

# The Diversity and Dynamics of Industrial Organisation: Transformation of Local Assemblers in the Vietnamese Motorcycle Industry

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**The Diversity and Dynamics of Industrial Organisation:  
Transformation of Local Assemblers  
in the Vietnamese Motorcycle Industry**

Mai Fujita\*

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**Abstract**

This paper focuses on an emerging arm's-length form of industrial organisation in the motorcycle industry, which had traditionally been characterised by tightly integrated form of organisation. By engaging in how this new form of organisation that emerged in China was transferred to Vietnam and evolved in the Vietnamese context, this paper seeks to illustrate how the rise of local firms in developing countries is driving the increased diversity and dynamics of industrial organisation in an industry that had previously been dominated by TNCs from developed countries.

**Keywords:** industrial organisation, motorcycle industry, Vietnam, China

**JEL classification:** L10, L22, L62

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# The Diversity and Dynamics of Industrial Organisation Transformation of Local Assemblers in the Vietnamese Motorcycle Industry<sup>1</sup>

Mai Fujita

## 1. Introduction

Over the last few decades, the organisational structure of global production and trade has emerged as one of the key factors shaping the growth and learning opportunities for firms of developing countries. Attempts have been made at identifying and explaining the variety of forms by which production and trade are organised. Apart from the traditional arm's-length markets and large vertically integrated corporations, particular attention has been directed to the variety of intermediate or 'network' forms of industrial organisation. Even within a single industry, different organisational forms may be observed among different groups of firms, primarily because organisational forms are determined by the types of market that the firms cater to, the nature of technology being adopted, or the types and levels of industrial capabilities possessed by the firms as well as their suppliers. Changes in one or more of these factors may result in a shift from a particular form of organisation towards another. While it may not necessarily be the case that a particular organisational form is superior to another in a particular industry, identifying and explaining the diversity and the dynamics of organisational forms would assist our understanding on the different directions in which different (groups of firms) develop.

The existing research in this field has focused mainly on industries dominated by transnational corporations (TNCs) serving the global market, and thus much of the discussion has surrounded the issue of how the global TNCs coordinate trade and production (Gereffi 1999; Schmitz ed. 2004). In these studies, serving the sophisticated demand of the global market is regarded as a promising route for suppliers of developing countries to grow and learn. However, such an industrial landscape seems to have been at least partially transformed with the recent rise of large and fast-growing developing countries, most notably China. Rapid economic growth and rising income

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levels have made these large economies attractive markets even for global TNCs. While these huge emerging economies have become ‘hot spots’ for global TNCs, very often local indigenous firms of those countries also have played active roles in their home market by taking advantage of their knowledge about the local market, capacity to better respond to the local needs, and/or control over local distribution channels. More importantly in the present context, a number of studies have shown that the rise of local firms as key actors in the domestic market of large emerging economies, particularly China, has been accompanied by forms of industrial organisation distinct from those of the TNCs of developed countries (Shintaku and Fujimoto eds. 2005; Marukawa 2007).<sup>2</sup>

The motorcycle industry is an ideal case to illustrate how this on-going process is driving the diversity and dynamics of industrial organisation. This industry has long been dominated by Japanese industry leaders that developed tightly integrated networks consisting of multiple layers of suppliers. With the rise of local motorcycle manufacturers in China in the 1990s, a completely different form of industrial organisation emerged—one characterised by arm’s-length, largely market-based transactions between a large number of motorcycle manufacturers and a large number of suppliers engaging in intense competition. Moreover, dynamic interactions and the evolution of these contrasting forms of industrial organisation were observed in a third country: Vietnam. The former developed in Vietnam as the Japanese motorcycle manufacturers set up their manufacturing operations via foreign direct investment (FDI), while the latter emerged as the massive inflows of low-priced Chinese motorcycles virtually smuggled into Vietnam as component kits in the early 2000s (often referred to as the ‘China shock’) gave rise to many local Vietnamese companies that assemble standardised components sourced from China (hereafter referred to as ‘local assemblers’) via arm’s-length transactions. Through time, the two forms of industrial organisation were transformed within the Vietnamese context as the Japanese motorcycle assemblers and local assemblers competed with each other over the growing market and adapted to the changing policy and business environment.

This paper sheds light on the diversity and dynamics of industrial organisation observed

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<sup>2</sup> Undoubtedly, China is the most prominent case. The references cited in the main text show that the on-going process is observed not only in the motorcycle industry but also in other major industries. Nevertheless, China is not the only example. A case study of the Brazilian footwear industry by Bazan and Navas-Aleman (2004) also shows that domestic footwear buyers serving domestic and regional markets coordinated their linkages with suppliers in ways substantially different from the US or European buyers.

in the Vietnamese motorcycle industry. It focuses on local Vietnamese motorcycle assemblers, which inherited the arm's-length form of industrial organisation from Chinese firms. By examining the transformation of local assemblers over time, this paper will demonstrate that the inter-firm organisation in the local motorcycle assembly sector in Vietnam was eventually transformed in a direction distinct from the on-going shifts observed in China. It also attempts to explain the diverging trajectories of the shifting industrial organisation in Vietnam and China.


The remainder of the paper is structured as follows. Section 2 reviews the existing literature on industrial organisation in the motorcycle industry. Section 3 presents a brief overview of the Vietnamese motorcycle industry. Section 4 analyses the structural changes that have taken place among local assemblers between the early 2000s and 2007–08. Section 5 discusses the methodology of the author's field research on local assemblers. Section 6 presents the findings of in-depth case studies of five local assemblers. Section 7 provides the conclusions.

## 2. Diversity of Industrial Organisation in the Motorcycle Industry

The framework developed by Gereffi, Humphrey, and Sturgeon (2005) provides a useful analytical device to examine the diversity and dynamics of industrial organisation. This framework is designed to explain the varieties of governance forms of value chains, defined as the sequence of value-adding activities required to bring products and services to market (**Table 1**). They extracted three fundamental variables that shape the patterns by which the linkages between 'lead firms' or buyers and their suppliers are coordinated: (1) complexity of information exchanged in transactions, (2) codifiability of the information exchanged, and (3) suppliers' capability levels relative to the requirements of transactions. It is argued that different combinations of these variables result in five basic types of inter-firm coordination, with markets and hierarchy (vertical integration) at the two opposite ends of the spectrum, and three intermediate or 'network' forms of coordination (modular, relational, and captive) with ascending requirements for explicit coordination. The dynamics of industrial organisation are explained as an outcome of changes in one or more of the three variables mentioned above. The existing industry-level case studies by Gereffi, Humphrey, and Sturgeon (2005), Dolan and Humphrey (2000), Sturgeon et al. (2008), Galvin and Morkel (2001), Nadvi (2008), and others suggest that such changes are typically driven by either lead firms (e.g., enforcing increased product requirements on suppliers—as has been the case

with UK supermarkets in the fresh vegetable industry), competent suppliers of key components (e.g., establishing product standards—as has been the case in Shimano in the bicycle industry), international organisations (e.g., enforcing quality, environmental, or labour standards), or combinations of these.

**Table 1.** Typology of Value Chain Governance

	Market	Modular	Relational	Captive	Hierarchy
Complexity of transactions	Low	High	High	High	High
Ability to codify transactions	-	High	Low	High	Low
Supply-base capabilities	High	High	High	Low	Low
Degree of explicit coordination	Low  High				

(Source) Gereffi, Humphrey and Sturgeon (2005).

Similar to the automobile industry (Sturgeon et al. 2008), the motorcycle industry has been characterised by an integrated organisational form with a high degree of explicit coordination and controls exercised by the motorcycle manufacturers. This is most typically observed in Japanese motorcycle manufacturers. While the Japanese motorcycle industry in its infancy (in the 1950s) consisted of numerous small-scale firms, by the early 1960s the industry came to be dominated under four powerful industry leaders (Honda, Yamaha, Suzuki and Kawasaki) possessed of product and process technology, well-established brands, and distribution channels. In order to develop proprietary models and achieve high levels of product quality and manufacturing productivity, Japanese motorcycle manufacturers develop long-term and close relationships with a semi-fixed group of selected suppliers. Motorcycle manufacturers provide incentives for suppliers to achieve the required levels of quality and productivity and closely monitor their performance. In the case that the suppliers' competence falls short of the required levels, they even provide technical assistance to the suppliers.

During the early 1990s, a completely different form of industrial organisation emerged in China. A very large number of small firms that produced copies or slightly modified versions of Japanese base models proliferated (Ohara 2001). In a developing country market where high quality standards are not required and protection of intellectual

properties is not sufficiently enforced, designs of Japanese base models came to be widely shared as *de facto* standards. A large number of companies entered into production of standardised components at large scales. This, in turn, facilitated firms with limited manufacturing expertise to enter into motorcycle assembly by sourcing standardised components from external suppliers. Consequently, a large number of motorcycle manufacturers producing undifferentiated products competed intensely with each other mainly on the basis of price. The resulting industrial organisation was one in which a large number of motorcycle manufacturers and a large number of component suppliers are engaged in arm's length, market-based transactions of standardised components. However, Ohara (2006) documented that industrial organisation was gradually transformed in the 2000s, driven largely by changes in market and policy environment. As stricter product standards came to be enforced and consumers came to demand higher-quality motorcycles, the Chinese market came to be dominated under a smaller number of large and competent motorcycle manufacturers. They attempted to develop collaborative relationships with competent suppliers, driving a partial yet important shift towards a stable and cooperative form of industrial organisation characterised by a higher degree of explicit coordination compared to the previous years.

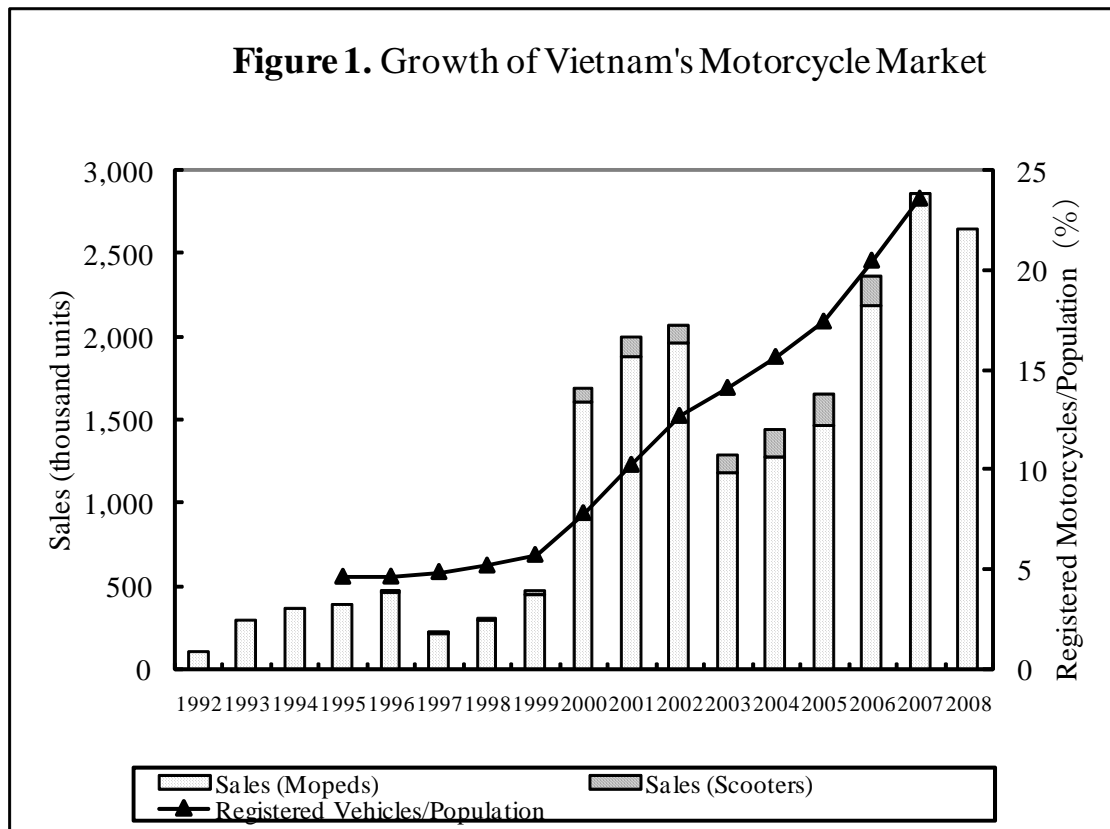
The comparison of Japanese and Chinese motorcycle industries shows how contrasting forms of industrial organisation might emerge within a single industry depending on the nature of the products being produced. The nature of the products influences two of the explanatory variables in the above framework: the complexity of transactions and ability to codify transactions. Standardised, low-quality products do not require complex information to be exchanged between motorcycle manufacturers and suppliers, and thus arm's-length, market-based transactions prevail. In contrast, products of higher quality or consisting of components requiring model-specific investments require network organisation involving explicit coordination between the two parties. Turning the focus to the dynamics of industrial organisation in the third-country context of Vietnam, the subsequent sections will examine how different forms of industrial organisation emerged and evolved over time in the Vietnamese context.

### 3. An Overview of the Vietnamese Motorcycle Industry

The history of the Vietnamese motorcycle industry has passed through three stages. The first, from the middle to the end of the 1990s, was the start-up stage. Vietnam promoted



the domestic production of motorcycles by erecting barriers to imports and incentives for foreign motorcycle manufacturers to invest in the country. One Taiwanese and three Japanese motorcycle manufacturers had invested in Vietnam by the late 1990s. However, production failed to expand because the prices of their motorcycles were very high compared with the average income level of the population (**Figure 1**).

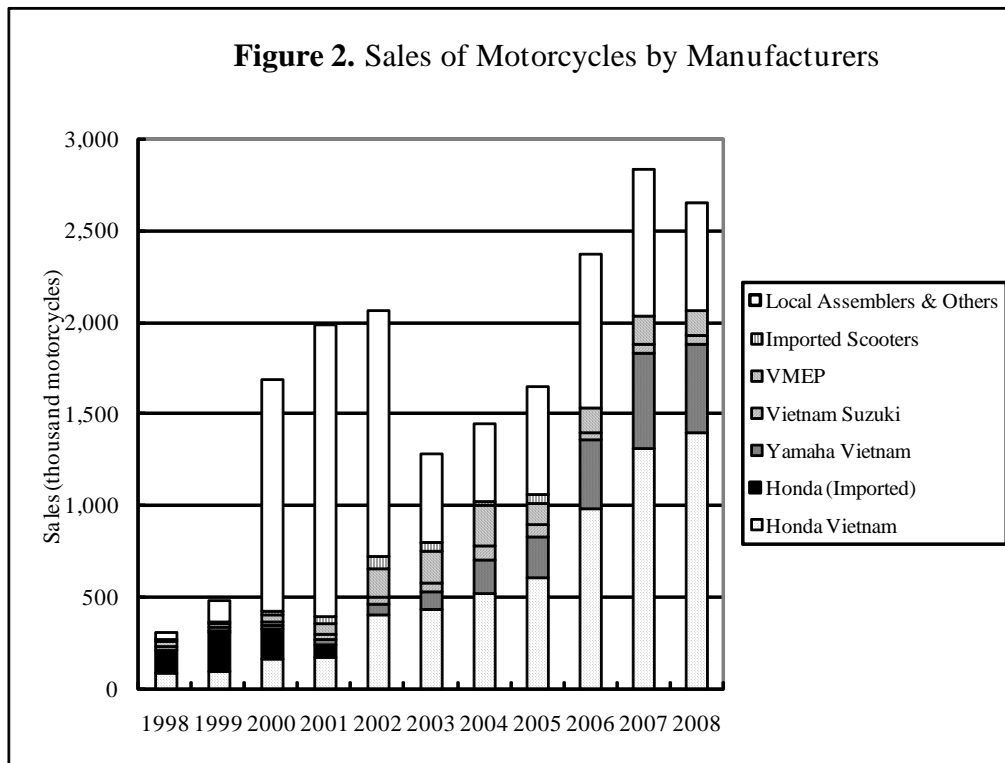


(Source) Honda Motor Co., Ltd. Sekai Ninrinsha Gaikyo (World Motorcycle Facts & Figures), 2008

This situation was completely transformed in the second stage (2000–04). During the years 2000 and 2001, massive numbers of low-priced motorcycles were imported from China. Vietnam had prohibited the import of assembled vehicles since 1998, so Chinese imports arrived in the form of ‘knockdown’ component kits. The China shock gave rise to more than 50 local firms engaged in the assembly of Chinese motorcycle component kits. These were, in essence, imitations or slightly modified versions of Japanese base models. With prices as low as one-third to one-fourth of the Japanese-brand models, ‘Chinese motorcycles’<sup>3</sup> quickly penetrated medium- and low-income consumer markets

<sup>3</sup> This paper refers to the motorcycles assembled by local Vietnamese firms using Chinese component kits as ‘Chinese motorcycles,’ as they are called in Vietnam.

in urban and rural areas which had remained unexploited by Japanese firms. This led to a rapid expansion of the market with local assemblers of Chinese motorcycles accounting for approximately 80% of the enlarged market by 2001 (**Figure 2**).



(Source) For the years 1998 to 2005: Bo công nghiệp “Quy hoạch phát triển ngành công nghiệp xe máy Việt Nam giai đoạn 2006-2015, có xét đến năm 2020”, Viện nghiên cứu chính sách, chiến lược công nghiệp, 2007.

Figures for the years 2006 to 2008 are estimated by the author based on interviews of Japanese and Taiwanese motorcycle manufacturers and component suppliers in March 2009.

The China shock provoked a series of reactions from other players in the industry. The Japanese motorcycle manufacturers, perceiving Vietnam as a symbol of an expanded Chinese threat which had already become apparent in the Chinese market, initiated company-wide efforts to recover the market shares that had been lost. In 2002 Honda Vietnam (HVN) launched a new model, the ‘Wave Alpha,’ with a price approximately one-third that of its previous models. In the policy arena, the Vietnamese government reacted by enacting key policy changes to restore order and to promote sound development of the industry, e.g., stepping up the enforcement of local content rules<sup>4</sup> and import tariffs, which had been circumvented by local assemblers, and introducing product quality and environmental standards. In desperate attempts to prevent the

<sup>4</sup> When the local content rules were introduced in 2000–01, local assemblers claimed false local content ratios so that they could be subject to lower import tariffs. However, inspection conducted by the government team in 2002 revealed false claims and tax evasion by all of the 51 assemblers, which led the authorities to significantly tighten the implementation of local content rules.

uncontrolled proliferation of motorcycles, the government also resorted to more direct interventions including quantitative restrictions on the number of motorcycle components imported and a ban on the registration of motorcycles in certain localities.

The third stage (2005–08) was a period of FDI-led development. As Vietnam stepped up efforts to enter the World Trade Organization (WTO), it dismantled its prohibition of motorcycle imports, abolished local content rules, and reduced tariffs on components. At the same time, the government also abolished a series of restrictive rules on the registration and production of motorcycles introduced during the previous period. This move, combined with the country's economic boom, significantly boosted domestic motorcycle sales, which climbed to 2.8 million units in 2007, far exceeding the figures during the China shock. The boom stimulated a new wave of FDI in the production of motorcycles and components, moving the industry even further toward an FDI-led development path..

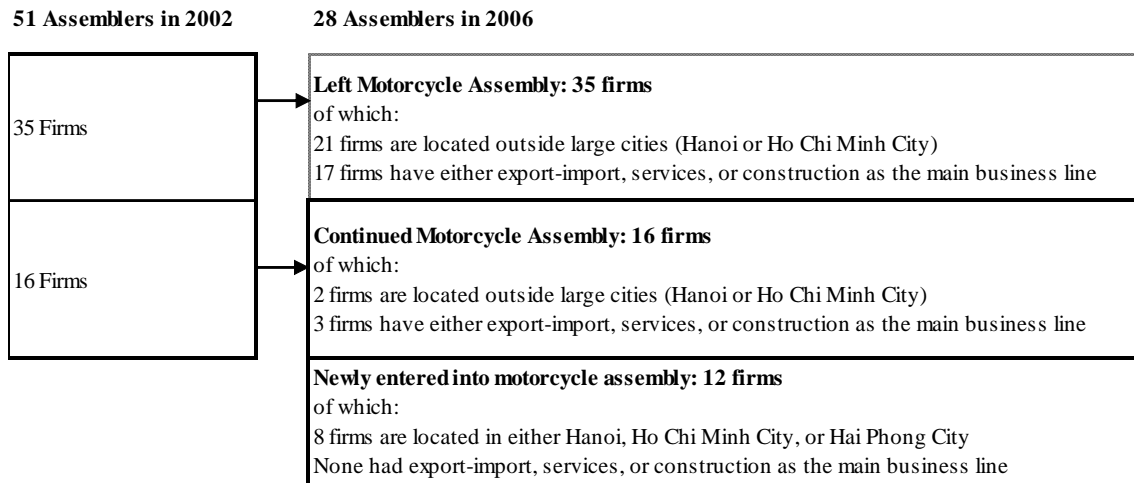
#### 4. Structural Changes among Local Assemblers in Vietnam

Vietnamese motorcycle assemblers emerged during the second stage of the industrial development discussed in the previous section. In 2000, as many as 51 local assemblers assembled 1.37 million units of motorcycles, equivalent to over 80% of the market. After 2003, however, survival of local assemblers came to be increasingly difficult due to changes in the market and policy environment: the launching of a new low-priced model by HVN, strengthened enforcement of the local content rules, and new regulations requiring all motorcycle firms to produce certain key components in-house and to achieve a minimum local content ratio of 20%. Thus, by the third stage of industrial development, market shares of local assemblers as a whole declined to 30–40%, although they still continued to produce roughly 800,000 units of motorcycles per year (Figure 2).

Alongside changes in the market shares as a whole, structural changes were observed among local assemblers. For the purpose of examining the trends in entries and exits, **Figure 3** was prepared on the basis of the lists of local assemblers that operated as of 2002 and 2006. The list in 2002, provided by the Ministry of Industry, included 51 firms, while the list in 2006, prepared by the General Statistical Office, included only 28 firms. Of the 51 firms that operated as of 2002, 35 firms were found to have abandoned motorcycle assembly by 2006. The majority of these were provincial-level state-owned

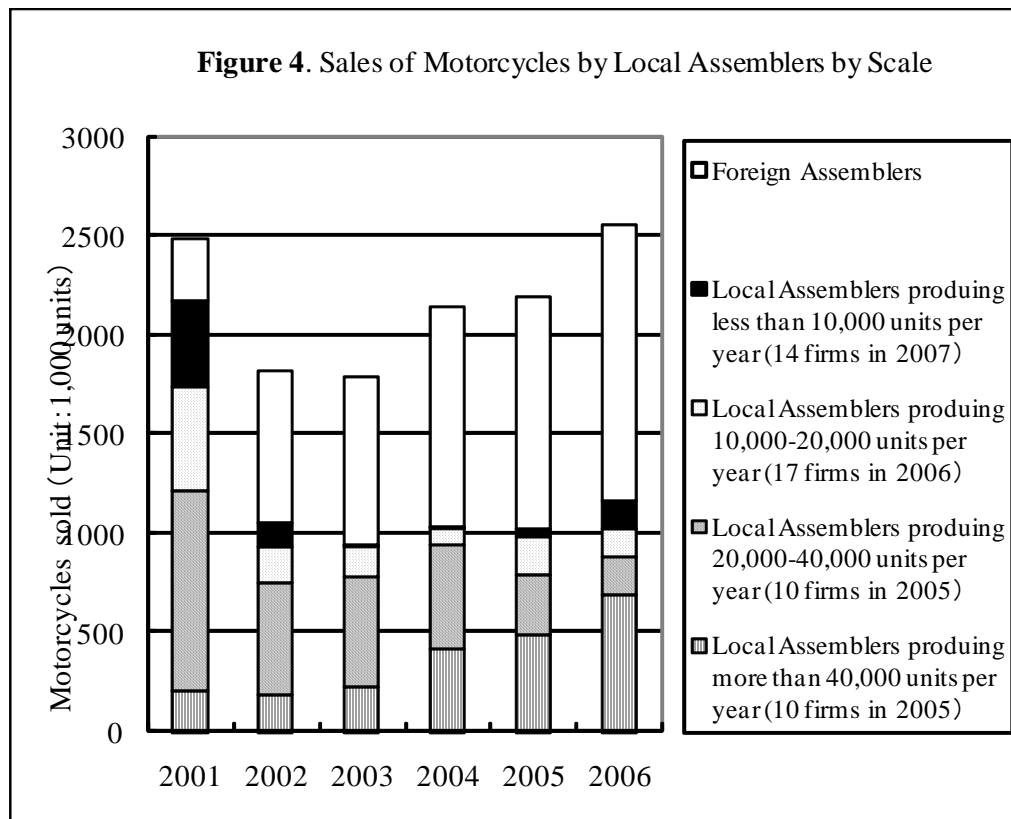
enterprises engaged in the trading, service, or construction industries, which had been in privileged positions to obtain quotas to import motorcycles or components up to the early 2000s. In the meantime, the remaining 16 of the 51 firms still operated in 2006, while 12 new firms had entered into motorcycle assembly between 2002 and 2006. The 28 firms that operated as of 2006 were mainly located in large cities and had motorcycle production as one of their main business lines. They also invested in in-house production of motorcycle components and increased local content ratio in response to the government regulations.

**Figure 3.** Structural Changes among Local Assemblers



(Source) Prepared by the author based on the list of local motorcycle assemblers prepared by the Ministry of Industry (as of May 2002) and enterprise statistics for 2006 compiled by the General Statistical Office.

**Figure 4** shows the sales of local assemblers according to their production scale. A remarkable change that took place between 2001 and 2006 is the rise of relatively large-scale assemblers. In the early 2000s, the majority of local assemblers were very small. More than half of the motorcycles sold were produced by assemblers producing fewer than 20,000 units of motorcycles per year. As time went on, production and sales of local assemblers came to be consolidated under a smaller number of large assemblers. Four assemblers produced more than 100,000 units in 2005 (The Motorbike Joint Working Group 2007).



(Source) Prepared by the author based on the Motorbike Joint Working Group (2007).

## 5. Case Studies of Local Assemblers: Transforming Industrial Organisation

The analysis presented in Section 4 demonstrated that rapid consolidation of local assemblers took place between the early 2000s and 2007. Unlike the early 2000s, when more than 50 assemblers operated on a very small scale, a small number of much larger assemblers had emerged by 2007. By engaging in in-depth analyses of selected local assemblers, this section seeks to shed light on the diverging development paths and patterns of industrial organisation emerging among local assemblers.

### 5.1 Methodology

The analysis in this section is based on a series of questionnaire surveys and interviews on selected local assemblers conducted in two phases: 2004 and 2007–08. These surveys and interviews with local assemblers were complemented with interviews with suppliers (typically Taiwanese, Korean, and/or Vietnamese) that had regular transactions

with these assemblers. The two rounds of interviews covered a total of seven assemblers, whose profiles are provided in **Table 2**.

**Table 2.** Profile of Case Assemblers

Categories (Market Segment)	<b>Group 1:</b> Low Prices, Standardised Design			<b>Group 2:</b> Improved Quality, Standardised Design	<b>Group 3:</b> Improved Quality, Own Design & Brand			
	Firm	A	B	C	D	E	F	G
Start of Motorcycle Production		2000	2001		1999	2000	1999	
Number of Employees (2007)		1,287	-	450	415	571	-	350
Average price of products (Unit: mil.dongs)	2004	5.5-6	6	-	8	8	8	-
	2008	5	-	4.5	6	12	30	8
Production (Unit: units of motorcycles produced)	2003	136,680	99,772	-	22,000	22,400	23,398	-
	2006	280,000	-	86,000	25,000	-	-	34,000
	2007	300,000	-	95,000	24,000	20,469	-	30,000
Rank among local assemblers in terms of turnover in 2006		1st	4th	-	19th	7th	24th	9th

(Source) Joint research project between Vietnam Institute of Economics, Vietnam Academy of Social Science and Institute of Developing Economies in 2004 and 2007-2008.

In 2004, the author conducted questionnaire surveys of five local assemblers in collaboration with the Vietnam Institute of Economics, Vietnam Academy of Social Science (VIES-VASS). Within the constraints of the limited information and data available, attempts were made to select assemblers that had the direction to focus on motorcycle production, had made substantial investments in this area, and showed relatively good market performance. The findings suggested the five assemblers were categorised into two different groups. Firms A and B focused on producing low-priced, non-brand motorcycles with largely homogenous designs (i.e., slightly modified copies of Japanese-base models) for the low-end portion of the market mainly in rural provinces. On the other hand, Firms D, E, and F sought quality improvement and development of own product designs and/or brand, and consequently the prices of their products were higher than the former group of assemblers. As regards market performance, the former group of firms outperformed the latter group of firms.

The basic strategy for the second round of field research (2007–08), again, in collaboration with the VIES-VASS, was to follow up with the five assemblers surveyed

during the first round. However, two of the five assemblers had to be dropped for the following reasons: (1) firm B had virtually stopped motorcycle assembly;<sup>5</sup> and (2) firm F sold its stocks to Taiwanese motorcycle manufacturers and had become a wholly-Taiwanese-owned firm by 2007. The author therefore replaced these two firms with other firms that were known to have characteristics similar to the respective firms: firm B was replaced by firm C, and firm F was replaced by firm G. VIES-VASS conducted questionnaire surveys of firms A, C, D, E, and G between December 2007 and March 2008. The author also conducted interviews of firms C, D, and G in November 2007. Based on the findings of the second round of questionnaire survey and interviews, the assemblers were classified into three groups, by further dividing the second category of firms identified during the first round of field research into two distinct groups. The author thus ended up with three groups of assemblers, the details of which will be discussed below.

## 5.2 The Nature of Products

In the early years of their operation, local assemblers basically assembled low-priced motorcycles that imitated Japanese-brand models using component kits imported from China. Since the models being imitated by the local assemblers concentrated in the two most popular base models, Honda's 'Dream' and 'Wave,' motorcycles produced by them were largely homogeneous.

As local assemblers adapted to changes in policy and the market environment after 2003, their products became much more diverse with regard to quality, design, and branding. Pricing, a rough proxy for product quality,<sup>6</sup> and differentiation in product design are particularly critical in the present context. As regards pricing, the best benchmark for motorcycles sold in the Vietnamese market is HVN's Wave Alpha priced at 12,900,000 dong,<sup>7</sup> the single most popular model in the Vietnamese market since its debut in January 2002. Differentiation in product design can be assessed in terms of the degree of modifications made to the original (mostly Japanese) base models, including the

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<sup>5</sup> Information provided by the Vietnam Bicycle and Motorcycle Association in November 2007. Firm B was not among the motorcycle assembling firms included in the list of General Statistical Office in 2006 referred to in Figure 3, which also suggests that the firm had virtually stopped motorcycle assembly.

<sup>6</sup> As will be discussed below, prices also partly reflect the degree of component customisation, which is one of the important dimensions of product differentiation.

<sup>7</sup> This is the equivalent of approximately US\$800 (converted using the average exchange rate in 2008).

scope of components to be modified and the types of modifications made. Modifications are broadly classified into: (1) cosmetic changes, which are usually made to a small number of components that affect external appearance of the models such as plastic covers and frames, and (2) functional and quality improvements, which are often made to a wider variety of components.

Group 1 firms (A and C) consistently pursued low prices rather than product quality or differentiation in terms of product design. The prices of their products are as low as less than half the price of the Wave Alpha. The types of modifications upon launching of new models are largely limited to cosmetic changes made to a very small number of components that affect the external appearance of the models, namely, plastic covers and frames, while designs for most of the other components are kept standardised. This product development approach enables assemblers to launch many models in a short period of time by shortening the product development lead time. Particularly in the case of firm A, these large varieties of models are sold under varieties of brand names.<sup>8</sup>

On the contrary, Group 3 firms (E and G) pursued opposite strategies of improving product quality, differentiating product designs, and developing their own brands. Both of them sought to develop own product designs incorporating cosmetic changes and quality improvements made to a wider range of components. Compared to the products of Group 1 firms, their products adopt a higher proportion of components customised to individual models. This approach enables these assemblers to launch models with higher degrees of differentiation, but the longer lead time required for product development limits the number of models that could be launched in a year, for instance. On the other hand, due to the additional costs incurred by model-specific investments in dies and molds and manufacturing or sourcing components of higher quality, the prices of their products are kept at levels similar to those of the Wave Alpha.

The products of Group 2 firm (D)<sup>9</sup> fall in between those of Groups 1 and 3. Similar to Group 1 firms, the levels of differentiation in product design are low. Modifications made to the base models are basically limited to cosmetic changes made to plastic covers and frames. However, the emphasis that this company has placed on improving product quality has resulted in prices higher than the products of Group 1 firms. Prices

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<sup>8</sup> For instance, this assembler used 42 different brand names for the new models it launched in 2005 (Fujita 2006).

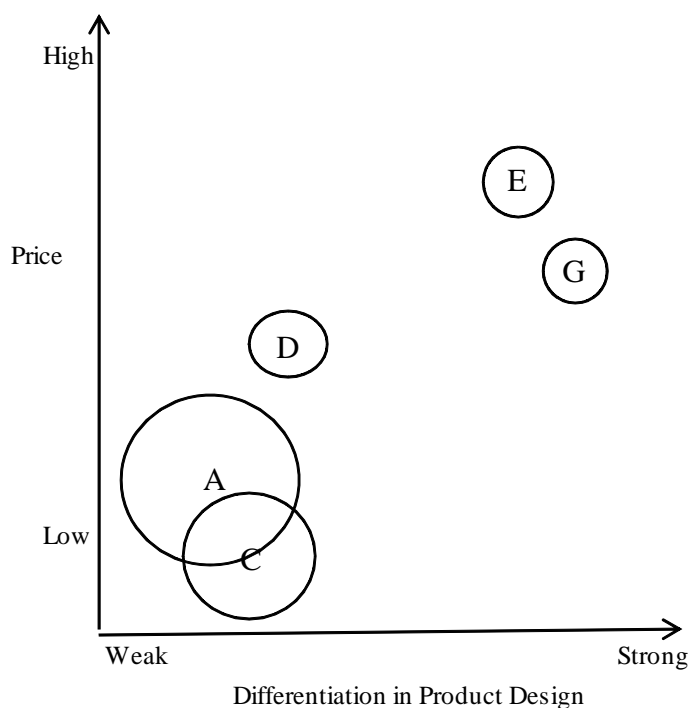
<sup>9</sup> While this group only includes one case, Chinese and Vietnamese suppliers interviewed in March 2009 confirmed that there are more local assemblers to be categorised under this Group.



of products produced by this company thus fell in between Groups 1 and 3.

The above findings are depicted in **Figure 5**. The vertical axis refers to the price ranges, and the horizontal axis refers to the degree of differentiation in product design assessed in terms of the degree of modifications made to the original base models. The size of the circle shows the size of their sales in 2007. This figure clearly shows that local assemblers in Vietnam came to be consolidated under a small number of firms that focus on large-scale production of low-priced, undifferentiated motorcycles, while the sales of those assemblers that pursued differentiation in product design and/or quality improvement stagnated.

**Figure 5.** Typology of Local Assemblers by Market Positioning



(Note) The size of the circles denotes the approximate volume of motorcycle sales in 2007.

(Source) Prepared by the author.

This is not surprising, given that the upper and middle ends of the market have come to be dominated by foreign motorcycle manufacturers. It can easily be imagined that Group 3 firms faced difficulties competing with the Wave Alpha. Still, we are left with the following question: How did Group 1 firms manage to develop varieties of slightly modified models and manufacture them at such low costs?

### 5.3 Transformation of Industrial Organisation

Given the limited product design and manufacturing capabilities initially possessed by the assemblers, explaining the differences in their product positioning and market performance requires looking into the emerging shifts in industrial organisation. As of 2004, apart from producing in-house several key components like a number of engine components, frames, and plastic covers to conform to the government regulations, Group 1 firms sourced components from a large number of suppliers via arm's-length transactions. The second round of fieldwork in 2007–08 revealed that these firms had started to outsource some of the components that had previously been manufactured in-house, as the requirements on in-house manufacturing of key components came to be virtually abandoned. At the same time, they developed close relationships with a large Chinese supplier based in Vietnam, which supplied plastic covers, lamps, and frames—the key components mentioned above. This supplier grew rapidly by supplying varieties of components in large quantities and supplying them to many local assemblers. In 2007, this supplier produced nearly 900,000 units (roughly equivalent to the total number of motorcycles produced by local assemblers) of plastic covers and frames and sold them to 43 assemblers.<sup>10</sup> The large production volume contributed to achieving a high level of cost competitiveness. Product development was conducted by the company's headquarters in China, and an average of four models was launched per year. Leveraging linkages with a large supplier with product design capabilities and scale economies seems to have enabled firms A and C to benefit from lower costs of product development and procurement of components.

While the linkages between Group 1 assemblers and the Chinese supplier of key components in 2007–08 still involved little explicit coordination, they cannot be seen entirely as market-based as in the earlier years. The lack of alternative suppliers that are equally competent made switching of suppliers increasingly difficult for local assemblers and made assemblers in Group 1, as well as many other smaller assemblers, dependent on this supplier. At the same time, given that the modifications are limited to cosmetic changes to non-functional components, the standardised product designs of the Japanese-base models shared widely within the industry have made it possible for suppliers to make modifications to particular components without affecting the designs of other components. Such features of the emerging industrial organisation do suggest a

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<sup>10</sup> The author's interview with this supplier in November 2007.

minor yet important shift from a market-based towards a network form of governance with a low level of explicit coordination.

In the cases of assemblers in Groups 2 and 3, quality improvement and differentiation in product design have been achieved mainly by in-house efforts, which were often complemented by assistance by foreign partners. All of the three assemblers in Groups 2 and 3, i.e., assemblers D, E, and G, produced plastic covers and frames in-house using design drawings and/or molds that are either developed in-house or provided by design companies or mould manufacturers abroad. As regards the relationship with suppliers of other components, the degree of explicit coordination increased only slightly from the earlier years. On the one hand, both the surveys of assemblers and interviews of their key suppliers suggested that product requirements imposed on suppliers came to be more demanding and detailed than in the earlier years. Many of the components are not standardised and thus design drawings had to be provided to the suppliers when orders were being placed. The assemblers also came to demand higher quality from the suppliers. However, all of the three suppliers interviewed by the author pointed out that the assemblers failed to monitor supplier performance against the requirements in consistent ways.

#### 5.4 Explaining the Diverging Paths

The above case studies of the selected local assemblers show that firms pursuing low-cost production of undifferentiated products came to dominate the low-end portion of the Vietnamese market. This was accompanied by a relatively minor yet important shift away from an arm's-length, market-based form of industrial organisation. The emerging network form of organisation made it possible for local assemblers to make frequent minor modifications to product design with little explicit coordination with the suppliers of the key components to which the modifications were made. Group 1 firms as well as other smaller assemblers depended on a small number of competent suppliers with product design and large manufacturing capacities.

This suggests that local assemblers in Vietnam are transforming themselves in a direction different from the on-going shifts observed in the Chinese motorcycle industry since the early 2000s, i.e., a partial but steady shift towards a collaborative and stable form of industrial organisation characterised by a higher level of explicit coordination

compared to the previous years.<sup>11</sup> Under the emerging form of industrial organisation, Chinese motorcycle manufacturers engaged in collaborative product development with their suppliers for the purpose of developing modified models on the basis of the existing base models. It should be emphasised that the types of modifications conducted in China are much more diverse and innovative compared to those achieved by local assemblers in Vietnam in the sense that: (1) adjustments are made to a much larger variety of components, and (2) varieties of functional improvements and modifications aimed at quality improvements are being experimented with. Since such modifications made to a certain component call for adjustments in other components, motorcycle manufacturers have had to play active roles in overseeing and coordinating the product development process. Consequently, a small number of large-scale motorcycle manufacturers with competence in product development have come to account for a larger portion of the Chinese market, while firms assembling standardised components—the types of assemblers that continued to thrive in Vietnam—have lost their market shares.

How can the diverging paths be explained? Several factors seem to account for the path followed by local assemblers in Vietnam. Perhaps the most crucial is the limited foundation of mechanical engineering industries in Vietnam, which limited the engineering capacity on the part of the local assemblers as well as the majority of their suppliers. This is in sharp contrast to China, where abundant industrial resources accumulated through a long history of industrial development contributed to the emergence of a huge number of assemblers and suppliers with the competence to develop and manufacture decent-quality products. Interestingly enough, the limited industrial resources that had existed Vietnam—such as state-owned enterprises and private firms manufacturing machineries, components, or metal or plastic products—did enter into component manufacturing (Fujita 2010) but stayed out of the local motorcycle assembling sector throughout a decade-long history of the industry. The fact that the vast majority of the local assemblers were trading or service companies without manufacturing experience perhaps has to do with the long history of arbitrary controls imposed by the Vietnamese government since the central planning period on imports of motorcycles and components, which had made motorcycle trading an extremely profitable business for those that had privileged access to import quotas.

The demand-side factor is also important. The prestige that the Vietnamese consumers

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<sup>11</sup> The description in this paragraph mainly draws on Ohara (2006).

attached to the Japanese-brand products meant that the only viable option for local assemblers was to target the low-end segment of the market, which even HVN's low-priced model had not penetrated. Moreover, the smaller size of the market in Vietnam, combined with the growing market shares of the Japanese motorcycle manufacturers, implied that local assemblers had to operate at extremely small scales. Given such demand-side constraints, launching own product designs by engaging in model-specific investments turned out to be extremely costly for assemblers. The above market features and the industry-wide *de facto* product standards instead offered scope for supplier-initiated changes in industrial organisation. Competent suppliers could exploit economies of scale by producing large quantities of standardised components, yet incorporating minor modifications to key components to meet the changing market demands, and sell them to many assemblers. For many assemblers, too, it made economic sense to capitalise on the competence of these suppliers to produce slightly modified versions of standardised models at low costs, targeting the low-income consumers in rural areas.

## 6. Conclusions

The existing literature on industrial organisation has focused mainly on industries dominated by TNCs from developed countries. The scope of analysis on its dynamics has also been limited mainly to the changes driven by lead firms from developed countries, specialised suppliers from developed countries, global industry standards enforced by international, or developed country institutions, or combinations of these. By focusing on the arm's-length form of industrial organisation prevailing in China and the process of its evolution in the context of Vietnam, this paper attempted to shed light on a different type of industrial dynamism emerging in developing countries.

Compared to the Japanese form of industrial organisation 'governed' by powerful lead firms at home as well as subsidiaries abroad, the form of industrial organisation prevailing in China was much more fluid. Transfer of this form of industrial organisation to Vietnam was not driven by a particular set of lead firms either. The transfer occurred largely as a bottom-up process that emerged out of uncoordinated and endogenous moves on the part of Chinese and Vietnamese firms to exploit the potential market opportunities that had remained unexploited by Japanese motorcycle manufacturers. Through time, the arm's-length form of industrial organisation transferred from China transformed itself in the Vietnamese context. The resulting form

of industrial organisation was a network type of governance with limited explicit coordination, which was facilitated by sharing of the Japanese-base models as the industry-wide *de facto* standards for assemblers and suppliers to experiment with various cosmetic modifications. The in-depth case studies of selected assemblers presented in this paper showed that this transformation, again, emerged out of endogenous and uncoordinated responses on the part of assemblers and suppliers to the changing market and policy environment. Although local assemblers in Vietnam inherited industrial organisation from China, the form of industrial organisation that prevailed in Vietnam as a result of this process was distinct from the direction of on-going shifts observed in China. The diverging paths were explained by a combination of supply-side and demand-side factors specific to the two countries.

Combined with the rising income levels and the growing market in developing countries—particularly those with a large population—the rise of local firms in developing countries has had a significant impact on the landscape of many industries that had previously centred on developed country markets served mainly by TNCs from developed countries. The advancement of these developing country firms abroad via exports and FDI adds further to the current trend of increasing diversity and dynamism of industrial organisation. While this paper added new empirical insights on a dimension of this on-going process, further developments in theoretical and empirical research are needed to incorporate the emerging dynamism in developing countries into the scope of analysis in this field.

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