

BOOK REVIEWS

The Motor Vehicle Industry in Asia: A Study of Ancillary Firm Development edited by Konosuke Odaka, Singapore, Singapore University Press for the Council for Asian Manpower Studies, 1983, xxv + 420 pp.

I

In the growing literature on the problems developing countries face in acquiring modern technology for their industrialization process, the machinery industry (or more broadly the metalworking industry) has attracted particular attention in recent years through the work of A. Amsden, S. Ishikawa, H. Pack, J. Katz, L. Westphal, and others. Interest in the machinery industry stems in part from the recognition that this industry has played a key role in the technological development of the industrialized countries and that its development, or lack of it, may have a significant influence on the technological development of the developing economies of today. However, an even more important concern is the question of relations between technological development in the machinery industry and the division of labor in machinery production. The question arises on account of the peculiar characteristics of the machinery production process—that production is organized as a sequence of discrete processes from the manufacturing of parts and components involving numerous metal-forming and metal-cutting operations, to their assembly into machinery and equipment.

In the industrialized countries where machine-building technology is well-developed, the division of labor has progressed quite extensively, as is typically observed in the automobile industry. In the course of the development of the machinery industry in the developing countries, how does the acquisition of machine-building technology take place in relation to the development of the production organization, what are the factors that govern the nature of this relationship, and what kind of policy issues arise in this connection? These are the questions posed.

In approaching these questions, two different patterns of development may be posited. One pattern of development is an evolutionary one which generally represents the historical experience of the presently industrialized late-comers (e.g., Japan). It is characterized by the acquisition of initial metalworking skills through the repair and maintenance of imported machinery and the fabrication of simple tools, and by the subsequent development of imitative manufacture of various imported equipment, which leads to the horizontal extension of the machinery-producing industry. This latter, when coupled with the accumulation of the production experience and technological capability, in turn permits the vertical division of labor to take place between final machinery assemblers on the one hand and suppliers of parts and components and specialized processes (e.g., casting, machining, heat treatment) on the other.

The other pattern, often observed in developing countries with little or no machinery production experience, relates to the policy-induced initiation of equipment assembly

(e.g., automobiles and tractors) based on imports of CKD kits and subsequent localization, again by deliberate policy, of parts and components manufacture. This pattern usually involves the participation of foreign companies as suppliers of technology. In contrast to the evolutionary pattern, the quality of the final product is of "international standard" from the beginning of the industry's operation. The development of the industrial organization in this case would depend on the extent of the localization of parts manufacture and on who—the assemblers or the ancillary parts manufacturers, domestic or foreign firms—undertake this latter activity.

The Motor Vehicle Industry in Asia edited by K. Odaka takes up the second pattern as its main theme. The book represents the results of a research project which the Council for Asian Manpower Studies (CAMS) has carried out since 1975 on ancillary firm development in the automobile industry in East and Southeast Asia. The foreword by S. Ishikawa and the editor's introduction provide a useful background to the purpose and scope of the research project; let it suffice here to say that the project consisted of field studies simultaneously carried out on the ancillary firms in the automobile industry in five Asian developing countries (Indonesia, Malaysia, Thailand, the Philippines, and the Republic of Korea) by researchers in the respective countries. These studies were based on a common framework which had been elaborated prior to their initiation. As part of the same project, the historical development of ancillary firms in the Japanese automobile industry was also studied. The reports of the development in these six countries form six of the eight chapters of the book, and they are preceded by a conceptual discussion of the development of ancillary firms. The final chapter gives a general summary of the findings and discusses their policy implications.

II

Today, around thirty developing countries have automobile assembly operations, but most of these are confined to the domestic assembly of imported CKD kits. The five Asian developing countries mentioned above, along with India and a few Latin American countries, are among the minority which are actively pursuing a national program for the localization of automobile production. The exact contents of their programs vary, but their principal components are (a) the initiation of CKD assembly via restrictions on automobile imports, (b) the establishment of a localization schedule (calculated on the basis of production cost or weight) for various parts and components to be observed by the final automobile assemblers, (c) the promotion of domestic firms for parts and components manufacture by means of protective tariffs and various preferential measures.

The localization of the manufacture of parts and components for automobile assembly in the five Asian developing countries studied in the book was started in the early part of the 1970s (slightly earlier for the Republic of Korea). According to the book, the results of this policy so far have been generally positive in terms of increased local content ratios and the increased number of local ancillary firms participating in the localization programs. However, the book points out that numerous problems also arose in this process. These problems included the small size of the domestic market, combined with the excessive number of models and makes assembled, which prevented the achievement of economies of scale in parts manufacture; the local ancillary firms suffered from deficiencies in technological and managerial capability on account of the lack of machinery production experience; a stable relationship did not develop between the final vehicle assemblers and the local ancillary firms. As

a consequence of all these problems the automobiles produced were marred by high production costs and inadequate product quality.

Even more serious in relation to the long-term development of the automobile industry in the countries studied, however, was the fact that there has not been any significant diffusion of modern production technology from the final vehicle assemblers to the local ancillary firms. According to the book, with the exception of the Republic of Korea, the expansion of the local production of the parts and components for automobile assembly was usually promoted by the subsidiaries of the foreign auto parts makers or by the domestic firms collaborating with them. The technological gap between these foreign or foreign-affiliated firms and the local firms has widened. Since the former not only benefit from the various preferential measures provided by the localization program but also enjoy the greater trust of the final vehicle assemblers, this gap is beginning to assume a structural character. Such a tendency is particularly marked in Indonesia and Malaysia. In the Philippines and Thailand, some of the final vehicle assemblers make some parts and components themselves, and this works as an added pressure for the local parts manufacturers.

In contrast, in the Republic of Korea, thanks to its long experience in automobile repair and maintenance which dates back to the pre-World War II years and which enabled adequate and broadly-based accumulation of the basic metalworking capabilities, the local ancillary firms could grow as independent entities. Although these ancillary firms did rely quite extensively on technical collaboration with foreign auto parts makers as a means of acquiring modern production technology, they did not depend so much on the final vehicle assemblers. This Korean experience, according to the book, also differs markedly from the experience of the Japanese automobile industry which was characterized by a "close" relationship between the final vehicle assemblers and the ancillary firms.

All these empirical findings concerning the development of ancillary relations and of production technology constitute the primary and quite important contribution of this book. In addition, it should be mentioned that the individual country studies contain many interesting observations and insights which should stand on their own merits. For example, the existence of a tax on intermediate transactions in Indonesia which in effect discourages the development of an ancillary industry (p. 57); the participation of a developing country's foreign capital (India) in the ancillary industry of another developing country (Malaysia) (p. 133); the large size (relative to some of the final vehicle assemblers operating in the country) of foreign-affiliated parts manufacturers in Thailand (p. 225); and the policy of the government of the Philippines to promote the domestic manufacture of principal auto parts which require a large-scale production technology, by allowing the final vehicle assemblers to include their exports of parts as local components in the calculation of the local content ratio (pp. 270-71).

III

What are some of the implications of the book's findings, particularly in respect to the two patterns of development of the machinery industry mentioned at the outset of this review and also what are some of the research issues the book raised in this area?

First of all, it should be pointed out that although the localization programs in the automobile industry in the developing countries result from the policy initiatives of their governments, implementation is affected by the behavior of multinational auto-

mobile manufacturers from the United States, Europe, and Japan. A comprehensive discussion of the working of the localization program would, therefore, have to give an explicit treatment of the role of these firms. For example, the "make-or-buy" decisions of the final vehicle assemblers for parts and components would not only reflect the cost and benefit considerations arising from the context of the national localization program (on which the book places a great stress), but would also be influenced by the general parts procurement policy of the multinational (parent) companies to which the assemblers in the individual countries are closely tied. On the contrary, in prewar Japan and the Republic of Korea, where the influence of the foreign automobile manufacturers was minimized either by forced severing of the ties or by the policy of technology transfer at "arm's length," the local vehicle assemblers could respond closely to the government's localization policy in making their "make-or-buy" decisions. Since the international automobile industry today appears to be undergoing a significant structural transformation on a global scale, it may not be so easy to track down the influence of the multinational firms on the localization program of a particular developing country. Nevertheless, some new light may be shed if, for example, systematic studies are carried out to compare the technology transfer behavior of the different multinational auto manufacturers toward the developing countries with a well-defined localization program. A study of the response of the same auto maker to the localization program in different developing countries may also add some useful insights. It is interesting to note that in the Indonesian case study the development of ancillary relations was particularly marked in the case of Japanese-affiliated final vehicle assemblers (p. 76).

Secondly, it is very difficult to draw a clear demarcation line between the ancillary production of auto parts for assembling purposes and auto parts manufacture for the replacement market. In late-comer countries, where the market for automobiles is usually created ahead of full machine-building capability, the acquisition of metalworking technology through the repair and maintenance of imported vehicles necessarily becomes important. In other words, the first, evolutionary pattern of machinery industry development is usually set in motion with or without a domestic vehicle-assembling program. To what extent the former can contribute to the latter once a localization policy is initiated depends on the learning that can be achieved through repair and maintenance activities. In view of the widespread existence of the auto-repair industry in developing countries, it may be useful to study how the accumulation of the metalworking experience through this activity leads to the strengthening of the general machine-building capability as well as to the creation of the machinery industry base.

Thirdly, the book's use of the development of "close" ancillary relations in Japan as a reference model requires some caution. For one thing, in the initial period of the localization policy in prewar Japan, when the domestic final vehicle assemblers were not yet firmly established and were in fact threatened by the competition from imports and from the foreign firms (GM and Ford) operating in Japan—that is, in a situation which roughly corresponds to that of the Southeast Asian countries today—it was not very clear if a "stable" and "close" relationship existed between these assemblers and the ancillary firms. On the other hand, in the initial period, the technological capability of the local final vehicle assemblers was rather limited, and the technological gap between them and the ancillary firms must have been relatively small. Under such circumstances, technology diffusion from the former to the latter perhaps could not have been a major factor in the shaping of the relationship between

the two. It may even be argued that precisely this narrow technological gap facilitated the creation of a closer working relationship when the industry as a whole came under pressure to achieve rapid technological advances. This incidentally may be what is happening in the automobile industry of the Republic of Korea today. In the Southeast Asian countries the gap may be too wide to induce technology diffusion of any significance to the purely domestic ancillary firms. Hence the importance of foreign or foreign-affiliated parts and components makers.

Finally, as regards what needs to be done concerning the numerous problems plaguing the localization program for the automobile industry in the Southeast Asian countries, the concluding chapter by the editor addresses such issues as the development of appropriate design and the choice of appropriate production technology. However, it fails to discuss the role which foreign firms could and should play in this respect.

It is probably not likely that the multinational auto manufacturers which are making adequate profits from the present assembling operations and the supply of parts would easily be attracted to risky schemes like "appropriate design" cars. It is also reported that these firms have begun to install industrial robots in their subsidiaries operating in some developing countries (e.g., Latin America) as part of the internationalization of their production programs, which probably will not be compatible with an appropriate choice of technology in the countries concerned. If such is the case with the multinational automobile manufacturers and if the developing countries concerned are still to pursue the localization programs oriented to their domestic markets, their governments will have to explore the possibility of a more self-reliant policy based on a production organization increasingly independent of the influence of the multinational auto manufacturers. The first step for moving in this direction will naturally consist of a reexamination of the place of the automobile industry in the national development context of the machinery industry as a whole. This in turn will require knowledge of the pattern of development in the automobile as well as other branches of the machinery industry. This book constitutes an important contribution in leading such work.

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