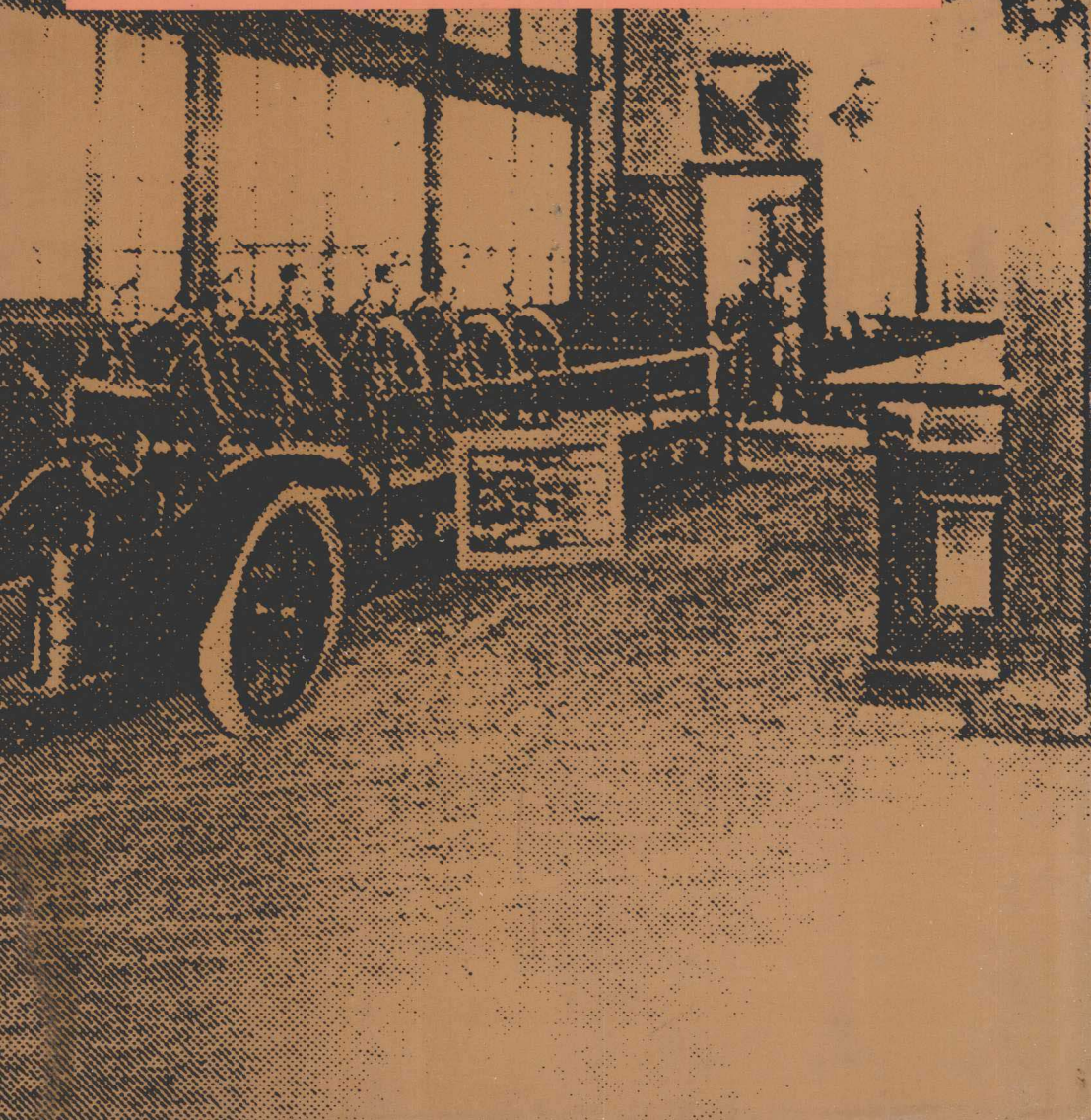


The Role of Labour-Intensive Sectors in Japanese Industrialization

Johzen Takeuchi



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United Nations University Press

The United Nations University project on Technology Transfer, Transformation, and Development: The Japanese Experience was carried out from 1978 to 1982. Its objective was to contribute to an understanding of the process of technological development in Japan as a case study. The project enquired into the infrastructure of technology, human resources development, and social and economic conditions and analysed the problems of technology transfer, transformation, and development from the time of the Meiji Restoration to the present. The research was undertaken by more than 120 Japanese specialists and covered a wide range of subjects, including iron and steel, transportation, textiles, mining, financial institutions, rural and urban society, small industry, the female labour force, education, and technology policy.

This volume examines the place of small-scale, labour-intensive industries in the history of Japan's economic growth.

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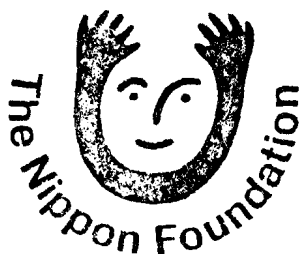
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Foreword

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; Kyoza 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.

Space does not allow me to acknowledge the innumerable people, including those who assisted me in fact-finding surveys and in searching for historical records, whose co-operation and contributions aided us in our research. To Shigeo Minowa, formerly of the United Nations University Press, and Akiko Akemine of IDE, I am especially grateful.

I would also like to express my thanks to Hiromichi Matsui for the pains he took to translate this book into English.

Takeshi Hayashi
Project Co-ordinator

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Introduction: Themes and Approaches

Project Themes

After Japan abandoned its isolationist policy in 1858 and began to actively import Western technology under the new regime established in 1868, the nation started to industrialize on a full scale. One of the themes of this project was clarifying how the imported technology was able to accelerate Japan's industrialization and, further, confirming whether there were linkages and interactions between traditional, domestic technologies and imported, foreign technologies.

A second theme was concerned with finding out how the system of technology developed during the process of industrialization. General interest in the history of Japan's economic growth has become so intense these days that specific case-studies on the question of how the nation, a late starter in industrialization, acquired its own technological potentials constituted a major focus of our project. Whereas it is generally believed that studies in the histories of individual industries are more developed among inquiries into the economic history of Japan, many such studies have been confined to specific sectors of industry attracting particular domestic and international interest or to analyses of some major enterprises. Our case-studies in a wider spectrum of industrial sectors were expected to provide specific clues useful in international comparative work.

The third theme was considering the above-mentioned problems in those sectors of industry where labour-intensive production had persistently remained. In Japanese inquiries into industrialization, there is hardly a unified view on the role of labour-intensive sectors, where smaller enterprises are more or less dominant in proportion to and apart from capital-intensive large industries, which tend to attract greater interest. In Japan, notably, the extensive presence of small-industry sectors, scarcely heard of in the West, represent a characteristic feature of Japan's industrial structure. This sug-

gested that the elements of these sectors might reveal the uniqueness of Japan's industrialization.

A fourth theme consisted of the stipulation that our areas of study not overlap industries such as steel-making, cotton-spinning, and silk-reeling, which have been regarded as the leading industrial sectors and were investigated by other subproject teams. In other words, our research had to focus on the "extras" in the cast.

On these themes, we took note of the following point: in the industrializing of pre-war Japan, production was more capital intensive and on a greater scale in the sectors turning out such basic materials as cotton yarns and steel, and the proportion of small enterprises was greater in labour-intensive sectors supplying final consumer goods and intermediate products (especially small components). What deserves particular mention is that the development of upstream sectors producing basic materials would probably have been difficult without that of downstream industries turning out intermediate goods or final consumer items. Obviously, a large-scale, modernized sector of basic-material production cannot be economically efficient unless its products are eventually offered for direct private consumption or serve as a means for the production of such consumer goods. Even from this conventional point of view, a policy to foster upstream sectors that gave no heed to the growth of downstream areas would be meaningless. In Japan, the two were even more closely connected and inseparable, because Japan, poor in natural resources, had to import all its iron-ore, coking coal, and raw cotton. Its exports consisted primarily of a wide variety of terminal consumer goods and intermediate goods, such as parts used for their production, turned out on a labour-intensive basis.

One of the rare exceptions to the heavy import-dependence of the upstream sectors for raw materials supply was raw silk. While raw silk was bought by major importing countries as material for silk fabrics, it was treated like a final product in Japan and exported as such. It is interesting to note that silk-reeling, reflecting this peculiar circumstance, was behind other sectors in mechanization in spite of its character as a basic-material producing industry and remained significantly labour intensive.

The subproject team conducted field surveys on the eyeglasses, shell-button, watch, clock, and bicycle parts industries. The period the team covered extends from the Meiji period (1868–1912) to the present day. This report takes up the findings on the shell-button and bicycle industries from earlier surveys, to which I have added the results of my own studies on the knit-fabric and brush industries. The period covered here is limited to the decades preceding World War II. There are two reasons for focusing on these industries alone.

First, since the time allowed for the subproject was rather limited, the survey reports by the members of the team were divided into those focusing on the pre-war period and those putting emphasis on the post-war years. Further joint work seemed necessary for the members to arrive at any unified view.

Second, the findings could hardly be presented together meaningfully in the same framework because some of the studies revealed the circumstances of the industries begun in the Meiji period in considerable detail, while other studies need further research: many industries proved extremely difficult to attempt any investigation into. Therefore, I have decided to select only those sectors whose circumstances in the Meiji period could be presented in substantially equal detail. Further, I have limited the period covered for two reasons.

The first reason derives from my own view of Japan's economic growth after World War II. Among the different stages of Japan's economic growth, this phase has attracted world-wide interest and it is popularly known as the "high economic growth phase," which began in the mid-1950s. It is true that in that phase every economic factor – such as accumulation of private capital, introduction and development of large-scale production techniques, constant supply of young labour, a rise of the general educational level, effective, deliberate leadership by the government, expansion of the domestic market, improvement of the balance-of-payments position, and a low unemployment rate – was developing in an ideal way. However, anyone who attempts a serious historical analysis of this phase of economic growth should take note of the historical background that enabled such a phenomenon to occur.

In my opinion, Japan's economic growth from the mid-1950s on was the result of a simultaneous liberation of the internal energies of various elements that were fostered in Japanese society since the eighteenth century or even earlier as they finally found favourable objective conditions, both domestically and internationally, in the post-war years. Because of this point of view, I consider it as important to find out how the conditions of the Japanese economy had been built up during the historical process that had preceded this economic spurt.

Such an investigation is important also because of the significant difference in the role of the small industries between the high economic growth phase and the preceding decades. Though we should not forget that many companies were weeded out in most of the manufacturing sectors during the high economic growth phase, it has to be pointed out that Japanese small industries not only grew in their respective industrial sectors during that phase but also developed in various new areas. Some, starting as small enterprises in the mid-1950s, eventually became large enough to be well known and competitive on an international basis. In contrast, few of those launched after the high economic growth phase, except those established as subsidiaries to giant corporations or those having joined the group of one or another of such giants, achieved so great a leap. In other words, under the economic conditions prevailing before the high economic growth phase, or even before World War II, many enterprises belonging to the category of small industries had had their own historical potentials. Partly because of my own interest in the historical process that enabled them to build up such potentials, I have limited my analysis to the pre-war period.¹

Contrastive Views on Japan's Economic Growth

Many diverse views by Japanese and foreign scholars have been presented as to the success of Japan's late start in catching up to advanced nations. By referring to a few contrastive views, well known internationally, I would like to make clear how I plan to approach the problem. The first view attaches great importance to the role of the state in Japan's economic growth. Not a few scholars have subscribed to this view, and typical among them is Rosovsky.²

Rosovsky seems to have adopted Gerschenkron's model as his theoretical premise in considering the industrialization of late starters. Gerschenkron emphasized the differences of late starters' industrialization from that of early starters both in pace and in organizational structure, and by doing so criticized the views of Rostow and others, who envisaged a standardized process of industrialization.³ Rosovsky made the following points:

1. Industrialization took place generally faster in late starters than in early starters, and often took on an aspect of a "big spurt."
2. The relative proportion of heavy industrial sectors to light industries increased more quickly in late starters than in early starters.
3. Huge enterprises emerged in later industrialized countries at an early phase of the industrialization process and created the relatively early establishment of monopoly.
4. It was less likely for late starters to begin industrialization by their own force, thus specific "institutional instruments," such as banks, the state, and foreign governments, "induced" the process in varying degrees according to the difficulty of autonomous industrialization. Such nations could be set on the right track of industrialization only with the help of these induced instruments.
5. Rationalism or economism was not sufficient by itself to uphold industrialization of late starters; instead, they had to be firmly supported by a specific ideology, such as nationalism or even socialism, in many instances.

Of these main points, I would like first to take up the fourth. In contrast to England's self-driven growth, *Crédit Mobilier* and German banks appeared as the suppliers of long-term funds in France and Germany, respectively, where big spurts of industrialization began in the mid-nineteenth century. In Russia, however, where industrialization started later, even banks were unable to serve as effective instruments of capital concentration. Therefore, the state gathered the money from the populace by manipulating the tax policy and induced foreign investment. These funds were invested in national railroad construction, subsidization of industry, and preferential placement of orders with protected industries whose profits were assured, thereby exerting an effective organizational power for industrialization.

Rosovsky and many Japanese scholars have expressed the view that this observation of industrialization in Russia is likely to directly apply to Japan.

In contrast to their theories, Lockwood's analysis represents a second

standpoint. Though it is extremely difficult to summarize the whole of his analysis, what is indispensable in the present context is a reference to his interpretation of the role of the state, because one of the manifestations of his penetrating insight was his early warning against overestimating the government's role in Japan's industrialization. Lockwood's insight is reinforced by his extensive field of vision and flexibility that prevent him from trying to explain a number of alternative conclusions by any single determinant. The various characteristics of pre-war Japan, he points out, are believed significant by some Japanese researchers. He took note of the coexistence in Japanese society and corporate structures of feudalistic elements; concentration of economic control; tremendous growth and the fragility of democratic traditions; the natural advantage of Japan to be able to pay for its imports of producer goods with the exports of consumer items; the presence of other key factors besides cheap labour and population pressure; ready mobility of labour from rural areas; and the large relative weight of small enterprises. He discussed all these factors admirably, even though many had already been revealed by Japanese Marxist economists, whom he intended to belittle. After an elaborate analysis of all these, he reached the following conclusion:

Even in manufacturing . . . a quarter century of progress had carried Japan little beyond the handicraft stage where Britain and America stood in 1800. Yet this willingness to venture and to learn, if not to pioneer at least to imitate, in a climate of opportunity which makes it pay, is certainly an essential condition of economic development. That it appeared first at the top of Japanese society is not surprising. What impresses one is the degree to which it spread subsequently through a broad stratum of the population.⁴

Furthermore, he concluded:

The outlook, the energies, and the authority of the Meiji leaders were clearly of immense significance, leaving a deep imprint on the subsequent course of economic development.

Yet the picture which emerges does not show the State in the central planning and directing role often ascribed to it, so far as the principal areas of economic growth are concerned. Especially is this true of the period after 1890, when the great expansion took place. Certainly no sufficient explanation of Japan's industrial development can be found merely in the thesis that her political tradition endowed her with an authoritarian military caste which engineered the modernization and industrialization of their country as the means to national power. The existence of a strong central government infused with imperial ambitions served in some respects to stimulate and facilitate the process; in other respects it operated as a decided drag; in still other respects it had little direct influence on what took place.⁵

Few if any Japanese scholars have so penetratingly analysed Japan's economic development. The starting point of this report, however, lies indeed in the conclusive part of Lockwood's insightful statement. His analysis seems to

enable us readily to understand that a key factor in Japan's economic development consisted of the extensive spread of "the willingness to venture and to learn" and "the ambition to advance" among the general masses. Certainly there are too many historical facts that cannot be properly accounted for without taking note of this factor. However, he has scarcely touched on why and how that process was possible. Nor has he shown interest in the question of whether the ways in which the masses were organized and technological innovation was achieved for industrialization were similar in nature to their respective counterparts in the West. Japanese researchers have focused mainly on these points. Before the 1960s, virtually none of the studies on Japanese small enterprises paid attention to the process in which the stratum of small businessmen and self-employed people, constituting the vast span of the bottom layer of the Japanese economy, had come into being.⁶ Even fewer in number were analyses taking into account the presence of a number of different patterns of technology transfer or the fact that vertical social mobility was not to be ignored in considering the mobility of labour in Japan.

We might perhaps be asking too much if we had expected Lockwood to go into this area in his attempt to draw an overall picture of Japan's economic growth. However, his reference to the orientation of "spirit" as the ultimate explanatory variable does seem inconsistent with his coherent rearrangement of data fitting his macro-economic thesis. I intend in this report not to focus on the presentation of data relevant to macro-economic or micro-economic concepts but to try to grasp in a composite way the personal histories of entrepreneurs and the mode of social mobility of specific social strata on the one hand and the industrial and technological developments of specific manufacturing sectors on the other. The Japanese term denoting this kind of approach could be literally translated into English as "empirical socio-economic history." This approach does not deserve much recommendation where the economy is steadily expanding, and there is little need to take into consideration the cultural and social conflicts and confusions that economic expansion may entail as it comes into contact with the traditional social structure. In comparison with the study of developing countries, where economic development is pursued at the initiative of the state and the effectiveness of the initiative is often questionable, it seems necessary with the experience of Japan to undertake investigations and analyses going into empirical and peripheral regions and to promote academic exchange on that basis.

Key Words and Preliminary Considerations

Even though there are so many problems in empirical studies, research on Japanese small and medium-scale industries (SMIS) has a long tradition involving many controversies. We had much to learn especially from considerations of social relationships between merchants and small producers. Japanese studies on SMIS taught us not to be preoccupied with the develop-

ment of the means of production alone but to take a renewed look at it in the light of various social relationships that underwent transformation. I would like to return to this point in Supplementary Comment 1.

In view of my own experience as well as what I have found from the achievements of my predecessors, I have decided to consider the problem of technology transfer not from the purely technological aspect of the transplantation of machinery and technology and operational efficiency but from such varied aspects as

1. The unrest of producers the new technologies induced
2. Relationships between the new and traditional technologies
3. Realignment of small producers
4. Difference between the imported and established indigenous technologies
5. Response of traditional craftsmen and skilled workers in adopting and using new technologies
6. Their personal histories
7. Their relationships with managers, changes in those relationships, and relationships between producers and wholesale merchants, who were responsible for the distribution of products and often in conflict with the demands of the producers
8. Changes in social relationships among different strata along with the development of production
9. The specific mechanism of productivity rise and its promoters.

In this connection, I will refer to the "mode of production" as an integrated concept covering not only purely technological aspects but also sociological relationships and economic elements.

We also took note of managers, who were directly responsible for the introduction of new techniques into the operations of their respective enterprises, because in SMIs, managers often exerted their leadership as skilled workers and in many cases were irreplaceable promoters of technological renovation. I found it necessary to quantitatively grasp to some extent the presence of these men, who were at the same time proprietors, managers, and skilled workers. Incidentally, managers of small enterprises fall under an intermediate stratum in statistical classification. If we classify professional or technical employees as constituting a new middle class, these managers belong to the old middle class. With a view to briefly looking at the situation of the old middle class, which accounted for a very great proportion in the class structure of Japan before World War II, I discuss their role in Supplementary Comment 2.

There were several types falling into the middle class. Among them, there were the titular owners who were the sole workers in their own workshops. Some of them often needed the help of their family members. Firms with five or fewer employees needed the labour of family members most indispensably, and in this class the ratio of family members to the total work-force was the highest. Even in firms with more than five employees, the labour of family members usually was essential. So, in examining the Japanese middle class, it is important to note their historical characteristics.⁷

Most of the Japanese middle class's social existence might be more properly understood as a "middling class"; this group saw itself as a middle class, but, strictly speaking, it was not precisely comparable to the European middle class of the eighteenth century. Its historical characteristics even survived World War II. In much research on and statistical analyses of the Japanese social structure, the middling class has been studied and regarded as the middle class.

In their self-image, members of the middling class were genuinely middle class. But history shows that, compared with their counterparts in Western Europe and North America before and during the nineteenth century, the Japanese middle class was never affluent. I want to stress this point, because I have noticed that in many reports about developing countries, most of the self-employed are classified as lower class for the simple reason that they are poor. But so far as the poverty of their life-styles is concerned, the self-employed in pre-war Japan were as poor as those of the developing countries are today.

I offer some examples from Japanese labour-intensive industrial sectors before World War II, when even the wives of factory owners were employed – mostly without pay – as an indispensable labour force for bookkeeping and serving meals to the employees. Surely they were extremely busy. Yet somehow they managed to do their own household work without domestic servants.

Actually, apprentices and young workers were often asked to help in household work; the range of duties they were expected to perform was vaguely defined. In those days, factory owners led a rather simple life and their wives did not have so much to do at home, so they felt no particular need for domestic servants.

This tendency was not unusual in small and medium-scale firms with fewer than 30 employees. In workshops with five or fewer employees, housewives and other family members were indispensable workers. Usually, the factory owners were the most skilful workers in their mills. Thus the middling class were, in a sense, poor; but most of them worked hard to become truly rich men. So, when referring to the Japanese middle class, I mean the middling class in the sense as explained here.

Needless to say, some factory owners were ruined by their lack of proper abilities, by fraud, or by business recession. In response to major declines, there were massive uprisings within the middle class and also the working classes. The size of the middle class, however, increased during and even after the period of the Japanese industrial revolution.

It is very difficult to distinguish between the middle class and the working class in Japan, especially in the pre-war days. Members of these two groups co-existed in competition and interdependence with one another. Other aggregative concepts are needed to clarify their social behaviour and historical functions. I would like to propose two concepts: "immediate producers" and "small producers." Immediate producers, especially when referring to the sectors of endogenous industries and labour-intensive industries, covers