

## Foreword

In discussions with third-world intellectuals, I was surprised to learn that it was their belief that Japan's modernization and industrialization had completely wiped out its small-scale manual industries. For their part, they seem to have been equally surprised to find out that in Japan, with all its advanced industrial technology, cottage industries not only remain but have an undeniable importance. Large-scale industry certainly is a characteristic feature of modern industrial technology, but the vitality of Japan's industry and technology lay in the high adaptability of small enterprises, whose flexibility made it possible to respond successfully to rapid and drastic changes. Thus, the relative merit of scale is by no means an indicator of the development level of technology.

This relates to the structural problem of today's technology concerning rational scale. For example, there is no reason why a ball-bearing factory meeting the highest standards of manufacturing techniques in the world should necessarily be equal in size and scale to a top-ranking steel mill to meet market needs.

In a technologically self-reliant nation, there are many specialized factories, each of an appropriate scale reflecting its character as well as the kind of technology it uses, and these factories have structural relationships of a close and sophisticated interdependence.

Consequently, along with big factories having huge and complex technological structures, there is an extensive and diverse network of small-scale factories and workshops that are labour intensive and highly dependent on skills. The process of modernization in Japan not only increased the number and variety of factories of all scales but developed the technological potential and structure of each to a high sophistication. The process of sophistication also meant surviving the fierce competition in skills.

In Japan, initial industrialization as a matter of national policy entailed protective and promotional measures for heavy industries and large factories, but light industries of smaller scale had few opportunities to enjoy such pro-

tection or promotion. If they did, it was usually local governments that supported or subsidized them. The question of scale was also one of the type of industry, which in turn overlapped with the provincial character of small industries.

Many small industries were engaged in the local production of final consumer goods rather than basic materials; in other words, they were positioned farther downstream than others in order to meet local needs. Some of them established a share in the national market, others turned out substitutes for imported items, and still others evolved into exporters. Their paths of development were neither uniform nor trouble-free. In present-day Japan, there is a far more diverse and extensive presence of small factories than in other industrially advanced nations, and they coexist and are structurally linked with bigger factories. The big and small factories do not exist in parallel by chance, nor are they unrelated to one another. The coexistence of both constituted a process of "development."

Moreover, the equipment of Japan's small factories was rather obsolete relative to what we now find in South-East Asian factories. Yet, Japanese small-scale manufacturers were highly competitive with foreign producers, who had the benefit of more up-to-date and sophisticated facilities. The inability of the latter to compete, despite their up-to-date facilities, an experience Japan once faced in the textile industry, for example, was due partly to the lack or inadequacy of linkage among the different sectors of technology and of fringe services, but more so to the insufficient formation of high skills. Another important aspect was management capability.

Here lies the relevance between the problem of light industries and small enterprises and that of "development"; there is an impressive case reported by the research group behind this volume of the defeat of a factory with modern facilities by rurally based cottage industries. The case involves shell-button manufacturing, where the production process was thoroughly decomposed: machining was replaced by manual processing with traditional tools and instruments, and manpower needs were met by farmers undertaking piece-work at home instead of relying on specialized workers. The strategy eventually resulted in management crises within the competing modern factory.

The absolute predominance of modern mechanized factories proved to be a mere "myth." By virtue of the dispersion of finely differentiated steps of the production process among households in rural villages and the substitution of labour-intensive fragmental functions for mechanized operations, the domestic workshops won their race against the modern factory.

We find in these workshops an instance of challenge to "modernization" at the grass-roots level, and through this challenge the modernizing of the villagers themselves. We may also regard this modernizing as a process of joining and transforming of techniques, both indigenous and imported, by farmers. The inquiry here is limited to light industries, but no one could convincingly deny the importance of these workshops to development.

Research for the project, jointly undertaken by the Institute of Developing Economies and the United Nations University, both of Tokyo, was supervised by four scholars: Shigeo Kikuura, professor at Toyo University, Tokyo; Tatsuzo Ueda, professor at Kansai University, Osaka; Kyozo Takeuchi, associate professor at Kinki University, Osaka; and Johzen Takeuchi, professor at Hiroshima University. Their work is also available in a United Nations University series of working papers, as well as in several recently published and forthcoming United Nations University Press titles.

Subsequent to his work with the co-researchers, Professor Takeuchi conducted fact-finding surveys in South-East Asia and took part in various research conferences and seminars throughout Asia and elsewhere. He has attempted a separate summarization from a new angle, learning from subsequent experiences and referring to the previous achievements of his former colleagues. He has also used newly discovered historical materials. The results form the basis of this book.

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