-related enterprises in Viet Nam, and outlines of these enterprises are also provided. Therefore, it allows for a narrow snapshot of the production capabilities of enterprises active in the supply of parts based on these data. The number of enterprises in each report is as follows[2]:

- JETRO Hanoi (October 2018), The Excellent Vietnamese Companies in Northern and Central Vietnam – 263 enterprises
- JETRO Hanoi (September 2017), Northern Viet Nam Foreign Investment Supplier List – 92 enterprises
- JETRO Hanoi (July 2018), Northern and Central Viet Nam Supplier Directory for Japanese Manufacturing Industry and Related Trading Companies – 86 enterprises
- JETRO Ho Chi Minh (October 2018), The Potential Vietnamese Companies in Southern

[1] This is the official English title chosen by JETRO for the publication, which is, however, entirely written in Japanese. A more fitting translation may be 'Promising Vietnamese firms in Southern Viet Nam.

[2] Some of the following data have been updated, but in this paper, we analysed using the latest data at the time of drafting.

Vietnam – 165 enterprises

- JETRO Ho Chi Minh (March 2018), Southern Viet Nam Japanese and Foreign Supplier List – 55 enterprises

Schröder's (2017) analysis includes automotive parts enterprises from the Republic of Korea (henceforth, Korea) and Europe but the responding enterprises to the JETRO research above are mostly limited to Vietnamese, Japanese, and other Asian enterprises, meaning that US and European enterprises are underrepresented, these collected data are not representative of the whole manufacturing industry or whole automotive parts industry. Because the data are obtained through JETRO research, the responding enterprises are either local, Japanese, or have some business connection to Japan.

However, this bias in the data does not mean that it can only be used in a limited way as a case study of a group of parts enterprises related to Japanese enterprises. Rather, since it is a group of enterprises that 'have a high possibility of supplying parts of the quality level required by Japanese enterprises (JETRO Hanoi 2018a; 2018b)', in the point of that they are expected to play a role in development of manufacturing industry, the JETRO reports can be regarded as a data source that is in line with the purpose of this study. Therefore, this data source can be positively utilised as an indication of the development gaps and potential of the automobile parts industry in Viet Nam.

1.2. Dataset of motorcycle and automotive parts enterprises in Viet Nam

The enterprises in industry types with no direct involvement in manufacturing or production activities relating to motorcycles and automobiles – that is to say, enterprises in the producer goods, equipment, plant, construction, packing, furniture and fixtures, or materials industries, as well as trading enterprises – are excluded from the 661 enterprises mentioned above. Of course, the industry types listed above engage in transactions relating to motorcycles and automobiles, but they are identified as vendors undertaking commercial activities with a large number of enterprises of unspecified types, these enterprises comprised as many as 447 of the total 661. Therefore, we use the dataset of 214 (of which 102 (47.7%) are local and 112 (52.3%) are foreign-affiliated) motorcycle and automobile parts enterprises in this study.

We conduct an analysis that classifies enterprises by time of establishment, capital source (local, foreign (non-Japanese or Japanese)), county of origin, firm location (northern, central, or southern Viet Nam), scale of firm (large-sized, medium-sized, small-sized, or micro), industry type (stamping, resin, and so on), supplier ranking (Tier 1, Tier 1 candidate, Tier 2, or Tier 3 suppliers), and main product (motorcycles, motorcycles and automobiles, motorcycles, automobiles, and other, or automobiles).

2. The Situation of Motorcycle and Automotive Parts Enterprises in Viet Nam

2.1. Founding and transformation of motorcycle and automotive enterprises

Given the fact that the automotive parts industry in Viet Nam started from motorcycle production, let us organise the trends in motorcycle and automotive parts enterprises by dividing everything into three phases, following Mishima (2010) (see Table 4.1). First is Phase I, in which the motorcycle parts industry emerged, a 13-year period from the beginning of the Doi Moi Policy in 1986 to Viet Nam's entry into the Association of Southeast Asian Nations (ASEAN) in 1995 and up to 1999. Motorcycle production began in this period, Chinfon Group (Taiwan) entered Viet Nam in 1992, Honda (Japan) in 1995, and Yamaha (Japan) in 1998. Automotive production also began at around the same time, promoted by the Doi Moi Policy with the entry into Viet Nam of many businesses all at once in 1993, starting with Daewoo (Korea) and including Mitsubishi (Japan), Toyota (Japan), Isuzu (Japan), Suzuki (Japan), Mercedes-Benz (Germany), and Ford (US). However, in this period, completely knocked-down (CKD) production, involving the assembly of parts imported from overseas, was taking place for both motorcycles and automobiles.

2.2. Distribution of capital sources for motorcycle and automotive parts enterprises established by year

Parts enterprises were focused on the production of motorcycle parts and, 20 (10.1%) of all motorcycle and automotive parts enterprises were established in Phase I, looking at the composition of these parts enterprises, 17 (9%) of the 20 (10.1%) enterprises were local. There were 11 motorcycle and automotive parts enterprises (10 local, 1 foreign (1 non-Japanese))

established before 1986 already in operation, so if these are included that makes a total of 27 local enterprises and 4 foreign-affiliated enterprises (4 non-Japanese), meaning that local enterprises comprised the overwhelming majority (see Table 4.1).

In Phase II, as imports of sets of parts made in China for low-cost motorcycles increased rapidly, the market share of Chinese motorcycles quickly rose, and in this period the motorcycle market in Japan surged all at once from 5 million units to 15 million units. Further, this was also the period when the Japanese motorcycle manufacturer Honda launched the Wave, a low-priced motorcycle made to Southeast Asian specifications with the aim of catching up with the competition. Around this period, it was predominantly motorcycle parts enterprises that started to increase in number. That 7 motorcycle and automotive parts enterprises were established in 1999 (see Figure 1), the final year of Phase I, and a total 18 (9%) motorcycle and automotive parts enterprises were established in the three-year period of Phase II speaks to these increases. Moreover, looking at the source of capital, 11 (5.5%) foreign-affiliated enterprises (non-Japanese (7; 3.5%), Japanese (4; 2%)) also started to increase along with 7 (3.5%) local enterprises (see Table 4.1).

During Phase III the numbers of local and foreign-affiliated enterprises established with the objective of supplying motorcycle parts increased. In Phase III, 161 enterprises were founded, meaning that 80.9% of all motorcycle and automotive parts enterprises established in Viet Nam were concentrated in Phase III. If one looks at the distribution by source of capital, the establishment of 67 (33.7%) local enterprises and 94 (47.2%) foreign-affiliated enterprises (non-Japanese (47; 23.6%), Japanese (47; 23.6%)) was concentrated in this period (see Table 4.1). During Phase III, Japanese and Taiwanese motorcycle manufacturers were increasing their number of units produced as well as the proportion of local procurement, in addition to which exports to ASEAN countries were beginning, all of which led to requirements for motorcycle parts enterprises to enhance quality. Demand for the supply of automobile parts also began to increase at this time.

If we now look at the number of enterprises by source of capital in all periods with reference to Table 4.1, the majority is foreign-affiliated enterprises (108 (56 non-Japanese, 52 Japanese)), 54.2% (28.1% non-Japanese, 26.1% Japanese)), the local enterprises are less than half (91; 45.7%).

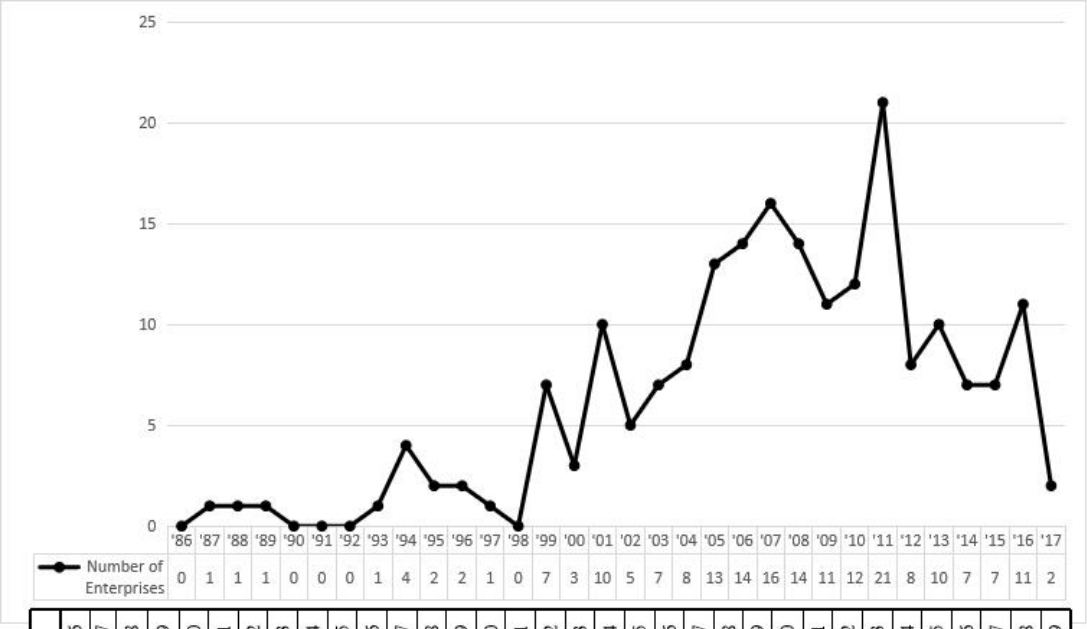
Table 4.1: Capital Sources for Motorcycle and Automotive Parts Enterprises Established by Year

	Local Enterprises		Foreign-affiliated Enterprises				Total	
			non-Japanese		Japanese			
Phase I (1986-1999)	17	8.5%	2	1.0%	1	0.5%	20	10.1%
Phase II (2000-2002)	7	3.5%	7	3.5%	4	2.0%	18	9.0%
Phase III (2003 onwards)	67	33.7%	47	23.6%	47	23.6%	161	80.9%
Total	91	45.7%	56	28.1%	52	26.1%	199	100.0%

Notes: Phase I: 1986–1999; Phase II: 2000–2002; Phase III: 2003 onwards. Information is unavailable for 1 local enterprise and 3 foreign-affiliated enterprises. There were 10 local enterprises and 1 foreign-affiliated enterprise prior to 1986.

Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018a; 2018b).

Figure 4.1. Number of Motorcycle and Automotive Parts Enterprises Established by Year and Motorcycle and Automotive Manufacturers Established by Year



	Automobile Manufacturer	Country of Origin	Motorcycle Manufacturer	Country of Origin
'86				
'87				
'88				
'89				
'90				
'91	Mekong	Viet Nam		
'92				
'93	GM	United States		
'94	Mitsubishi	Japan		
'95	Toyota/Ford/Mercedes-Benz	Japan/United States/Germany	Suzuki	Japan
'96	Isuzu/Hino	Japan/Japan	Honda	Japan
'97	THACO	Viet Nam		
'98			Yamaha/Dothanh	Japan/Viet Nam
'99				
'00				
'01				
'02				
'03				
'04	Samco	Viet Nam		
'05	Daewoo	Republic of Korea		
'06				
'07			SYM	Taiwan
'08				
'09	Hyundai	Republic of Korea	Piaggio	Italy
'10				
'11				
'12				
'13	Peugeot	France		
'14				
'15				
'16				
'17				
'18				
'19	VinFast	Viet Nam	Kawasaki	Japan

Notes: Information is unavailable for 1 local enterprise and 3 foreign-affiliated enterprises. There were 10 local enterprises and 1 foreign-affiliated enterprise prior to 1986.

Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018a; 2018b).

2.3. Distribution of capital source for motorcycle and automotive parts enterprises by firm location

Let us look at the distribution of capital sources for motorcycle and automotive parts enterprises by firm locations to Table 4.2. When one looks at the distribution by region, 160 (74.8%) enterprises are concentrated in northern Viet Nam. This tendency is a characteristic shared by local and foreign-affiliated enterprises, but the number of foreign-affiliated enterprises in northern Viet Nam is particularly high, at 89 (41.6%) (non-Japanese (54; 25.2%), Japanese (35; 16.4%)). After northern Viet Nam comes southern Viet Nam with 24 (11.2%) enterprises, and central Viet Nam has the lowest number of enterprises, at 7 (3.3%). The cultivation of motorcycle and automotive parts enterprises in central and southern Viet Nam is a task to be tackled in the future. It should be added that this imbalance may also be due to the particular sources used in this study since the more encompassing work of Schröder (2017) reports few enterprises in central Viet Nam but a more balanced distribution of enterprises between northern and southern Viet Nam.

Table 4.2. Capital Source of Motorcycle and Automobile Parts Enterprises by Firm Location

	Local Enterprises		Foreign-affiliated Enterprises				Total	
			Non-Japanese		Japanese			
Northern Viet Nam	71	33.2%	54	25.2%	35	16.4%	160	74.8%
Central Viet Nam	7	3.3%	0	0.0%	1	0.5%	8	3.7%
Southern Viet Nam	24	11.2%	6	2.8%	16	7.5%	46	21.5%
Total	102	47.7%	60	28.0%	52	24.3%	214	100.0%

Note: Japan Bank for International Cooperation (2019) was used for the classification of the regions.

Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018a; 2018b).

2.4. Distribution of scale of firm for local motorcycle and automotive parts enterprises by firm location

Let us narrow our focus to local motorcycle and automotive enterprises and look at the distribution of scale of firm by firm locations, with reference to Table 4.3. Enterprises were classified as large, medium, or small in accordance with the Vietnamese government's standards of the scale of firm. The number of medium-sized enterprises is most numerous and comprise nearly half of the local enterprises (46; 46.9%), followed by small-sized enterprises (30; 30.6%) and large-sized enterprises (22; 22.4%). Further, looking at distribution by region, 67 of the enterprises, corresponding to 68.4% of the total, were concentrated in northern Viet Nam.

When one looks at the distribution by region, the number of medium-sized enterprises in northern Viet Nam is particularly high, at 32 (32.7%). After medium-sized enterprises comes small-sized enterprises with 19 (19.4%), and large-sized enterprises has the lowest number, at 16 (16.3%). This tendency is same as in southern Viet Nam. On the other hand, in central Viet Nam, the number of medium-sized enterprises is the highest, at 5 (5.1%).

Table 4.3. Scale of Firm of Local Motorcycle and Automotive Parts Enterprises by Firm Location

	Large-sized Enterprises		Medium-sized Enterprises		Small-sized Enterprises		Total	
Northern Viet Nam	16	16.3%	32	32.7%	19	19.4%	67	68.4%
Central Viet Nam	5	5.1%	2	2.0%	0	0.0%	7	7.1%
Southern Viet Nam	1	1.0%	12	12.2%	11	11.2%	24	24.5%
Total	22	22.4%	46	46.9%	30	30.6%	98	100.0%

Notes: According to 'DECREE NO. 39/2018/ND-CP' (Viet Nam Government, 2018a), the scale of firm can be classified into the following three categories, and large-sized enterprises are defined as larger than medium-sized enterprises in this study. Sources: JETRO Hanoi (2017; 2018a; 2018b); JETRO Ho Chi Minh (2018a; 2018b); and Government of Viet Nam (2018a; 2018b).

Micro-enterprise: annual average of ≤ 10 employees who make contributions to social insurance and total annual revenue ≤ D3 billion (approximately US$120 thousand) or total capital ≤ D3

billion (approximately US$120 thousand).

Small-sized enterprise: annual average of ≤ 100 employees who make contributions to social insurance and total annual revenue ≤ D50 billion (approximately US$2.1 million) or total capital ≤ D20 billion (approximately US$860 thousand).

Medium-sized enterprise: annual average of ≤ 200 employees who make contributions to social insurance and total annual revenue ≤ D200 billion (approximately US$8.6 million) or total capital ≤ D100 billion (approximately US$4.3 million).

Large-sized enterprise: annual average of > 200 employees who make contributions to social insurance and total annual revenue > D200 billion (approximately US$8.6 million) or total capital > D100 billion (approximately US$4.3 million).

As mentioned above, the scale of the enterprise is determined by annual average number of employees making social insurance contributions and the total annual revenue or the total capital. In 'DECREE NO. 143/2018/ND-CP' (Government of Viet Nam, 2018b), foreigners are also forced to take out social insurance, but, for example, internal transfers (expatriates, employees, seconded employees) are not eligible. Since there is no description of the contract status of employees in the JETRO data, we decided to exclude the number of employees from the conditions.

In addition, since 'DECREE NO. 39/2018/ND-CP' is a detailed enforcement regulation of some provisions of the SME Support Law, it is important to grasp the latest management conditions, but one purpose of this study is future prediction. Therefore, since it is in line with the purpose of this study to define the scale of the enterprise by the capital with little change rather than the revenue that reflect the change from year to year, it was classified into four scale from the capital, for convenience.

Japan Bank for International Cooperation (2019) was used for the classification of the regions (accessed 22 November 2020).

Information was unavailable for 4 enterprises.

2.5. Distribution of foreign-affiliated motorcycle and automotive parts enterprises by country of origin

Let us turn to foreign-affiliated motorcycle and automotive enterprises and look at the distribution of scale of firm by firm locations, with reference to Table 4.4. Of the total 112 foreign-affiliated enterprises, Japan-affiliated enterprises (52; 46.4%) and Taiwan-affiliated enterprises (33; 29.5%) account for 75.9% of foreign-affiliated enterprises. Most of those following Japan and Taiwan are all in Asia: Malaysia (6; 5.4%), China (5; 4.5%), Republic of Korea (4; 3.6%) and Thailand (4; 3.6%)

Table 4.4. Foreign-affiliated Motorcycle and Automotive Parts Enterprises by Country of Origin

	Quantity	Percentage
Japan	52	46.4%
Taiwan	33	29.5%
Malaysia	6	5.4%
China	5	4.5%
Republic of Korea	4	3.6%
Thailand	4	3.6%
Germany	1	0.9%
India and Italy	1	0.9%
Indonesia	1	0.9%
Singapore	1	0.9%
United Kingdom	1	0.9%
Malaysia and China	1	0.9%
Malaysia and Japan	1	0.9%
Malaysia and Republic of Korea	1	0.9%
Total	112	100.0%

Source: JETRO Hanoi (2017; 2018b); JETRO Ho Chi Minh (2018a).

2.6. Distribution of scale of firm for foreign-affiliated motorcycle and automotive parts enterprises by country of origin

Regarding foreign-affiliated motorcycle and automobile parts enterprises again, let us look at the distribution of country of origin for enterprises by scale of firm, with reference to Table 4.5. The number of medium-sized enterprises is most numerous (42; 39.6%), followed by large-sized enterprises (39; 36.8%), small-sized enterprises (23; 21.7%) and micro-sized enterprises (2; 1.9%). Next, let us look at the distribution of scale of firm by country of origin, the number of medium-sized enterprises in Japanese enterprises is the highest at 24 (22.6%). After medium-sized enterprises comes large-sized and small-sized enterprises with 12 (11.3%), and micro-enterprises with 1 (0.9%). On the other hand, in Taiwanese enterprises, the number of large-sized enterprises is the highest, at 18 (17%) followed by medium-sized enterprises (10; 9.4%), small-sized enterprises (2; 1.9%), and micro-enterprises with 1 (0.9%).

Table 4.5. Scale of Firm for Foreign-affiliated Motorcycle and Automotive Parts Enterprises by Country of Origin

	Large-sized Enterprises		Medium-sized Enterprises		Small-sized Enterprises		Micro-enterprises		Total	
Japan	12	11.3 %	24	22.6 %	12	11.3 %	1	0.9 %	49	46.2 %
Taiwan	18	17.0 %	10	9.4 %	2	1.9 %	1	0.9 %	31	29.2 %
Malaysia	2	1.9 %	1	0.9 %	2	1.9 %	0	0.0 %	5	4.7 %
China	1	0.9 %	1	0.9 %	3	2.8 %	0	0.0 %	5	4.7 %
Republic of Korea	2	1.9 %	1	0.9 %	1	0.9 %	0	0.0 %	4	3.8 %
Thailand	2	1.9 %	2	1.9 %	0	0.0 %	0	0.0 %	4	3.8 %
Germany	0	0.0 %	0	0.0 %	1	0.9 %	0	0.0 %	1	0.9 %
India and Italy	0	0.0 %	1	0.9 %	0	0.0 %	0	0.0 %	1	0.9 %
Indonesia	0	0.0 %	0	0.0 %	1	0.9 %	0	0.0 %	1	0.9 %
Malaysia and China	0	0.0 %	0	0.0 %	1	0.9 %	0	0.0 %	1	0.9 %
Malaysia and Japan	1	0.9 %	0	0.0 %	0	0.0 %	0	0.0 %	1	0.9 %
Malaysia and Republic of Korea	0	0.0 %	1	0.9 %	0	0.0 %	0	0.0 %	1	0.9 %
Singapore	1	0.9 %	0	0.0 %	0	0.0 %	0	0.0 %	1	0.9 %
United Kingdom	0	0.0 %	1	0.9 %	0	0.0 %	0	0.0 %	1	0.9 %
Total	39	36.8 %	42	39.6 %	23	21.7 %	2	1.9 %	106	100.0 %

Note: Information was unavailable for 3 Japan-affiliated enterprises, 2 Taiwan-affiliated enterprises and 1 Malaysia-affiliated enterprise.

Source: JETRO Hanoi (2017; 2018b); JETRO Ho Chi Minh (2018a).

2.7. Distribution of capital source for local and foreign-affiliated motorcycle and automotive parts enterprises by industry type

Let us now classify all 192 motorcycle and automotive parts enterprises (local enterprises (102; 53.1%), foreign-affiliated enterprises (90; 46.9% (non-Japanese (54; 28.1%), Japanese (36;

18.8%)) into 11 industry-types according to the parts departments essential for the production of motorcycles and automobiles – stamping, resin, forging, diecast, machining, precision machining, rubber moulding, metal moulding, assembly, surface treatment, and other – and observe how many enterprises by each of those industry-types (see Table 4.6).

First, looking at local motorcycle and automotive parts enterprises, there are many enterprises involved in the machining (27; 14.1%), stamping (16; 8.3%), resin (16; 8.3%), and metal moulding (13; 6.8%) industries and, other than precision machining, it could be said that there exists the full array of industry-types required for automotive production. Turning to foreign-affiliated motorcycle and automotive parts enterprises, this group has large numbers of enterprises involved in the assembly (16; 8.3%), resin (15; 7.8%), and other industries (15; 7.8%), and it is organised very similarly to the local enterprise group; foreign-affiliated motorcycle and automotive parts enterprises also resemble local motorcycle and automotive parts enterprises in terms of there being a lack of precision machining, and it could be said that local enterprises and foreign-affiliated enterprises are almost in line with one another. Many Japan-affiliated motorcycle and automotive parts enterprises are in the assembly (7; 3.6%), resin (6; 3.1%), and surface processing industries (5; 2.6%), and this group stands out in the fields of precision machining (where there are only Japan-affiliated enterprises).

Most of the stamping and machining industries are local enterprises, and the order of frequency for resin industry is local enterprises, non-Japanese enterprises, then Japanese enterprises. There are the same numbers of local enterprises and non-Japanese enterprises in the assembly and diecast industries, with both exceeding the numbers of Japanese enterprises in those areas. Metal moulding industry was most common amongst local enterprises, followed by non-Japanese enterprises, with none amongst Japanese enterprises; conversely, there was precision machining industry only in Japanese enterprises. Rubber moulding industries were fairly evenly distributed amongst local enterprises, non-Japanese enterprises, and Japanese enterprises, and surface treatment industries were most common amongst local enterprises, followed by Japanese enterprises and then non-Japanese enterprises. To summarise, it could be said that there are no significant differences amongst the three groups in terms of assembly, diecasting, rubber moulding, or forging industries; local enterprises have an advantage in machining, resin, stamping, and metal moulding industries; non-Japanese enterprises in resin and assembly industries; and Japanese enterprises in precision machining industry.

Table 4.6. Capital Source for Local and Foreign-affiliated Motorcycle and Automotive Parts Enterprises by Industry Type

	Local Enterprises		Foreign-affiliated Enterprises				Total	
			Non-Japanese		Japanese			
Machining	27	14.1%	4	2.1%	4	2.1%	35	18.2%
Resin	16	8.3%	9	4.7%	6	3.1%	31	16.1%
Assembly	9	4.7%	9	4.7%	7	3.6%	25	13.0%
Stamping	16	8.3%	4	2.1%	3	1.6%	23	12.0%
Other	3	1.6%	11	5.7%	4	2.1%	18	9.4%
Metal moulding	13	6.8%	3	1.6%	0	0.0%	16	8.3%
Surface treatment	8	4.2%	2	1.0%	5	2.6%	15	7.8%
Diecast	5	2.6%	5	2.6%	2	1.0%	12	6.3%
Rubber moulding	3	1.6%	4	2.1%	3	1.6%	10	5.2%
Forging	2	1.0%	3	1.6%	1	0.5%	6	3.1%
Precision machining	0	0.0%	0	0.0%	1	0.5%	1	0.5%
Total	102	53.1%	54	28.1%	36	18.8%	192	100.0%

Note: 22 foreign-affiliated enterprises in the south of Viet Nam were excluded from the analysis due to lack of information.

Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018b).

3. The Situation of Motorcycle and Automotive Parts Supplier Chain in Viet Nam

3.1. Criteria for classification of supplier ranking of motorcycle and automotive parts enterprises

Next, to structurally grasp the motorcycle and automobile parts industry in Viet Nam, we will rank the suppliers and discuss the supply chain. First, it is classified 214 motorcycle and automobile parts enterprises according to business relationships (business relationships; existence of products designed and developed in-house;
membership or participation in manufacturers' associations) and technical level (existence of design and development systems;
quality assessment systems (personnel, equipment); product form). Based on these data, the motorcycle and automobile parts enterprises were classified as supplier ranking (Tier 1, Tier 1 Candidates, Tier 2, and Tier 3 suppliers) in accordance with the standards set out below (see Table 4.7).

Table 4.7. Criteria for Classification of Supplier Ranking of Motorcycle and Automotive Parts Enterprises

			Supplier Lanking			
			Tier 1	Tier 1 Candidates	Tier 2	Tier 3
Business Relationships	1	Transact business relationships	Transact directly with automotive manufacturers	Transact with Tier 1 and some manufacturers	Transact with Tier 1	Transact with Tier 2
	2	Existence of products designed and developed in-house	Yes	No (outsourced production)	No (outsourced production)	No (outsourced production)
	3	Relation with community	Strong	Strong	Not so strong	Weak
Technical Level	1	Existence of design and development systems	Yes	No (but future establishment possible)	No	No
	2	Quality assessment systems (personnel, equipment)	Capable of guarantee of strength, defects and other functions	Capable of guarantee of strength, dimensional accuracy and other specifications	Capable of guarantee of dimensional accuracy and other specifications	Capable of guarantee of dimensional accuracy and other specifications
	3	Product form	Unit assembly integrated production	Sub-assembly and/or parts production	Parts production	Small lot parts production

Source: Compiled by authors based on various materials.

A summary of the supplier ranking follows.

Tier 1 suppliers

1. Essentially, these are parts enterprises that transact directly with an automotive manufacturer, apportioned responsibility for functional units of automobiles other than the engine (such as the suspension, transmission, or steering), or for key parts, from design and development to

production.

2. In terms of the technical level, these parts enterprises have their own products designed and developed in-house and maintain systems to assess the quality of these products and their in-vehicle performance.

Tier 1 Candidates suppliers

A similar scale of business to Tier 1 suppliers and is aiming to become Tier 1 suppliers in the future or currently has such potential; partner enterprises working proactively to enhance design and development and quality assurance systems.

Tier 2 suppliers

Medium-sized enterprises that cooperate with Tier 1 suppliers in outsourced production that takes advantage of their respective areas of strength and expertise.

Tier 3 suppliers

Generally speaking, these are small-sized enterprises involved in the automotive industry part-time, undertaking multi-product small lot production and inconsistent small lot part production for Tier 2 mass production facilities.

Two important thing should be explained before conducting the next analysis: above mentioned criteria represents the characteristics of general motorcycle and automotive parts suppliers, but the JETRO reports only contain part of information on each enterprises' customers, and do not contain the information on product development capability. Therefore, the following classification for supplier ranking is based on information about actual supply relations obtained from JETRO reports, but it is lacking information on product development capability (see Table 4.8 and Figure 4.2).

3.2. Distribution of capital source for motorcycle and automotive parts enterprises by supplier ranking

Let us now, in Table 4.8, classify the 192 motorcycle and automotive parts enterprises in Viet Nam (grouped by source of capital into supplier ranking) in accordance with the criteria in Table 4.7. Amongst local enterprises, there are 70 (36.5%) Tier 3 suppliers, making that the most common supplier, followed by 18 (9.5%) Tier 2 suppliers, 10 (5.2%) Tier 1 Candidates suppliers, and 4 (2.1%) Tier 1 suppliers. Amongst non-Japanese enterprises, the 23 (12%) Tier 3 suppliers are the most common, followed by 21 (10.9%) Tier 2 suppliers, 7 (3.6%) Tier 1 Candidates suppliers, and 3 (1.6%) Tier 1 suppliers. Turning to Japanese enterprises, Tier 3 is the most common with 19 (9.9%) suppliers, followed by 9 (4.7%) Tier 2 suppliers, 4 (2.1%) Tier 1 Candidates suppliers, and 4 (2.1%) Tier 1 suppliers. Regardless of the source of capital, Tier 3 is the most common, followed by Tier 2, Tier 1 Candidates, and Tier 1 suppliers. It is characteristic, and problematic, that Tier 1 suppliers are rare amongst local, non-Japanese, and Japanese enterprises. This is expressed in the figures, with 11 (5.7%) Tier 1 suppliers, 21 (10.9%) Tier 1 Candidates suppliers, 48 (25.0%) Tier 2 suppliers, and 112 (58.3%) Tier 3 suppliers when the totals for local, non-Japanese, and Japanese enterprises are calculated.

Table 4.8. Capital Source for Motorcycle and Automotive Parts Enterprises by Supplier Ranking

	Local Enterprises		Foreign-affiliated Enterprises				Total	
			Non-Japanese		Japanese			
Tier 1	4	2.1%	3	1.6%	4	2.1%	11	5.7%
Tier 1 Candidates	10	5.2%	7	3.6%	4	2.1%	21	10.9%
Tier 2	18	9.4%	21	10.9%	9	4.7%	48	25.0%
Tier 3	70	36.5%	23	12.0%	19	9.9%	112	58.3%
Total	102	53.1%	54	28.1%	36	18.8%	192	100.0%

Note: 22 foreign-affiliated enterprises in the South Viet Nam were excluded from the analysis due to lack of information.
Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018b).

3.3. Supply chain of local and foreign-affiliated motorcycle and automotive parts

Figure 4.2 is a supply chain diagram of motorcycle and automotive parts in Viet Nam that adds motorcycle and automotive manufacturers to the information in Table 4.8. A total of 44 assembly manufacturers stand at the summit, including 27 motorcycle manufacturers and 17 automotive manufacturers. There is a total of 11 Tier 1 suppliers, comprising 4 local enterprises, 3 non-Japanese enterprises, and 4 Japanese enterprises. Then, there are 21 Tier 1 Candidates suppliers comprising 10 local enterprises, 7 non-Japanese enterprises, and 4 Japanese enterprises, followed by 48 Tier 2 suppliers comprising 18 local enterprises, 21 non-Japanese enterprises, and 9 Japanese enterprises, 112 Tier 3 suppliers comprising 70 local enterprises, 23 non-Japanese enterprises, and 19 Japanese enterprises.

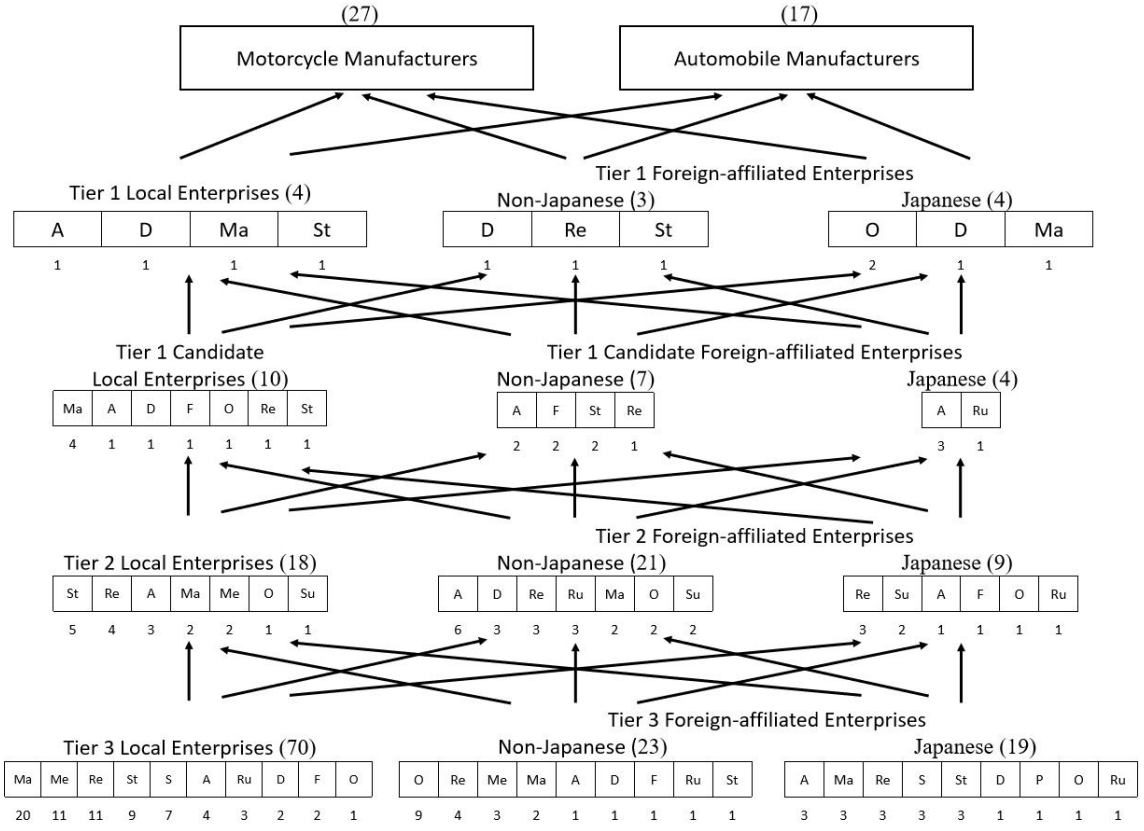
Another characteristic of the motorcycle and automotive industrial agglomeration in Viet Nam is that there are few end-to-end production enterprises. This structure is different from motorcycle and automotive industrial agglomerations in Japan, Thailand, or Indonesia, which generally take a pyramid form; in Viet Nam, the motorcycle and automotive industrial agglomeration is gourd-shaped, with many assembly manufacturers, Tier 2, and Tier 3 suppliers, but few Tier 1 suppliers. The resulting challenge is to reduce the number of assembly manufacturers and increase the number of Tier 1 suppliers so that the industrial agglomeration in Viet Nam moves from its gourd shape towards a pyramid structure. This study shows a total of 21 Tier 1 Candidates suppliers from amongst Tier 2 suppliers, including 10 local enterprises, 7 non-Japanese enterprises, and 4 Japanese enterprises (see Figure 4.2). Nurturing these Tier 1 Candidates suppliers is a policy issue.

In contrast with the general structure of Japanese motorcycle and automotive parts enterprises, which undertake integrated operations from materials and through machining to surface treatment, with Vietnamese motorcycle and automotive parts enterprises, one sees a separation between materials and processing, and there is a structure whereby there is a flood of materials enterprises divided into narrow processes below Tier 1 suppliers. This suggests that local motorcycle and automotive parts enterprises lack what has been termed ‘process design capability’ (Akabane et al., 2017).

Process design capability is modelled as having six distinct but cumulative stages, of which the final is to integrate distinct processes into a production sequence. In their study on Tier 2

suppliers in Japan, Thailand, and China, Akabane et al. (2017) observed that only very few Chinese and Thai enterprises possess this capability, which may be regarded as a factor that explains the continuing success of Japanese lower-tier suppliers, which do not enjoy labour cost advantages. Regarding the competitiveness of Vietnamese automotive industry, increasing the number of automotive parts enterprises undertaking this end-to-end production will also be a task for Vietnamese industry to tackle going forward. Whilst the aforementioned study suggests that Chinese and Thai suppliers can survive without such process design capability, Viet Nam's automotive industry could hope to catch up faster to these competing economies if local automotive parts enterprises could overcome the narrow focus on single production processes.

Figure 4.2. Supply Chain of Local and Foreign-affiliated Motorcycle and Automotive Parts



Notes: 22 foreign-affiliated enterprises in the South Viet Nam were excluded from the analysis due to lack of information.

A = assembly, D = diecast, F = forging, Ma = machining, Me = metal moulding, P = precision machining, Re = resin, Ru = rubber moulding, St = stamping, Su= surface treatment.

The numbers in parentheses indicate the total number of enterprises.

Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018b).

4. Challenges for the Automotive Parts Industry in Viet Nam

4.1. Necessity of cultivating the automotive parts industry

We have pointed out the actual situation of the motorcycle and automotive parts industry in Viet Nam and its structural weaknesses in the preceding section. Considered in terms of cost, it is not uncommon for it to be lower cost, as well as of more stable quality, to have certain parts supplied from Japan or Thailand rather than procure them from within Viet Nam. However, if a certain quantity is expected, it goes without saying that it is of a greater cost advantage to procure stamp- and resin-manufactured large and heavy parts and highly versatile smaller parts locally. Based on such circumstances, let us move to a discussion of the situation of automotive parts enterprises, and policies for their development.

4.2. Distribution of main product for motorcycle and automotive parts suppliers by capital source

The analysis so far has treated businesses in Viet Nam supplying parts for motorcycles and automobiles as a single group. However, to bring about the development of automobile parts suppliers in Viet Nam, the subject of this study, it is necessary to show the distribution of parts suppliers by source of capital (local, non-Japanese, or Japanese) and main product (motorcycles, motorcycles and automobiles, motorcycles, automobiles, and other, or automobiles) (see Table 4.9).

Of the 102 (53.1%) local enterprises, the number of enterprises supplying motorcycle manufacturers is 17 (8.9%), the number of enterprises supplying parts for both motorcycles and automobiles is 76 (39.5%), 55 (28.6%) enterprises that supply other manufacturers, such as electrical manufacturers as well as both motorcycle and automobile manufacturers, and only 9 (4.7%) enterprises exclusively supply parts for automobiles. Looking next at the 54 (28.1%) non-Japanese enterprises, 6 (3.1%) enterprises only supply parts for motorcycles, 47 (24.4%) enterprises supply parts for both motorcycles and automobiles, 31 (16.1%) enterprises that supply other manufacturers, such as electrical manufacturers as well as both motorcycle and

automobile manufacturers, and only 1 (0.5%) enterprise exclusively supply parts for automobiles. Of the 36 (18.8%) Japanese enterprises, 4 (2.1%) enterprises only supply parts for motorcycles, 25 (13.0%) enterprises supply parts for both motorcycles and automobiles, 19 (9.9%) enterprises that supply other manufacturers, such as electrical manufacturers as well as both motorcycle and automobile manufacturers, and only 7 (3.6%) enterprises exclusively supply parts for automobiles.

Table 4.9. Main Product for Motorcycle and Automotive Parts Suppliers by Capital Source

		Motorcycle		Motorcycle and Automobile				Automobile		Total	
				Motorcycle and Automobile		Motorcycle, Automobile, and Other					
Local Enterprises		17	8.9%	21	10.9%	55	28.6%	9	4.7%	102	53.1%
Foreign-affiliated Enterprises	Non-Japanese	6	3.1%	16	8.3%	31	16.1%	1	0.5%	54	28.1%
	Japanese	4	2.1%	6	3.1%	19	9.9%	7	3.6%	36	18.8%
Total		27	14.1%	43	22.4%	105	54.7%	17	8.9%	192	100.0%

Notes: The 'motorcycle and automotive' category includes all enterprises in the 'motorcycle, automotive, and other' category.
22 foreign-affiliated enterprises in the south of Viet Nam were excluded from the analysis due to lack of information.
Sources: JETRO Hanoi (2017; 2018a; 2018b) and JETRO Ho Chi Minh (2018b).

Looking at the total figures for motorcycle and automotive parts enterprises, 27 (14.1%) enterprises supply parts for motorcycles, 43 (22.4%) enterprises supply parts for both motorcycles and automobiles, 105 (54.7%) enterprises supply other industries, such as electrical manufacturers as well as parts for both motorcycles and automobiles, and only 17 (8.9%) enterprises exclusively supply parts for automobiles. Overall, motorcycle and automotive parts enterprises in Viet Nam are concentrated in the supply of parts to motorcycle manufacturers, and supply to automotive manufacturers is a challenge that will need to be looked at going forward.

4.3. Differences between parts suppliers for motorcycles and automobiles

Where might there be differences between parts suppliers for motorcycles and automobiles? Both types of vehicle are similar inasmuch as they are transportation devices with the three functions of running, turning, and stopping; when looked at from the perspective of parts, however, these are two different types of vehicle. The level of precision required for each category differs so much that one could refer to motorcycles as bicycles with engines and automobiles as precision machines with engines – the former requires millimetre precision, whilst the latter micro-level precision. In terms of shape as well, motorcycles tend to be small and inexpensive, in contrast with automobiles, which tend to be large and expensive. Motorcycles require between 2,000 and 3,000 parts, whereas automobiles require 10 times that amount, at between 20,000 and 30,000 parts. Automobiles have a higher proportion of critical safety parts in addition to the engine when compared to motorcycles, for which the majority of parts other than the engine are external.

Although motorcycles and automobiles both belong to the same sector (transportation equipment), these areas could be thought of as different industry-types when it comes to the precision and quality required. Even so, the same level of precision and quality would be required for engine parts in both types of vehicle. Motorcycle engines may release a smaller volume of exhaust and be structurally smaller than those of automobiles, but there is no significant difference in terms of the required precision and quality levels on a technical level. Added to this is the fact that as it is technically difficult to make parts smaller, the larger parts become, the less difficult they are to produce, comparatively speaking. Accordingly, the fastest route to developing automotive parts industries in Viet Nam would be to select those motorcycle parts enterprises that focus on engine parts and have high levels of precision and accuracy and to intensively promote those enterprises.

4.4. Conditions and activities required for motorcycle parts suppliers to enter the automotive parts sector

Generally speaking, the automotive parts sector is characterised by strict quality and cost requirements. Compared to motorcycles, however, automobiles are not simply ‘vehicles’ but

rather a high-growth industry closely connected to society and industry, and this is an industry of national strategic importance; once enterprises have managed to enter the sector, stable business management and the drawing of plans for future business development will become possible.

However, entry into the automotive parts sector is not easy. To supply the high-precision, high-functionality automotive parts required for these 'moving precision machines' with their various functions, manufacturing alone is not enough. It is necessary to acquire high-cost measuring and testing equipment to evaluate these automotive parts and to secure and train superb human resources to operate such equipment; achieving this task takes a minimum of 3 years. Meanwhile, the manufacturing itself takes at least 2 years, post-order, from the prototype and testing stages through to starting mass production, during which time large amounts of upfront investment will be necessary for securing manufacturing space, staffing, and equipment for manufacturing and quality assurance, which puts pressure on management. Accordingly, subsidies and favourable treatment from national and local governments become important in addition to each enterprise's own efforts.

So, why should the automobiles be targeted if the environment is so difficult? Because, once enterprises have managed to enter the sector, stable and predictable profits can be secured as long as a given vehicle model is in production. Moreover, automobiles tend to have a model upgrade once every 4 to 5 years, giving rise to demand for upgrades to existing automotive parts as well as new parts; this provides enormous business opportunities for automotive parts enterprises to stride even further forward. A period of at least three to 5 years is required to begin the production of automotive parts, including a preparatory period. In that period one cannot expect any profit from automotive parts, meaning that separate means of revenue are needed. Accordingly, it will be important for enterprises planning to move into the automotive parts sector from the motorcycle parts sector to continue competing and securing earnings in the motorcycle sector whilst they make that transition.

4.5. Automotive parts industry development policies

It must be emphasised that it is important to develop a motorcycle parts supplier into an enterprise that supplies both motorcycles and automobiles, or only automobiles. However, entry into the automotive parts sector requires a large amount of capital, which cannot be covered by

a firm itself, and government support is essential. Without political support, it cannot be expected the entry into the automotive parts sector to be attractive or very profitable.

First of all, when it comes to activities within parts enterprises, capital investment, human resource development, quality improvement, and productivity improvement are necessary. For example, the press department needs to install a press of the right size and remodel the building to withstand its weight. The plating department needs to expand the plating tank to improve processing capacity. In addition, precision measuring equipment will be introduced. And, to use this equipment, it costs money to create and participate in a human resources training programme. In addition, to win orders for automobile parts, it is necessary to mass-produce them while improving the accuracy of the parts. This requires firm-wide improvement efforts in terms of quality, cost, delivery time, and development. Moreover, it is essential to have an improvement programme in which everyone, from the president to lower class employees, participates.

Next, when it comes to market initiatives, we need to expand domestic and international demand. To increase the number of automobiles sold in Viet Nam, it is necessary to provide incentives and incentives based on tax law when purchasing automobiles. In addition, it is necessary to develop automotive parts as an export industry. Vietnamese motorcycle and motorcycle parts industry has developed into an export industry. Vietnamese motorcycle industry is growing rapidly, supported by its export ability. This successful precedent should also be used as a strong foundation for the development of auto parts firms.

The above-mentioned support for in-house activities and market initiatives might be widely applied to motivated firms. However, to strategically develop the automotive parts industry, select excellent parts enterprises from Tier 2 and intensively support them to develop them into enterprises that supply both motorcycles and automotive parts, or parts exclusively for automobiles. It is more effective and efficient.

Conclusion

This study examined the current state of the motorcycle and automotive parts enterprises in Viet Nam and discussed challenges to the future of the Vietnamese automotive parts industry. The motorcycle and automobile manufacturing industries in Viet Nam both began in the 1990s, at

around the same time. Due to expanding domestic demand and its development into an export industry, the motorcycle industry was able to achieve growth, becoming one of the few exporting transport equipment industries in Viet Nam. The automotive industry in Viet Nam, by contrast, has remained sluggish as domestic demand has remained low. However, due to progress in economic growth in Viet Nam until 2019, automobile unit sales are starting to show an upward trend. As a result, conditions have emerged in Viet Nam to accelerate the conversion of motorcycle parts enterprises into automotive parts enterprises.

This study is a revised and amended version, with the addition of the dataset from JETRO, of the following paper:

Kobayashi, H. (2016), 'Betonamu Jidōsha Sangyō no Genjō to Tokuchō—'2-rin / 4-rin Konkō Buhin Seisan Taisei' kara 4-rin Seisan Taisei e no Ikō o Chūchin ni' [The Current State and Future of the Automotive Parts Industry in Viet Nam: A Focus on the Transition From a 'Mixed Motorcycle-Automotive Parts Industry System' to an Automotive Manufacturing System; in Japanese], *Journal of the Research Institute of Auto Parts Industries (RIAPI)*, Tokyo: Waseda University, No. 17, pp.7–23.

Acknowledgement

The authors would like to thank Sunao INOU, a former employee of T-Turret CO., Ltd. for technical assistance with the classification of Tier 1, Tier1 Candidates, Tier 2, and Tier 3. We also thank Fusanori IWASAKI for constructive comments on earlier versions of this paper. We remain solely responsible for all mistakes.

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Chapter 1

Current Situation of Electric Vehicles in ASEAN

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May 2021

This chapter should be cited as

Schröder, M. and F. Iwasaki (2021), 'Current Situation of Electric Vehicles in ASEAN', in Schröder, M., F. Iwasaki and H. Kobayashi (eds.) *Promotion of Electromobility in ASEAN: States, Carmakers, and International Production Networks.* ERIA Research Project Report FY2021 no.03, Jakarta: ERIA, pp.1-32.

Chapter 2

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May 2021

This chapter should be cited as
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Chapter 3

The Automotive Industry in Malaysia

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May 2021

This chapter should be cited as

Anazawa, M. (2021), 'The Automotive Industry in Malaysia' , IN SCHRÖDER, M., F. IWASAKI AND H. KOBAYASHI **(EDS.)** *Promotion of Electromobility in ASEAN: States, Carmakers, and International Production Networks.* ERIA Research Project Report FY2021 no.03, Jakarta: ERIA, pp.61-86.

CHAPTER 4

The Current State and Future of the Automotive Parts Industry in Viet Nam: Analysing the Production Process Specialisation of Supplier Firms

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May 2021

This chapter should be cited as

Kobayashi, H., A. Yoshioka, and M. Schröder (2021), 'The Current State and FUure of the Automotive Parts Industry in Viet Nam: Analysing the Production Process Specialisation of Supplier Firms', in Schröder, M., F. Iwasaki and H. Kobayashi (eds.) *Promotion of Electromobility in ASEAN: States, Carmakers, and International Production Networks.* ERIA Research Project Report FY2021 no.03, Jakarta: ERIA, pp.87-116.