# Conclusion

The case of the motorcycle industry in China suggests the existence of characteristics common to the development process of other Chinese manufacturing industries, in particular mass production industries that fully utilize assembling and processing of parts. This chapter, by summarizing the points of contention of the study as a whole, will examine these characteristics and the factors that have brought them about, as suggested by this study.

## 1. What Caused China's Motorcycle Industry to Adopt an Isolated-Type System?

Although motorcycle markets in many Asian countries have been dominated by Japanese firms and their affiliates, in China alone, indigenous makers hold an overwhelming market share vis-à-vis foreign makers. This suggests that in China, there are certain significant factors that have directed the industrial development of the country in a different direction from that of other Asian countries.

The competition among China's indigenous makers is qualitatively very different from that of foreign firms. Part of the difference can be found in the isolated-development-type supplier system as opposed to the united-development-type of Japanese and Japanese-affiliated firms.[1]

Following the framework and the findings of this study, the reasons that drove the Chinese supplier system toward an isolated type rather than a united type can be summarized as follows:

(1) Power relations among agents that make it difficult to carry out coordination for cooperative efforts: Inadequate capability on the part of makers to lead suppliers and strong capability among suppliers to develop their business in comparison with the former.

(2) Factors that make it difficult to generate rent through cooperative efforts be-

tween agents: Demand for low-price products, a market that tolerates low-quality products (including weak government supervision), "minor-change-type development competition," and weak complementarity in capabilities between makers and suppliers (weak incentives to nurture suppliers).

(3) Factors that impede agents to make a commitment to cooperative efforts: rampant opportunistic behaviors, an immature public system for ensuring orderly market transactions, which tolerates opportunism, and the strong substitutability of business partners.

With those factors in the background, each agent, rather than implementing technological accumulation by sharing knowledge with other agents, characteristically aims for individual development while paying due attention to risk management. These characteristics were particularly prominent in the latter half of the 1990s.

After 2000, in the wake of the sophistication of the market environment and the growing capabilities of firms, the transaction system has changed its direction toward one with a greater degree of cooperation. However, it is still essentially different from the Japanese system, with its high degree of integration.

## 2. Characteristics of China's Industrial Development Process

The study is based on the premise that an industry may follow a variety of development paths depending on the time and region. The study assumes that the very different interfirm organizations of China and Japan are one of the main complementary elements that comprise a unique industrial development process and support the industry's characteristic competitive advantage in each country.

As discussed in the Introduction, let us assume that in a late-industrializing economy, the central players in a certain industry upgrade their technological capabilities in three dimensions, namely: (1) expansion of quantitative scale, (2) upgrading of product quality, and (3) upgrading of the degree of product novelty (Ernst, Mytelka, and Ganiatsos 1998; Amsden 2001). A comparison of the development path of the motorcycle industry in Japan and China reveals that Chinese makers expanded their scale of mass production more rapidly. China's "rapid expansion impetus" is even more prominent if compared to the experiences of Taiwan and India. By contrast, Japanese makers after World War II achieved, within a short period, quality upgrading and novelty in product development. These are both areas where their Chinese counterparts have lagged, seemingly facing "homogeneization pressure." The cases of Jialing and Qingqi suggest that, at least in the 1990s, the heavy emphasis on the scale of mass production was one of the major contributors to this stagnation. Judging from this, rapid expansion impetus and corresponding delay in quality upgrading and novelty can be seen as characteristics of China's industrial development process, at least until the 1990s.

## 3. Common Features with Other Late-Industrializing Economies

To explore the factors that led to these characteristics, let us begin by confirming the major common conditions that firms in the industry in other late-industrializing economies face, i.e., the general process of technological capability formation among

latecomers and problems for firms in the motorcycle industry.

As described in Chapter 3, firms in late-industrializing economies with only a narrow technological grip begin their development activities by making "minor changes" to existing dominant models. In present-day China, in particular, parts of existing products are easily accessible, and as such, mass production tends to begin with the heavy use of purchases from the outside. Thus, firms in late-industrializing economies tend to start the enhancement of quality and novelty from a "low" position.

The following can be mentioned as common conditions of the Asian motorcycle industry: firstly, there have been no large technological changes in the small-displacement motorcycles required in Asian countries during the past thirty to forty years, and secondly, makers of developed countries, Honda in particular, possess an overwhelming position in the industry. Indigenous makers in Asian economies must compete against those far more capable makers and against products that have been refined to near perfection.

The low degree of product novelty of Chinese makers is presumably a result not only of the fact that they had low capabilities to start out with and that their experience was rather shallow. It is also due to the fact that there was little need to apply drastic major changes because the dominant models developed earlier by Japanese makers were so perfectly able to satisfy the quality of the major demand in developing economies. It is very likely that the high level of perfection of the products and the extreme dominance over the industry of the early entrants eroded the motivation for latecomers to employ ingenuity.

### 4. Firm Homogeneity: Weak Complementarity and Strong Substitutability

In addition to factors common to other latecomers, this study assumes that the large number of firms and their great homogeneity prompted the formation of the isolated-type supplier system specifically in China. In this study, firms are seen as homogeneous in that they have not accumulated sufficient firm-specific capabilities to continuously differentiate themselves from their rivals.

The isolated-type supplier system is a complementary institution that contributed to China's impetus toward rapid expansion and the stagnation of enhancement in the area of product quality and novelty. The system was advantageous in allowing a rapid increase of the scale of production by making flexible use of standardized external resources. However, it also tended to hinder knowledge sharing among firms, leaving makers with limited knowledge of parts, while suppliers failed to internalize knowledge about the product as a whole, causing a delay in the occurrence and accumulation of incremental technological innovations within them. In addition, the system led firms to be reluctant to make arrangements to upgrade the capability of transaction partners.

As shown in the case of Zongshen's "quality assurance system," a significant factor that made makers reluctant to support suppliers was the existence of numerous homogeneous rival makers. If a maker with poor firm-specific capability nurtures a supplier, while having little ability to control it, it is easy for homogeneous rivals to begin transactions with the supplier and exploit the capability that the maker nurtured with

its own investment. There is little specific complementarity of capability (Richardson 1972) between the makers and suppliers if the existence of homogeneous rivals is taken into consideration.

In addition, makers can deal with numerous homogeneous suppliers, and suppliers can deal with numerous homogeneous makers, so the substitutability of transaction partners is strong. This is seen as eroding the motivation toward maintaining a certain fixed continuous cooperative relationship.

Further, makers do not necessarily have advantages vis-à-vis suppliers. In contrast to the advantage Honda possess over suppliers in terms of technology and capital, Chinese makers can be regarded as being homogenous even with suppliers. At least at the start of industrial development, their potential capabilities were not very different.

Minor-change-type competition based on certain de facto standard models began in earnest under the above circumstances, and prompted the further entry of many homogeneous firms. The isolated-type supplier system was established upon an industrial infrastructure comprised of these numerous and homogeneous resources.

Since 2000, however, a change has taken place. Both makers and suppliers are undergoing a process of selection of blue-chip firms. After more than a decade, some firms have accumulated their own specific knowledge to a certain extent. It is true that poor performers have been slow to exit from the market, but it is now possible to distinguish, to some extent, those poor performers in the market. The style and appearance of motorcycles may look the same but there has been an ongoing differentiation in terms of quality. The increased market share of the top makers is a sign of this trend.

## 5. The Gigantic but Immature Domestic "Low-End" Market

Of the decisive factors leading to the emergence of numerous homogeneous firms, this study in conclusion focuses, firstly, on the huge size of the domestic market and its immaturity, and secondly, on manufacturing experiences under past industrialization efforts. The former is considered a factor unique to China.[2] The latter is basically shared by other late-industrializing economies including Taiwan and India, but also entails specific historical aspects for China.

The enormity of the domestic market allowed the emergence of many firms with rapid expansion impetus. In the 1990s, many makers increased their production rapidly and, after reaching the level of around one million units, saw steep declines. As implied by the experience of the makers of Japan, Taiwan, and India, production on that scale might require a correspondent accumulation of capabilities which only can be achieved by continuous efforts through sufficiently long experience. Chinese makers and suppliers, on the contrary, single-handedly pursued an expansion of scale as provided by the gigantic market, and many of them may well have left other capabilities so underdeveloped that they finally lost control over product quality and lost the ability to transform their product line-ups properly in line with market changes.

When we say that the market is immature, we are referring, in addition to the low income level, to the very loose administrative control over both makers and users, especially in terms of environmental and safety matters, and the institutional incom-

pleteness of the market that tolerates rampant opportunistic behaviors. This market environment has encouraged many Chinese firms to disregard problems of quality and novelty.

Many indigenous makers built the foundations for development by satisfying the rudimentary desire of domestic consumers for motorization (the demand to go far, but with little care given to the quality of the transportation). This is very different from the experience of manufacturers in the NIEs, who achieved the "export-led building of technological capability," targeting the markets of developed countries with their high-quality demand (Hobday 1995).

Meanwhile, since 2000, in response to the stagnation of the market expansion and the increasingly sophisticated demands of users, the need has grown for makers and suppliers to upgrade their quality management and product development capabilities. To this end, increased cooperative activities have become necessary in interfirm transaction relationships.

### 6. Manufacturing Resources Nurtured in the Past Industrialization Period

The reason for the emergence of numerous homogeneous firms may partly be China's historical process of industrial development. By the early 1980s, basic technological capabilities or factor technologies in machinery-related industries, particularly in the area of metal-processing technology, had been accumulated in the form of skilled and knowledgeable human resources within state- and collectively owned firms. It is not a coincidence that Chongqing, which until the 1970s had been a base for conventional weapons such as firearms, shells, and artilleries, became the world's largest industrial district for motorcycles in the 1990s. Furthermore, in Chongqing, as we have seen, the firms that undertook and initiated the localization of various imported parts, and continuously supplied human resources to the industry, were "ordinary" manufacturing firms in lines other than military-related sectors, which had been established before 1980. There were tremendous numbers of such firms in industrial districts throughout China at that time.

In the 1980s, when motorcycles were introduced as a consumer commodity, state-owned firms launched domestic production, setting up a system of role-sharing as makers and suppliers. The first aim was to produce (localize) parts, which were then assembled. This differed from the Japanese method of development, under which the development of an original product begins with the development of the engine, with the most suitable parts then being developed and assembled based on it. On the contrary, from the beginning in China, individual parts were separately studied by different firms and mass produced, leading to the dispersion of knowledge on the product within the country in a segmented manner. The technological capabilities for individual parts accumulated in this process were then spread among the numerous new makers and suppliers through the spillover of engineers and managers in the 1990s. The reorganization was initiated by new private entrepreneurs, for whom starting motorcycle parts manufacturing and engine assembling was not difficult either technologically or financially. With their extremely energetic development-oriented spirit and stamina for seeking business chances, they were able to ride on the

wave of the suddenly rising market for low-quality products, and this helped generate the flood of parts and assembly businesses.

## 7. Perspectives for the Future: Are They Catching Up?

Are Chinese firms catching up with their counterparts in developed countries? Or are Chinese firms evolving in different directions from their Japanese counterparts?

This study concludes that there is a big gap, which is difficult to fill, between the early entrants that have established a globally dominant position in the industry after prevailing in the market competition in developed countries, and latecomers nurtured in the markets of developing countries a few decades later.

The "catching up" process is indeed underway in the sense that products and industries that have matured in developed countries are being reproduced in developing economies. However, if catching up in a real sense means that a certain country or region constantly generates firms that are capable of continuously developing brand new products and creating, every now and then, innovative changes in the industry, we cannot even find a prelude in the case of the Chinese motorcycle industry. It seems that in other industries, where technology changes more quickly and the position of dominant firms is not fixed, Chinese firms are more likely to achieve catching up than in the motorcycle industry.

Grand River, an indigenous maker that maintains close cooperation with its transaction partners, but which was not examined in this study, has attained rapid development in recent years. Thanks to its good product quality, it took the top spot in production volume in 2003, and in 2004 plans to produce 1.5 million units. It is likely to become the very first maker to break with the precedent—the sharp drop after reaching around 1 million units of production volume. The author, during the survey of suppliers, heard of the reputation of the maker, namely that it emphasizes long and stable transaction relationships and refrains from opportunistic risk shifting to suppliers, and that it sincerely analyzes problems together with suppliers in the event of trouble. In fact, the top management of the maker told the author in an interview that "to gain long-term mutual profits, it is important to be patient with suppliers and wait for them to accumulate their strength."[3] OEM production of Suzuki-brand motorcycles accounts for nearly 40 percent of the firm's production, and as a result, it has implemented Japanese-style management for a decade. This method seems to be bearing fruit now. The top management also said during the interview, "We have never targeted volume, but rather quality. We have increased production volume step by step under the condition that we can guarantee quality." Apparently, the Chinese market has entered a phase where an indigenous maker that puts quality first has gained the top share.

Even so, Grand River is still no match for Honda. In view of the scale of global production, range and novelty of product development, and all the other capabilities and institutions that support its brand value, it will take a long time before it really catches up with the dominant maker. It will be necessary for the market in China, the main playing field of Chinese indigenous makers, to become mature and sophisticated, and this should be emphasized before concluding this study.

More conceivable is a scenario under which China becomes a global production base producing standard middle- to low-grade motorcycles on a massive scale. The essential nature of minor-change type development will remain unchanged, but quality may improve, and variety may increase to meet the foreign markets to which the makers try to adapt. Indigenous makers can sometimes exert originality by audaciously implementing differentiation in some part of the vehicle when suitable, and retaining common features to the extent that is reasonable. It may be possible for both makers and suppliers, in the more disciplined relationship of the division of labor, to acquire capabilities for achieving a higher level of quality and innovation than those at present.

## Notes

1 Though not within the coverage of this study, according to the preliminary survey undertaken by the author in 2004 in India (Sept. 11–18) and Taiwan (Nov. 21–Dec. 4), the production organization, both in-house and interfirm, and the competition pattern of the major indigenous makers of the two economies seemed more similar to those of Japanese firms and quite different from those of Chinese firms.
2 Though India also has a gigantic population, as far as motorcycles is concerned, its market has not shown the immaturity that characterizes China, and its rural market, the major segment in China, has yet to fully come to demand motorcycles.
3 Interview with Grand River, September 27, 2004.