Ohara, Moriki, and Koichiro Kimura, eds. 2009. *Comparative Study on Industrial Development Process in China and India*. Interim Report. Chiba: Institute of Developing Economies.

Chapter 6

Competitive Advantage of Indigenous Incumbent Manufacturers in Indian Automotive Industry: Intangible Asset in Inter-firm Linkage?

Yoshie Shimane

Abstract

In both India and China, indigenous manufacturers have remarkable presence in automotive industries. Then what makes some Indian and Chinese manufacturers perform rather well to keep themselves in competitive position with TNCs and their joint ventures? Through our firm survey, we found deepening of sub-contracting within value chains headed by indigenous makers that focus on original model developments and found signs of intangible asset. This finding is worth mentioning in Indian context where historical argument related to small- and medium-scale industries had captured them as a target of protection and not as sources of competitiveness. Also it is worth drawing attentions in the context of intangible asset theory that have rarely paid attention to intangible assets of incumbent manufacturers of developing countries.

Keywords: intangible asset, indigenous, automotive

1 Introduction

In both India and China, indigenous manufacturers have remarkable presence in automotive industries. This makes a sharp contrast to other Asian countries in which Japanese manufacturers have firmly established dominant positions leaving little, often very little in case of two-wheeler industries, for domestic manufacturers to enter into the market. Here we define joint venture companies with foreign firms as non-indigenous in a sense that models and technologies are introduced from foreign counterparts; hence the term “indigenous manufacturers” is restricted to mean locally owned and locally governed manufacturers.

According to intangible asset theory, TNCs, transnational corporations, possess advantages in terms of superior technology and products, financial resources, and advanced marketing and management skills while entering developing economies. In cases of automotive industries, Japanese manufacturers’ advantages in all those aspect are evident in their global, in both development and developed countries, experiences. Then what make some Indian and Chinese manufacturers perform rather well to keep themselves in competitive position with TNCs and their joint ventures?

Could there be some intangible asset accumulated in incumbent manufacturers in India and China that are developed in the institutional environment there and that are sources of advantages for them to be able to compete with TNCs? The intangible assets are developed by TNCs primarily in relation to the institutional environment of the home market. TNCs have to take into account of the prevailing institutional environment in the host country, such as the transaction costs of doing business and the degree of protection of property right in deciding the governance choices in realizing their advantage with regard to intangible assets, which may impose additional (adjustment) costs.” (Patibandla 2006, p.130). At the same time as TNCs try to adjust, why not indigenous firms also try to transform their practices to better utilize whatever tangible assets they have acquired through experiences based on country-specific knowledge.

Among various possible “country specific knowledge” and “intangible asset” that makes indigenous manufacturers advantageous to TNCs, in this paper we focus on development activities that utilize inter-firm linkages, sub-contracting mechanism, in India. Indian automotive production was known to be mass production of very limited number of models and there competition amongst makers was inclined more towards costs. However since late 1990’s, competition has become more towards introducing

new models to satisfy consumers' demands (Shimane 2006, p.214). Incumbent indigenous makers hadn't had readily available models to introduce into market on the contrary to TNCs that have large stock of existing models developed and modified at home and brought into various countries. Few incumbent indigenous makers, such as Tata Motors Ltd and Bajaj Auto Ltd have chosen a strategy to develop original models rather than introducing models from abroad. It is this segment of Indigenous makers that has prove to be rather competitive against TNCs. One of the noticeable phenomena that occurred during the process of putting much more efforts to develop original models within shorter time span was involvement of suppliers in those development processes. That is why we focus on development activities that utilize inter-firm linkages to explain advantages of incumbent indigenous makers.

Even we observe convergences in in-house and out-source ratios of parts and components among makers, the final products producers, Japanese makers tend to rely on Japanese joint venture components manufacturers as their first-tier suppliers and tend to bring existing models developed in Japan with some, often minor, modifications. TNCs or joint venture first-tier suppliers might have disadvantage to deal with second- or third-tier suppliers because their country-specific knowledge regarding small-scale manufacturers in India are limited, and intangible asset like mutual trusts natured through historical experiences is not accumulated as much as indigenous first-tier suppliers. There are rather unique and intricate policy frameworks related to small-scale manufacturers that are not always practiced as they are written but have to be understood and practiced in country specific or region specific context. This could be one example of country-specific knowledge indigenous makers have better access and utilization.

Aiming to investigate existence and impact of "country-specific knowledge" and "intangible asset" of incumbent manufacturers in development activities utilizing sub-contracting mechanism in automotive industries in India, we present few preliminary results from our firm survey in section 2. Finally in section 3 we summarize our findings.

2 Preliminary results from the firm survey

In this section, we present the preliminary results from a survey of first-tier and second-tier suppliers that was carried out. Tables from 1 to 4 contain the main results

of this survey. Answers to questionnaires are yet to be precisely reviewed, and figures mentioned here are preliminary so that not to be quoted at any form.

2.1 Survey design

To collect data, questionnaire-based interviews were carried out both in Delhi and Pune region. For the purposes of grasping ideas, initially short questionnaire was used for the pre-survey. Then full-length questionnaire was prepared based on information collected through that pre-survey separately for both first-tier suppliers and second-tier suppliers.

For first-tier suppliers, sample in Delhi and Pune region were chosen randomly from the list of suppliers in ACMA (2006). Samples of second-tier suppliers were obtained through interviews to first-tier suppliers. Numbers of samples we compile here are 30 in Delhi region and 15 in Pune region for first-tier suppliers, and 21 in Delhi region and 17 in Pune region for second-tier suppliers. All surveys were undertaken during the period of 2007-2009.

2.2 Observed practices from pre-survey

We first did short questionnaire-based pre-survey to grasp the picture of sub-contracting in Indian automotive industries. Table 1 contains the main results. Out of 30 samples in Delhi region, 23 firms have sub-contractors and number of sub-contractor averages as large as 38.2. Out of 15 samples in Pune region, 14 firms have sub-contractors and number of sub-contactor averages 9.2. We could safely say that sub-contracting is widely practiced phenomena in automotive industry in India.

Table 1: Results of pre-survey

	Delhi	Pune
Number of sample	30	15
Number of firms that have sub-contractors	23	14
Average number of sub-contractors	38.2	9.2
Dependency of sub-contractors		
Number of firms to which most sub-contractors are solely depending	5	5
Number of firms to which some sub-contractors are solely depending	9	5
Number of firms to which no sub-contractors are solely depending	9	3
Reasons of sub-contracting		
That process cannot be done due to the lack of required equipment	6	6
That process cannot be done due to the lack of skilled worker	0	3
That process can be done, but cost is lower for sub-contracting	10	12
That process can be done, but offer job to sub-contractors	10	0
Number of firms that had sub-contractor's involvement in their development proce	12	12

Source: Author's field survey 2007-09.

Intensity of sub-contracting, measured by indexes like how many ratio of sub-contractors are solely depending to single first-tier suppliers as customers, or if sub-contractors are involved in critical part of first-tier suppliers' activities like development, seems to be higher in Pune region than Delhi in Table 1. In Delhi, out of 23 first-tier suppliers, only 5 firms have sub-contractors most of which are solely depending on them, whereas in Pune 5 out of 14 first-tier suppliers have sub-contractors most of which are solely depending on them. As for involvement of development process, only about half the number of first-tier suppliers out of 23 have had sub-contractors involvement in Delhi region, whereas most of first-tier suppliers that have sub-contractor have had their involvement in development process in Pune region. Also Table 1 indicates firms in Pune region are more in need to sub-contracting to cover their lack of required equipment and skilled worker and to exploit wage gaps between first-tier and second-tier suppliers.

2.3 Results from survey

In the second, full-length, questionnaire, we tried to investigate contributions in development from first-tier suppliers to maker and from second-tier suppliers to first-tier suppliers.

The practice of sub-contracting and ancillarisation in India were policy driven for the sake of more integrated development of wider sectors of industries and society (Gupta and Goldar 2008). In the era of license regime, production volumes of final producers were allotted in considerations of various aspects including ancillarisation. It wouldn't be too wrong to say, larger firms did ancillarisation more or less in consideration of pleasing policy makers to obtain licenses or for the sake of contributing society at the same time as other considerations. In such cases although numbers of ancillaries are large, ancillarisation hadn't impacted positively to industrial strength and growth. It is true that level of vertical integrations of engineering industries in India has been comparatively higher showing larger firms' tendency to produce more in-house rather than out-source from suppliers.

However, there are new trend of makers, final goods producers in automotive industries, to concentrate more on core processes of production and development, and depend more on suppliers for the rest of processes. For example, the most drastic measure has been taken in procurements since 1999 in case of Bajaj Auto Ltd. According to their Annual Report in FY2004, in the past Bajaj Auto Ltd used to manufacture over 50 per cent of its components in-house, but today it manufactures

only 15%[1] (Bajaj Auto Ltd 2005, p.19). By reducing burden of manufacturing components in-house and concentrating on core processes of manufacturing, assembly operations and the manufacture of precision components, quality was improved at Bajaj Auto Ltd side. Also cost of production was reduced because labour cost is substantially lower at vendors' plant. While steadily increasing out-sourcing, Bajaj Auto Ltd has paid considerable attention to rationalizing their vendor base. Even as late as April 2000, there were over 800 vendors, but now there are only 210 vendors who supply more than 85% of components (Bajaj Auto Ltd 2005, p. 19). This combination of out-sourcing and rationalization has enabled Bajaj Auto Ltd to reduce average cost of production and also has enabled vendors to enjoy economies of scale.

This new trend of sub-contracting should be seen as "deepening" of sub-contracting, if numbers of first-tier suppliers have been reduced and selected sub-contractors remained as first-tier concentrate more on their core process of manufacturing and development like makers and rely more on sub-contractors, second-tier suppliers. In the rest of this section, we examine this "deepening of sub-contracting" within value chains headed by automakers and try to trace "country-specific knowledge" and "intangible asset," which enable such deepening.

2.3.1 Characteristics of first-tier suppliers

Table 2 details the features of the first-tier suppliers obtained from the survey. It shows that the most important form of organization of the sample units was private limited company (15 in Delhi region and 7 in Pune region), followed by public limited company (13 in Delhi region and 5 in Pune region). Existence of labour union and relationship between management and union were questioned based on our assumption that firms might rely more on sub-contractors to avoid labour union related problems by reducing employment at their own plant. However, Table 2 shows us that existence of labour union does not have adverse effects on production.

The main focus of investigation here is R & D activities. Most first-tier suppliers engage in R & D activity (27 in Delhi region and 14 in Pune region). Main purposes of R & D are more on improving quality of current products in Delhi region, whereas development of new products are as equally observed as improving quality of current product in Pune region. Indigenous makers, Tata Motors Ltd and Bajaj Auto Ltd, have main production units in Pune region. Through names of the model they took part

[1] Those are core components like crankshafts, camshafts, crankcases and primary gears.

in development process, we could understand that most of the new products developments in Pune region shown in Table 2 are related to new model developments of those two indigenous makers. On the contrary, Japanese joint ventures such as Maruti Udyog Ltd and Hero Honda Motors Ltd locate in Delhi region. Main purpose of R & D in Delhi region reflect the fact that models are introduced from Japan and hence needs for new products development are much less.

Table 2: Characteristics of first-tier suppliers

	Delhi	Pune
Form of organisation		
Indivisual proprietorship	1	0
Joint family	1	0
Parnership	1	1
Private limited company	15	7
Public limited company	13	5
Government department enterprises	0	0
Joint venture of domestic and foreign private company	2	2
Whether there is labour union		
Yes	8	8
No	22	7
Relationship between management and union		
So bad that production are disturbed	0	0
Bad, but not as bad as to disturb production	0	1
Good, but does not have good effect on production	3	5
So good that production is enhanced	5	0
Others	0	2
Whether there is R & D activity		
Yes	27	14
No	3	1
Main purpose of R & D activity		
Developing of new product(s)	16	10
Developing new customer(s)	9	9
Improving quality of current products	24	10
Reducing sub-standard product/increase efficiency of production	5	0
Reducing the cost of production	15	0
Technical training for the staff	6	0
Has there been any new product developed in-house?		
Yes	22	10
No	18	5
Has your company/unit taken part in development processes of customers?		
Yes	20	12
No	10	3
Resources for in-house R & D		
Staff		
Enough	20	2
Scares	2	3
Mixed	5	8
Equipment for development		
Enough	17	3
Scares	1	2
Mixed	9	7
Equipment to make samples		
Enough	22	2
Scares	1	4
Mixed	4	6
Equipment to test samples		
Enough	19	2
Scares	1	3
Mixed	9	7

Source: Author's field survey 2007-09.

2.3.2 Characteristics of second-tier suppliers

Table 3 summarizes characteristics of second-tier suppliers, sub-contractors to first-tier suppliers examined in 2.3.1. Private limited company was the most common forms of organization among the sample units in Delhi region, and proprietorship was in Pune region. Except one sample in Pune region, all are registered Small Scale Industries. Second-tier suppliers are far less equipped in terms of testing machinery and captive power plant than first-tier suppliers limiting their ability of better quality of production and delivery.

Table 3: Characteristics of second-tier suppliers

	Delhi	Pune
Form of organisation		
Indivisual proprietorship	0	10
Joint family	0	0
Parnership	1	0
Private limited company	20	7
Public limited company	0	0
Government department enterprises	0	0
Joint venture of domestic and foreign private company	0	2
Whether registered SSI		
Yes	21	16
No	0	1
Whether there is labour union		
Yes	3	7
No	18	10
Relationship between management and union		
So bad that production are disturbed	0	0
Bad, but not as bad as to disturb production	1	0
Good, but does not have good effect on production	2	2
So good that production is enhanced	0	0
Others	0	5
Whether there is any testing machinery owned		
Yes	2	5
No	19	12
Whether there is any captive power plant owned		
Yes	2	0
No	19	17
Whether there is any sub-contractor (third-tier supplier)		
Yes	3	2
No	18	15

Source: Author's field survey 2007-09.

Further sub-contracting tiers are not obvious from the results. There are only 3 second-tier suppliers that had sub-contractors to them in Delhi region and 2 in Pune region.

2.3.3 Relationships between maker and first-tier suppliers in development

Table 4 reveals information concerning various aspects of relationships between maker and first-tier suppliers in development. On the first line we listed number of first-tier suppliers that have taken part in development process of the customers. Questions and answers thereafter are those 18 and 11 respectively in Delhi and Pune region. These data are obtained by questionnaires to first-tier suppliers, and hence “you” means each first-tier suppliers and “your unit” means each first-tier supplier’s unit.

In contrast to Table 2 in which main purpose of R & D activity for first-tier suppliers in Delhi region were improving quality of current products, 11 firms out the same set of firms answered that their engagements in development process of customers were to develop items for the new models. This might indicate; 1) When firms engage in development activity initiated by them, such development activity is to improve current items, and 2) When firms take part in development process of customers, such development aims to develop components for new models. But answers to questions “Was the development for the item of the new model?” and “Were you provided drawing(s)?” are not consistent. If developments of 11 firms out of 18 firms that took part in development process of their customers were to develop item for the new models, how come 12 firms are provided drawings from customers? Here we regret to suspect that the term “new model” understood differently by some interviewed firms. Some firms might have understood “model new to them” as “new model”, whereas we meant “model new to Indian market” as “new model”.

The fact that out of 11 firms, which said they developed item for the new model, only 4 were not provided drawings in Delhi region, and out of 5 firms, which said they developed item for the new model, 4 were not provided drawings in Pune region reflects that ratio of completely new original models development is higher in Pune region. Models introduced frequently by makers in Delhi region are modified existing model from TNCs home countries as we mentioned earlier that existing drawings could be available.

Table 4: Relationships between maker and first-tier suppliers in development

	Delhi	Pune
Have you taken part in development process of your customers?		
Yes	18	11
No	12	4
What kind of development(s)?		
Was the development for the item of the new model?		
Yes	11	5
No	7	5
If no, was it for duplicating/improving existing items?		
Dupulicating	0	5
Improving	2	0
If it was for improving existing item, were you a supplier of that item?		
Yes	1	-
No	0	-
Were you provided drawing(s)?		
Yes	12	7
No	4	4
Who developed that drawing?		
Customer	5	6
Other supplier	5	0
Your unit	1	2
Not sure	1	0
Who indicated specification?		
Customer (maker)	10	5
Both your unit and customer, but customer's influence was more	6	3
Both your unit and customer, but your unit's influence was more	2	1
Your unit	0	1
Neither of your unit nor customer	0	0
Who indicated performance?		
Customer (maker)	9	4
Both your unit and customer, but customer's influence was more	4	4
Both your unit and customer, but your unit's influence was more	3	0
Your unit	0	2
Neither of your unit nor customer	0	0
Who suggested technology to be adopted to meet specification and performance requirement?		
Customer (maker)	6	1
Both your unit and customer, but customer's influence was more	0	2
Both your unit and customer, but your unit's influence was more	3	2
Your unit	9	5
Neither of your unit nor customer	0	0
Who provided technological know-how?		
Customer (maker)	3	0
Both your unit and customer, but customer's contribution was more	3	0
Both your unit and customer, but your unit's contribution was more	3	1
Your unit	9	9
Neither of your unit nor customer	0	0

Table 4: Relationships between maker and first-tier suppliers in development (continued)

	Delhi	Pune
Who beard the cost?		
Customer (maker)	8	6
Both your unit and customer, but customer's contribution was more	3	0
Both your unit and customer, but your unit's contribution was more	2	0
Your unit	5	4
Neither of your unit nor customer	0	0
Who provided testing facility?		
Customer (maker)	5	2
Both your unit and customer, but customer's contribution was more	0	1
Both your unit and customer, but your unit's contribution was more	5	0
Your unit	7	6
Neither of your unit nor customer	1	1
Were there other suppliers involved in the development of the same		
Yes	6	0
No	12	9
If yes, was it for the same model?		
Yes	6	-
No	0	-
After development, did you have drawings/samples/both approved by customer?		
Drawing	0	0
Sample	0	6
Both drawing and sample	9	2
If drawing was approved, who owns the property right?		
Customer (maker)	9	8
Your unit	0	0
Were you assured to have business order for the item you took part in development?		
Yes	13	9
No	5	0
If yes, was it written in any document?		
Yes	10	3
No	3	7
Have you experienced that assurance was not practiced?		
Yes	2	2
No	11	8
Did you start supplying developed item after development process finished?		
Yes	17	10
No	1	0
If yes, are (were) you a sole/first/second/minor supplier of that item?		
Sole	14	8
First	0	1
Second	0	0
Minor/not sure	3	1

Source: Author's field survey 2007-09.

If country–specific knowledge is more accumulated in indigenous firms, we could have seen differences between practices of co-development process carried out in Delhi and Pune region. However, there is not clear tendency of differences between two regions in answers to questions like “Who indicated specification?,” “Who indicated performance?” and so on. We still have to see how country-specific knowledge spilled over from indigenous maker to TNCs and their joint ventures, but one of the possibilities is high liquidity of staffs among automotive makers. By recruiting staffs having engaged vender development in indigenous makers, TNCs and their joint ventures might have already succeeded to adjust their sub-contractor related practice to suit in India, and hence practices have been converged.

What draws our attention is that although lesser firms had written business assurance, no lesser firm bore the cost of development in Pune region compared to Delhi region. In Delhi region, out of 18 firms who took part in development, only 13 firms felt they were assured business after development. This assurance was backed by written document for 10 firms out of 13 firms. In Pune region, out of 11 firms who took part in development, as many as 9 felt they were assured business after development. This assurance was backed by written document only for 3 firms out of 9 firms. Higher ratio of first-tier suppliers in Pune region felt business were assured even they didn’t receive written assurance and bore the cost of development. As for the Delhi region, out of 18 cases, customer bore the cost of development in 8 cases, customer bore majority of cost in 3 cases, first-tier supplier sbore majority of cost in 2 cases and first-tier supplier solely bore the cost in 5 cases. Ratio of cases in which first-tier suppliers bore the cost either in solely or in major way is 38.7%. As for the Pune region, out of 11 cases, customer bore the cost in 6 cases and first-tier supplier bore the cost in 4 cases, and ratio of the cases in which first-tier suppliers bore the cost solely is at the same level as in Delhi at 40%.

Such risk taking practice of bearing the development cost could have been brought about by, to some extent, first-tier suppliers confidence in technological know-how. As we can see answers to the question “Who provided technological know-how?” in the development process, cases in which customer contributed was zero in Pune region. However, we also found that those first-tier suppliers’ risk taking practices were not the same across customers. The same first-tier supplier in Pune bore costs of development for some customer’s case, but didn’t for other customers’ case even both customers were indigenous in terms of both capital and models.

Differences of first-tier suppliers’ practices in development cost bearing from

some customer, makers in our case, to other customer draws out attention to intangible asset to enhance development through risk sharing between makers and first-tier suppliers accumulated in some indigenous makers in Pune. Such risk sharing mechanism in development between makers and first-tier suppliers was known to have been one of the most critical factors that enhanced development of models and contributed growth of leading Japanese automotive makers. There are quite a number of literatures that tried to identify intangible asset behind such risk sharing development mechanism of Japanese automakers. However, Japanese automakers' intangible asset for such mechanism is not well exploited when they introduce existing models in abroad. They would rather risk keeping that intangible asset by giving drawings developed by some supplier to other suppliers. In fact in Delhi region, out of 12 first-tier suppliers that were given drawings, 5 received drawings developed by other suppliers. Intangible asset could have been spoiled and it could have become difficult to draw suppliers' effective cooperation if suppliers had thought their contributions to develop drawings were not sufficiently rewarded. However Japanese TNCs and joint ventures are doing well, too, even though they are not as dominating as in other Asian countries. This suggests their transformation of intangible asset in a situation where they don't engage in original model development.

Here we found signs. One is; some of indigenous maker in Pune region have acquired intangible asset that enable them to enhance original models' development. The other is; Japanese TNCs and joint ventures have transformed their intangible asset to suite in an environment where they do not engage in new model development.

3 Concluding Remarks

We observed that in both India and China, indigenous manufacturers have remarkable presence in automotive industries. This is quite a sharp contrast to other Asian countries in which Japanese manufacturers have firmly established dominant positions leaving little, often very little in case of two-wheeler industries, for domestic manufacturers to enter into the market. Then our fundamental question is; what makes some Indian and Chinese manufacturers perform rather well to keep themselves in competitive position with TNCs and their joint ventures?

To answer to this fundamental question, we tried to investigate if there are some intangible asset that are accumulated in incumbent manufacturers in the

institutional environment in India, and that are sources of advantages for Indian indigenous manufacturers to be able to compete with TNCs.

Through our firm survey, we found deepening of sub-contracting within value chains headed by indigenous makers that focus on original model developments. This deepening could be made possible for indigenous incumbent makers based on their intangible asset. Such intangible asset made few indigenous makers' competitive positioning possible trough contributing rather timely developments of original models. This finding is worth mentioning in Indian context where historical argument related to small- and medium-scale industries had captured them as a target of protection and not as sources of competitiveness. Also it is worth drawing attentions in the context of intangible asset theory that have rarely paid attention to intangible assets of incumbent manufacturers of developing countries.

At the same time we found signs that Japanese TNCs have acquired new dimension of or transformed their intangible asset in India. They had been acknowledged to utilize intangible asset especially to enhance developments drawing commitments from suppliers, but their practices shown in the results of survey and performance indicates transformation to better suit operations in India where they don't engage in original model development.

References

Automotive Component Manufacturers Association of India. 2006. *2006 Buyers' Guide*. New Delhi: Multiplexus

Bajaj Auto Ltd. 2005. *Sixtieth Annual Report 2004/2005*.

Gupta, D. B., and B. Goldar. 2008. "Subcontracting in Indian Industry: A Study of Small-Large Industry Linkages." In K. Odaka and Y. Kiyokawa, eds. *Small and Medium Scale Industry in India and the Model of Japan*. New Delhi: Allied Publishers Pvt. Ltd.

Patibandla, M. 2006. *Evolution of Markets and Institutions: A study of an emerging economy*. Abingdon: Routledge.

Shimane, Y. 2006. "Indo no Nirinsha Sangyo: Jiba Dokushi Kanseisha Kigyou no Sonzai to Jiba Buhin Kigyou no Nouryoku Keisei [India's Motorcycle industry: Indigenous Two-Wheeler Manufacturers and the Development of Capability

among Indian Components Suppliers].” In Y. Sato and M. Ohara, eds. *Azia no Nirinsha Sangyo [Two-wheeler Industries in Asia]*. Chiba: Institute of Developing Economies (Japanese).