

Title	The subcontracting production (shitauke) system in Japan
Sub Title	
Author	Sato, Yoshio
Publisher	
Publication year	1984
Jtitle	Keio business review Vol.21, (1984.) ,p.1- 25
JaLC DOI	
Abstract	
Notes	
Genre	Journal Article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AA00260481-19840000-03920085

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THE SUBCONTRACTING PRODUCTION (SHITAUKE) SYSTEM IN JAPAN

by

Yoshio Sato

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I. Introduction and Point of View.

1. Foreign assessment of Japanese subcontracting.

The international competitive strength and pre-eminence of Japanese industry, especially such industries as the machinery industries (autos, TV sets, VTR, etc.), has given rise to various types of trade and commercial friction. The subcontracting system can be singled out – along with others such as Japanese style management – as one of the main reasons for high production efficiency. Therefore, many foreign countries have begun to study Japanese methods in order to solve their own problems.

A short time ago (Jan. 18–21, 1983), the International Conference on Smaller Enterprise Policies (INCOSEP) was held in Osaka, with subcontracting a popular subject of discussion among the members of many countries. In formal session James C. Sanders, Administrator of the U.S. Small Business Administration, stated that it would be good for his country if the Japanese subcontracting system could be studied and introduced into America.

Foreign countries' research into the Japanese subcontracting system has been increasing recently, and their assessment of the Japanese subcontracting production system – meaning the Japanese system of production utilizing the social division of labor (hereafter cited as the “subcontracting system”) – along with the *kanban* method of production management and just-in-time purchasing and delivery management are evoking strong interest.

However, this positive assessment is not shared by all. That is to say there are various responses from unquestioning acceptance to scepticism. In conglomerate groups the social division of labor production system has reached its ideal limit, but there are questions. Do parent firms abuse their power? Do they pass on the demand for lower costs through lower wages in the medium and small firms? Does the development of specialized production under the wings of parent firms mean that foreign parts makers will be excluded from the Japanese market? Are there too many elements of Japanese society, economics and culture in this exceptionally specialized production system which reduces the probability of transferability to other countries? These are but some of the questions which exist.

2. Considering different viewpoints on the subject.

Generally, the subcontracting system means a long-term supply relationship between many parts makers or firms with specialized processes and large assembly makers as exemplified by the auto and electronics industries. In a broader sense it connotes an industrial production system developed and established on the social division of labor. Under the special circumstances of industrialization in Japan the social division of labor relationship is the subcontracting system, or *shita-uke* system.

When considering the subcontracting system, one must be concerned with both the production system and transactions (price setting, the function of negotiations and competitive pressures, etc.). Of course they are closely related to each other, and in the development of production systems (organization of production quality and technology) the subcontracting system is usually comprised of the above two. However, the subcontracting system is a naturally active system, with significant changes in the factors determining price and cost creating changes in the production system.

In this article, the contemporary Japanese subcontracting system will be considered mainly as a production system and will examine the following: (1) the configuration of the contemporary system. (2) Purchase of parts from outside suppliers in the "machinery industries", and the evolution of management pertaining to the subcontracting system. (3) An analysis of the structure of the Japanese style subcontracting system. (4) A discussion of the subcontracting system as a victim of so-called trade friction.

II. The Present Condition of Subcontracting Firms and the Subcontracting Production System.

1. Definition and importance of subcontracting firms.

Shita-uke is usually translated into English as subcontract. It is a rather broad concept, except when used specifically as "to subcontract" or "a subcontractor" in the construction industry. *Shita-uke* is actually an abbreviation of *Shita-ukeoi*.

A *shita-uke-nin* was a person in the Edo Period (1600–1868) who guaranteed the employment of an apprentice. *Shitazaiku*, *shitajoku*, and *shitashigoto* were craftsmen who did subcontracting work for wholesale merchants. With the establishment of modern civil law, *shita-uke* was used as an idiomatic root-word for such contractual concepts as

subcontract or subcontractor. As a system of industrial production in modern Japan, it began as a "putting-out system" like that used in American, British and European light industries such as textiles, clothing, sundries, etc. Although generally known as the "putting-out system" it gained notoriety in late nineteenth century British tailoring industry as the "sweating system".

Shitauke in factory production developed gradually in the early Showa Period (1925-), especially as integrated into the military production system. However, in comparison with the industrially developed countries, Japan's system was rather crude. During the Pacific War many people who were mobilized into military production (especially machinery industries like armaments, transportation, etc.) later went into business on their own, setting up small factories after the war. As will be demonstrated later, it was not until 1955 that Japan entered its period of rapid growth.

By way of definition, one of the pillars of medium and small businesses is the 1970 Medium and Small Subcontracting Business Promotion Law, the second article of which, in short, defines subcontracting as the production of goods the purpose of which is to be used as intermediary processed goods such as parts, fittings or raw materials.

In Japan there is a high level of social interest in medium and small businesses and the "Composite Basic Survey of Medium and Small Businesses" (entitled the "Basic Survey of Industry" (*Kogyo Jittai Kihon Chosa*) since 1971) has been produced almost every five years since 1956. This research has produced an understanding of subcontracting enterprises based on the following three points: (1) ratio of sales to the largest buyer to total sales, (2) conditions of procurement of main raw materials from the largest buyer (free supplies, supply of material with or without payment, etc.) and (3) trademark or brand agreements with the largest buyer (use of the buyer's trademark, use of the subcontractor's own trademark, third company's trademark, etc.).

Table 1 shows the density of subcontracting companies in 1976 as reported in the "Fifth Basic Survey of Industry" which was issued by the Medium and Small Business Agency, Ministry of International Trade and Industry research statistics department in Feb. 1979.

A total of 60.7% of all firms in the manufacturing industries participate in subcontracting, and even among those businesses with 200-300 employees the rate is 48.8%. Roughly 59% of the purchase of raw materials for subcontracting firms was controlled by the buyer, and 22% of the subcontracting firms used the buyer's trademark. The larger the subcontracting firm becomes, the greater the proportion of products produced with either the buyer's trademark or the firm's own trademark. *Figure 1* shows that the larger the subcontracting firm becomes the lesser the probability of its doing 80-100% subcontracting and the number of parent firms increases.

Tables 2 and 3 use a three digit industry classification system to show the percentage of enterprises which perform subcontracting work and their degree of concentration in selling (the ratio of sales to the three largest buyers to total sales in 80-100% subcontracting firms.)

Table 1. Subcontracting Firms' Procurement of Main Raw Materials and Trademark of Products

Scale by employee number	Number of firms	Number of subcon- tracting firms (%)	Procurement of main raw materials					Trademark		
			Supplied free from buyer	Purchase from the buyer	Purchase the designated of buyer from others	Others	Buyers mark	Mark of its own	Others	
Manufacturing total (average)	615,220	60.7	33.3	8.8	17.1	40.9	22.0	16.5	61.5	
1 ~ 3	277,199	66.8	46.1	6.4	12.9	34.6	20.3	8.9	70.9	
4 ~ 9	205,019	57.7	27.3	9.0	19.9	43.8	21.1	18.3	60.6	
10 ~ 19	68,485	54.4	18.7	11.2	21.9	48.3	24.5	24.9	50.6	
20 ~ 29	25,997	50.6	15.7	13.5	21.6	49.1	26.7	30.5	42.9	
30 ~ 49	17,331	50.2	13.5	14.9	20.8	50.8	29.6	31.3	39.1	
50 ~ 99	13,302	51.7	13.7	16.4	20.0	49.9	31.3	37.7	31.0	
100 ~ 199	5,996	51.8	11.6	18.2	17.2	52.5	35.7	40.5	23.8	
200 ~ 299	1,891	48.4	8.2	19.2	16.4	56.2	32.4	46.5	21.1	

Source: Fifth Basic Survey of Industry (*Kogyo Jittai Kihon Chosa*), 1976. (published in Feb. 1979).

Table 2. Subcontracting Firms by Industry

	Number of firms	Ratio of subcontracting firms	Ratio of subcontracting sales to total sales			Subcontracting sales amount per a firm (10 thousand yen)
			40% less	40-80%	80-100%	
All manufacturing (average)	615,220	60.7	10.5	8.2	81.3	3,773
Transportation machinery	17,501	86.2	5.7	5.9	88.4	9,134
Textiles	103,531	84.5	5.1	2.4	92.5	1,356
Apparel and textile products	34,258	83.9	6.1	4.6	89.2	2,156
General machinery	51,967	82.7	10.2	10.1	79.8	4,086
Electrical machinery	23,718	82.3	8.2	6.8	85.0	8,542
Metal products	68,075	74.8	10.1	11.6	78.3	3,846
Ferrous metals	7,663	70.4	13.7	11.5	74.8	9,955
Precision machinery	9,149	72.4	7.8	5.3	86.9	4,200
Nonferrous metals	4,769	68.7	11.2	11.1	77.7	9,688
Tanned hide and products	9,961	62.5	8.5	5.0	86.5	1,340
Rubber products	5,567	61.1	11.8	9.2	79.0	3,681
Other manufacturings (n.e.c.)	50,554	56.5	12.9	9.3	77.9	3,254
Printing and publishing	31,488	50.8	27.9	13.2	58.8	2,242
Pulp, paper, paper products	15,170	44.8	20.8	12.1	67.0	3,264
Wood and wooden products	41,324	42.9	18.5	11.8	69.7	3,269
Furniture and furnishings	35,728	41.2	17.7	19.8	62.6	3,154
Chemicals	4,690	37.1	30.6	13.0	56.4	15,617
Ceramics and glass	25,513	29.4	13.0	11.9	75.2	2,589
Petroleum	241	27.0	46.5	14.3	39.3	17,077
Food	74,353	14.5	45.0	17.1	37.9	12,519

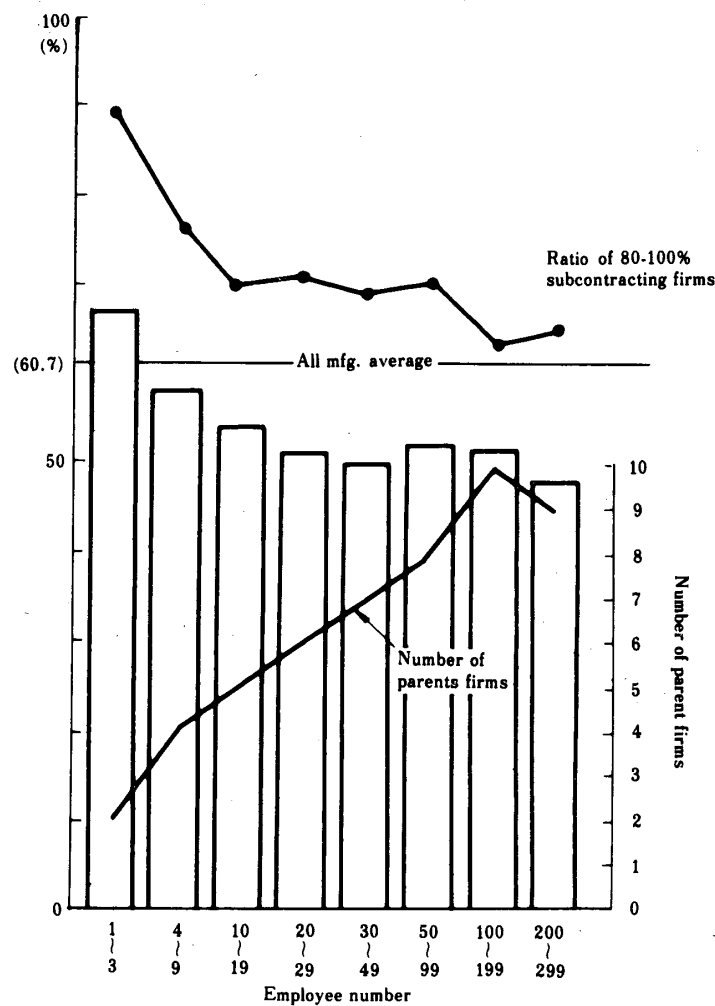
Source: The Same Survey.

Table 3. Conditions of Subcontracting Firms (concentration of sales, trademark, buying industries) (%)

	Concentration of sales to three largest buyers of 80-100% subcontracting firms	Designated by the buyer about main raw material	Using buyers trademark	Buying industry		
				Manufacturing	Wholesale and retailing	Farming, fishing and others
All manufacturing (average)	70.9	59.1	22.0	46.3	35.4	18.3
Textile	91.0	83.8	33.6	56.2	32.5	11.3
Transportation machinery	85.0	78.9	23.4	75.9	4.8	19.3
Apparel and textile products	83.7	81.6	55.6	33.8	57.8	8.4
Electrical machinery	82.9	78.4	33.5	84.5	8.3	7.2
Tanned hide and products	80.6	68.5	31.2	38.9	55.3	5.8
Precision machinery	80.3	68.0	29.6	67.0	21.4	11.6
Rubber products	74.9	66.5	28.1	58.5	34.7	6.8
General machinery	74.8	71.5	20.2	82.5	8.5	9.0
Other manufacturing (n.e.c.)	73.3	54.6	22.4	38.9	45.0	16.1
Metal product	71.4	65.5	18.3	60.3	17.5	22.2
Nonferrous metals	67.5	64.1	17.3	74.3	15.7	10.0
Wood and wooden products	67.3	38.5	8.7	33.2	36.5	30.3
Furniture and furnishings	64.8	47.8	8.2	22.9	36.4	40.7
Ferrous metals	60.6	55.3	17.5	70.0	14.2	15.8
Ceramics and glass	58.0	36.4	12.2	29.1	37.6	33.3
Pulp, paper, paper products	54.8	57.8	29.7	52.2	36.8	11.0
Chemicals	52.3	40.1	22.8	42.4	43.9	13.7
Food	49.8	17.9	7.1	8.0	78.6	13.4
Printing and publishing	40.2	54.1	16.1	35.0	21.6	43.4
Petroleum	39.1	28.5	15.3	33.9	32.7	33.3

Source: The Same Survey.

Figure 1. The Ratio of Subcontracting Firms and the Number of Parent Firms:



Source : The Same Survey.

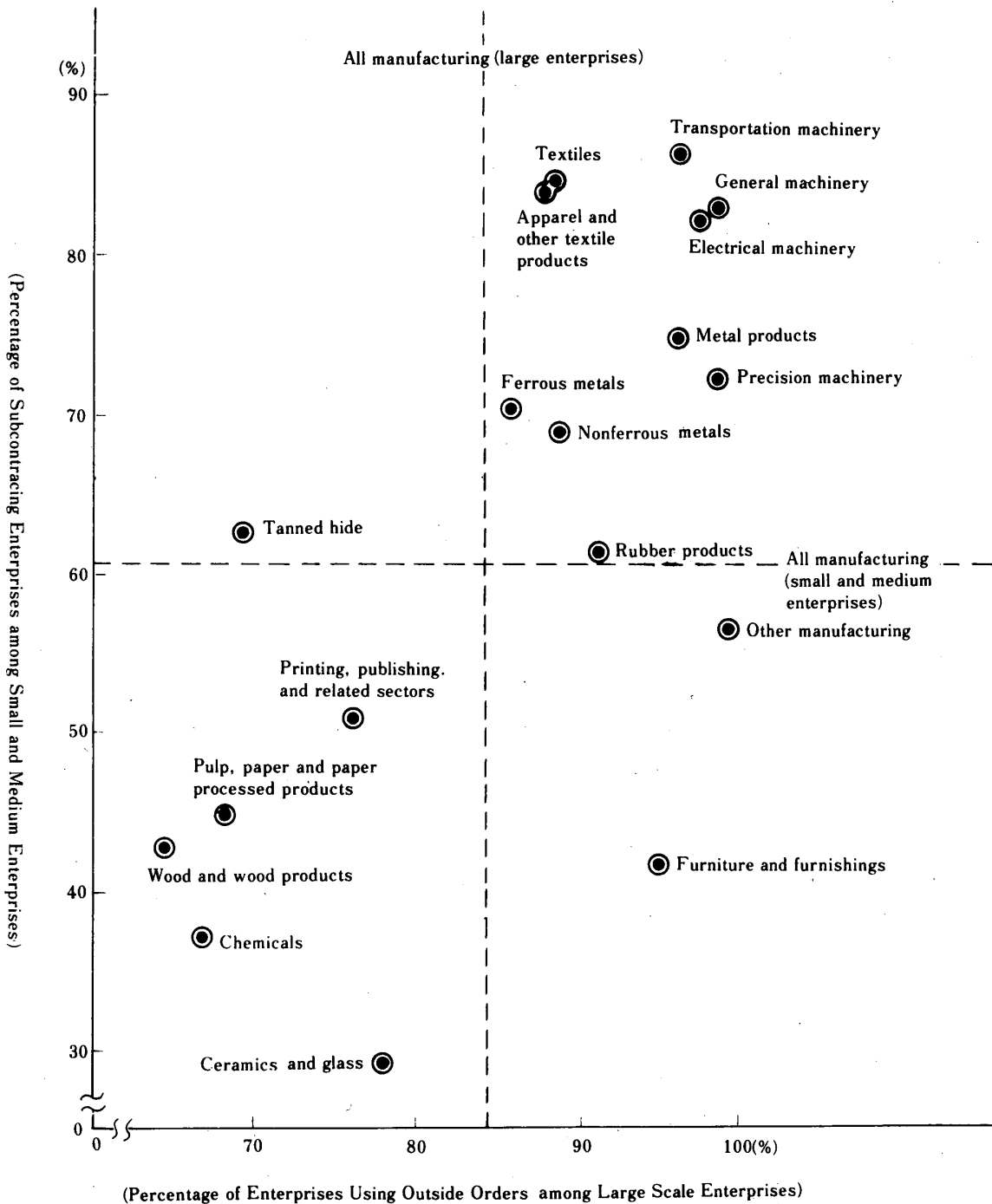
Figure 2 shows the proportion of firms which utilize outer order suppliers (subcontractors) and the percentage of subcontracting enterprises among small and medium enterprises.

2. Subcontracting system data.

Figure 3 (a) and (b) shows the subcontracting specialization in autos and VTRs as well as the electronification of manufacturing processes of contemporary subcontracting enterprises. Figure 4 is a conceptual chart of the composition of subcontracting in color TVs (note: this does not include the parent maker's manufacturing process).

It is very difficult to explain in detail exactly how the subcontracting system operates, but the following points may be instructive. (1) Among parts makers, parts assemblers, special processors, parts processors, etc., specialization proceeds at different degrees at different levels. The degrees and types of specialization in Japan are not found in other developed countries. (2) In addition, not only first and second level subcontractors, but also third level subcontractors are to be found. (3) The subcontracting system

Figure 2. Number of Enterprises Depending on Outside Orders (Subcontracting) by Industry

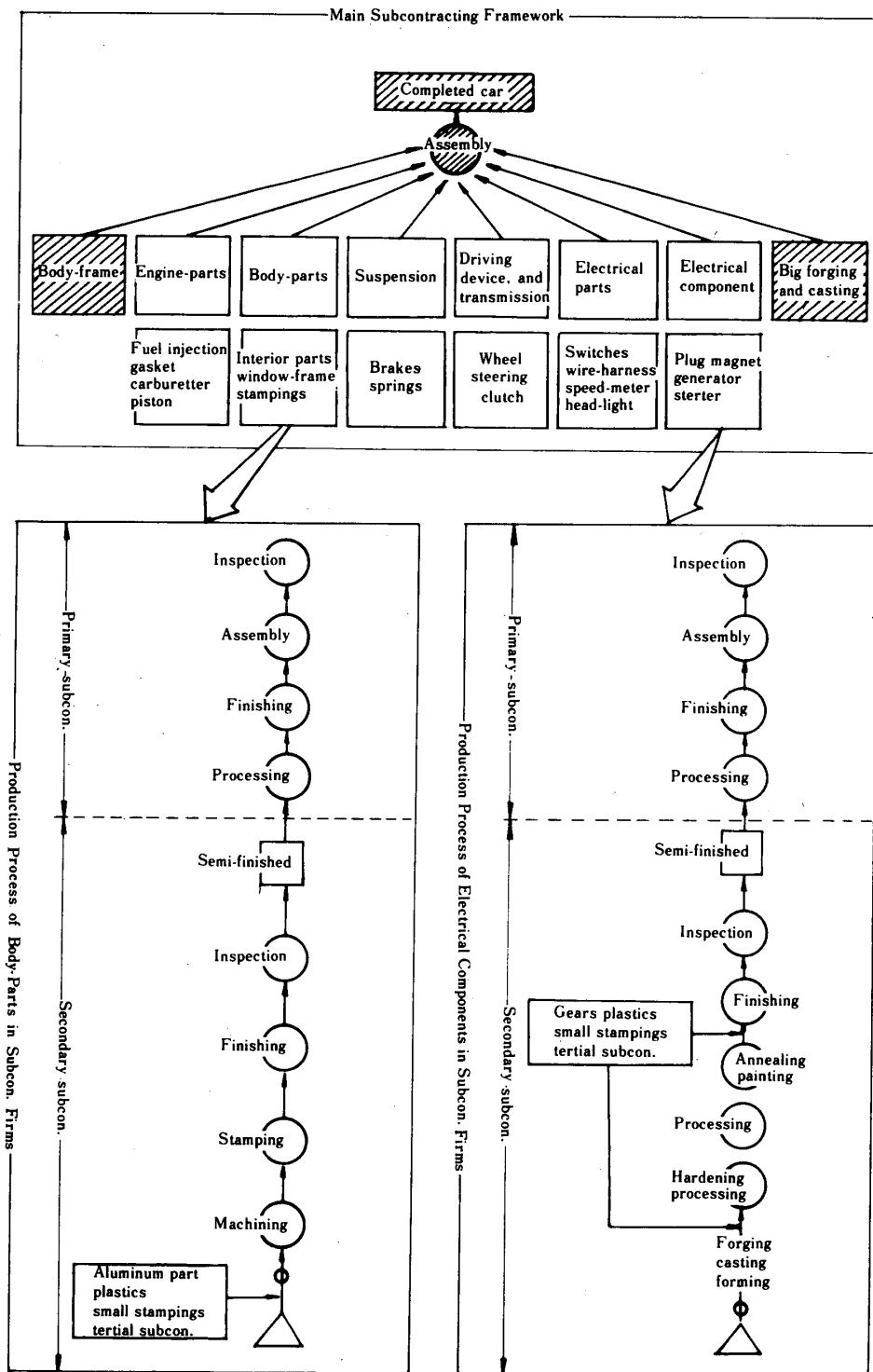


Source : Ministry of International Trade and Industry, "Kogyo Jittai Kihon Chosa" (Basic Survey of State of Industry), 1976.

Note : 1. Percentage of enterprises using outside orders = No. of enterprises using outside orders / No. of large enterprises × 100.

2. Percentage of subcontracting enterprises = No. of subcontracting small and medium enterprises / No. of small and medium enterprises × 100.

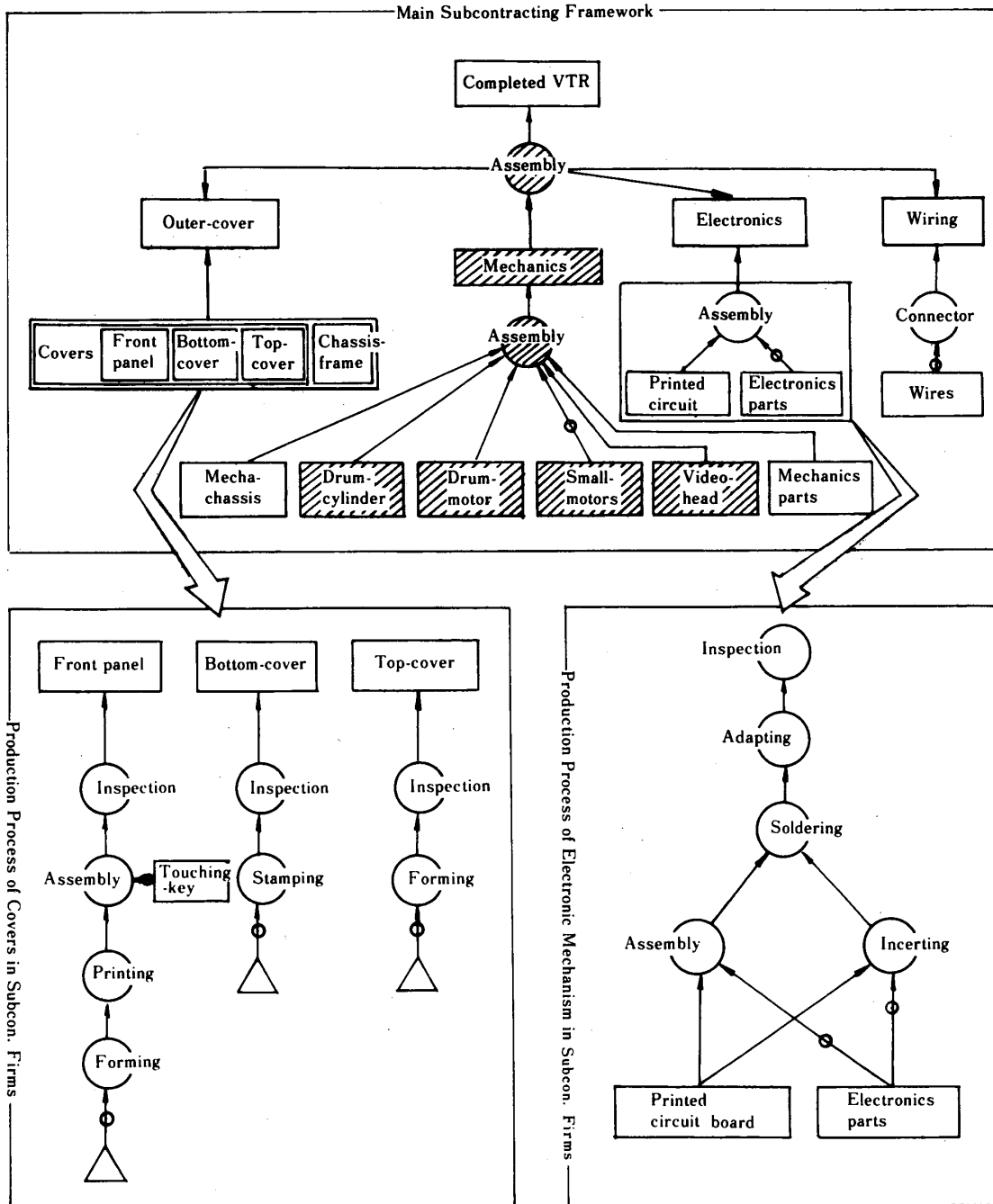
Figure 3-a. Main Subcontracting Relations (Automobile).



White Paper on Small and Medium Enterprises 1982, p. 173.

- △ Purchase of raw materials
- Production process of subcon. firm
- Production process of parent firm
- Parts or component by subcon. firm
- ▨ Product or component by parent firm
- ⊕ Purchase
- Flow of process

Figure 3-b. Main Subcontracting Relations (VTRs).



White Paper on Small and Medium Enterprises, 1982, p. 174.








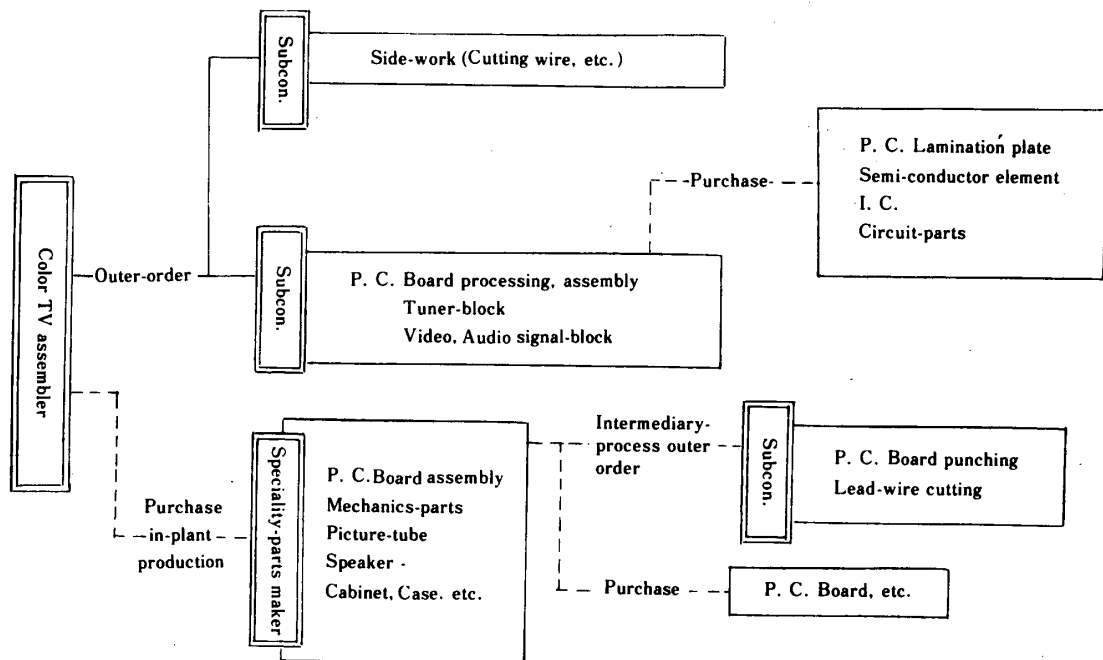
-  Purchase of raw materials
-  Production process of subcon. firm
-  Production process of parent firm
-  Parts or component by subcon. firm
-  Products or component by parent firm
-  Purchase
-  Flow of process

Figure 4. Conceptual Subcontracting Framework (color TV).



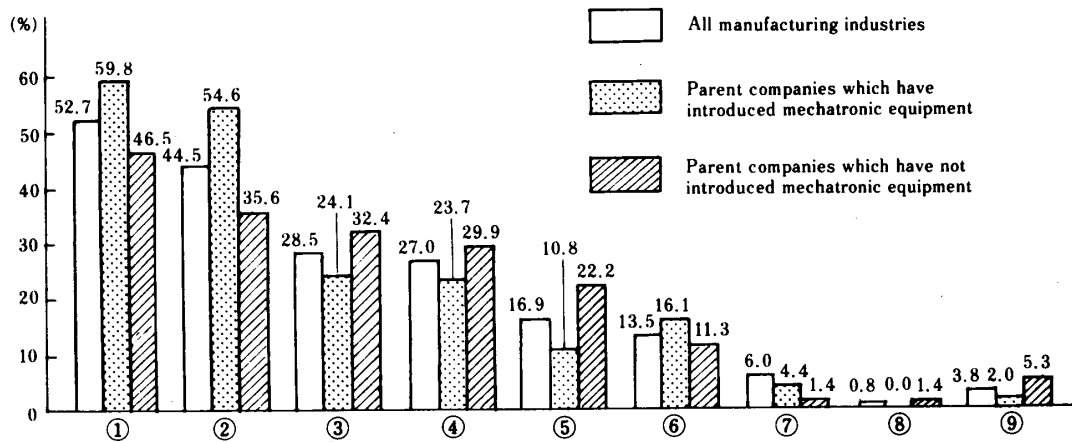
White Paper on Small and Medium Enterprises, 1980, p. 161.

appears to form a static and entrenched system, but in reality such activities as switching from the purchase of outer orders for parent firms to in-plant production, and change in the products ordered outside in the parent firms, etc. make it a dynamic system. The Japanese subcontracting system tends to be described as a pyramidal structure, however, that image is not sophisticated enough to convey the reality of the situation. (4) Parent firms use subcontractors because they have special technologies and equipment and/or the parent firms may lack production capacity (*Fig. 5*).

3. Subcontracting production system efficiency.

An analysis of the subcontracting system data presents the following causes of high efficiency. (1) Complete specialization. Specialization and division of labor within the company and the factory proceeds in accordance with the pace of innovation. This is especially important in Japan where specialization in the company influences social specialization. (2) Specialization and division of labor, along with the R&D in specialized technologies create even more specialized and narrower technologies which then lead to higher efficiency and uniformity of high quality. (3) Severe competition is a basic aspect of the subcontracting system. The basic points considered by purchasing management are these: quality, price, delivery dates and service (including VA (Value Analysis) proposals, etc.). Therefore, severe competition between subcontracting firms and parent firms is both actively and latently compelled by the purchasing management of the parent firms. The subcontracting system of each parent firm is a cooperative organization which, at first glance, seems to be a closed system. Certainly there is a strong sense of coopera-

Figure 5. Reasons Why Parent Companies Use Subcontracting Enterprises



- ① Subcontracting enterprises have specialized technology and specialized equipment
- ② Parent company's production capacity is insufficient
- ③ Production lot is small and outside orders would be more Efficient
- ④ Reduction of personnel costs and the unit price of products
- ⑤ Use of subcontracting enterprises enables more flexibility toward fluctuations in lot size
- ⑥ Enables saving of capital for plant and equipment investment, etc.
- ⑦ Strong capital and personal ties with subcontracting enterprises
- ⑧ Parent company does not have to hold excess inventories
- ⑨ Others

Source : Small and Medium Enterprise Agency, "Shitauke Kigyo Jittai Chosa" (Survey of State of Subcontracting Enterprises), December 1981.

Note : Total exceeds 100 due to some respondents giving more than one response. cited from "Small Business in Japan", 1982 (Small and Medium Enterprise Agency, MITI).

tion based upon the group principle, but there is also relentless competition among large parent firms in both the domestic and foreign markets, so that subcontracting competition is actually competition between groups.

In the following, the formative processes and other aspects of the system will be reviewed.

III The Process of Development and the Goals of the Subcontracting Production System.

— Machinery Industries' Purchasing and Subcontracting Management —

During the first modern stage of formation the subcontracting system had a fixed role as a producer for parent firms to help them cope with the sudden expansion of production during the period of high economic growth beginning in 1955. The initial role of the subcontracting firms was to allow the parent firms to expand their quantity of production — allowing them to avoid the dangers of rapid expansion through capital investment in the subcontracting firms. However, with the development of the social

division of labor it soon developed into a qualitative system as well. The end result was the establishment of an efficient subcontracting production system with competitive pressure being the overriding factor.

In the following, there will be a rough overview of the process and a summation of goals.

1. 1955–65, The supplier development and rationalization period.

The sudden expansion of industrial production caused not only an expansion of large firms, but their greater use of subcontractors as well. In order to utilize exclusively a specific subcontracting company, it was necessary to take care of the full operation, equipment, funds, employees, etc. However, in the suddenly expanded economy – which included the expansion of markets and social division of labor – specialized producers grew rapidly in specialized markets.

In the early 1960's the machinery industry – including the household electrical appliance industry and the auto industry – established regular mass production under an income doubling plan but the subcontracting system created a bottleneck which led to a lag. When the utilization of subcontracting is based upon low wage labor, there is a limit to rationalization in terms of quality, delivery time and cost. Therefore, purchasing management rationalization and subcontracting reform was carried out through the support of specialized technology and management capacity, changes in ordering (concentrated ordering, unitization) and fixed time/fixed amount delivery. While the system from 1955–60 was based upon quantity production, it began to stress quality production from 1960–65.

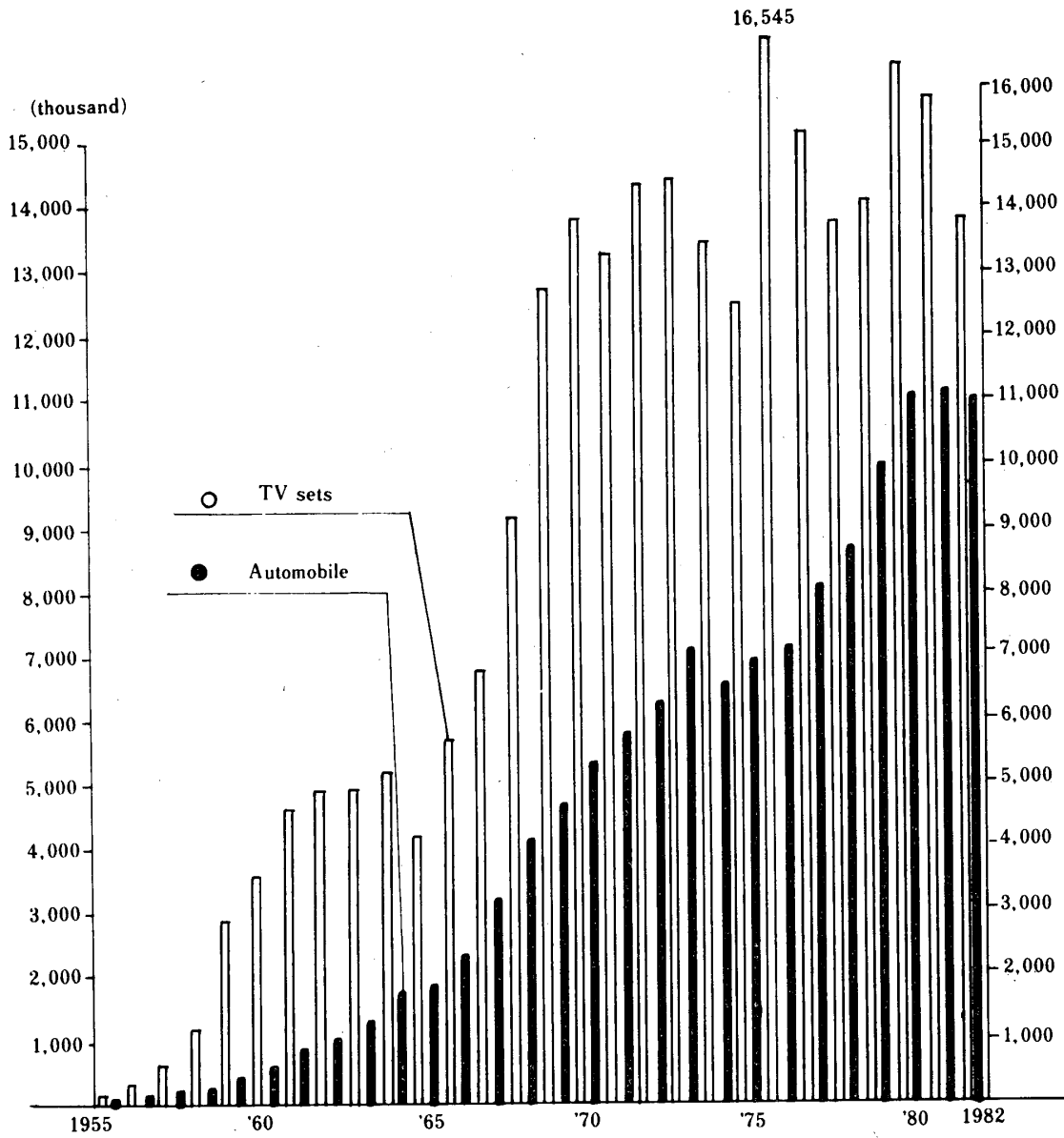
2. 1965–73, The modernization period of purchasing management.

This stage will be an overview of the growth of production of TVs and autos. TV sets and autos are the most typical assembly machinery industries, and one cannot understand the subcontracting system and its rapid growth without keeping in mind the rapid expansion of production in these two industries from 1965–75 (see *Figure 6*). After the upswing following the recession of 1965, the machine industry, including autos and electric appliances, were faced with the prospect of a sudden re-expansion in production. Given the level of capital liberalization, the expansion was expected to outstrip any which had preceded it. In order to gear up for the re-expansion, parent companies needed to invest in their own capital equipment and also restructure the purchasing and subcontracting systems. The role of “make or buy” criteria in planning purchases was re-examined, especially as it concerned the use of purchases.

Though it had been used in the auto industry to some extent, electric appliance makers also adopted the system of core supplier factories. In the core supplier system large producers choose a strong company from among their cooperating subcontracting factories and it becomes the core for the reorganization of weaker subcontracting companies.

The strength of the system was further increased by the reorganization of subcon-

Figure 6. Increase of TV sets and Automobile Production in Japan



	TV sets (total)	4 Wheel auto (total)
1955	137	69
1960	3,578	482
1965	4,190	1,876
1973	14,414	7,083
1975	12,455	6,942
1981	15,964	11,180

(thousand)

① TV sets (total) contain white and black sets, color TV sets and kits.

tracting management through the creation of a tight relationship between the production and planning management departments, as well as the introduction of computers. Many VAs were used to improve planning and specification, decrease the number of parts, as well as to simplify the assembly and processing function of subcontracting companies. Subcontracting companies which introduced VAs were generally able to meet the parent company's demands, especially for severe quality management.

In this period another serious problem, a labor shortage, occurred at the same time many small independent subcontracting companies were opening. From about 1968 subcontracting became both a foreign and domestic production system as household electronic appliance parts makers multiplied and expanded into Taiwan, Korea, Singapore, Malaysia, etc. to seek cheap labor for the first stage of production. With the growing competition from these foreign suppliers, the domestic companies were forced to increase their level of technology and specialization.

3. 1974 to the Present, the adjustment of purchasing management to the new environment.

This period experienced the most rapid changes in the Japanese economy, i.e., the first oil shock of 1973, drastic inflation, the slowing of the economy through a general policy of supply control, recession for almost three years, the temporary recovery of 1978–79, the second oil shock, production controls in the auto industry due to international trade friction and another three year recession from 1980–83.

How did changes in conditions such as slow economic growth and trade friction affect the main outer order subcontracting system which was formed by the process of a high growth economy? This period can be divided into halves, with the first being characterized by the reduction of management as a strong driving force in the reorganization of subcontracting.

The Central Cooperative Bank for Commerce and Industry's (*Shokochukin*) research department demonstrates in detail the circumstances of reorganization at that time in "The Present Condition of Minor Subcontracting Companies", a survey of 4,320 companies (return rate = 50.4%) conducted in June 1976 and published in August 1977.

Of those companies which responded, 34.9% reorganized, and the two most popular reasons for reorganization were: (1) 78.4% – rationalization of the subcontracting management system and reduction of management expenses and (2) 66% – strengthening subcontracting companies and the reduction of costs. The oil shock and recession led to a sudden, almost reflex adjustment of the system which was followed by a more thoughtful and complete adjustment of subcontracting and purchase management in the following manner.

- (1) Recession forced rationalization and a reduction of purchase prices, forcing subcontracting firms which could not compete out of the market.
- (2) The scale of subcontracting companies was reduced, the number of employees was reduced, greater control over employee movement was attained and the development of future markets was strongly encouraged.
- (3) Large parent firms forced subcontracting firms into rationalization by threatening to

produce for themselves.

(4) Rationalization/unification was manifested by strict delivery management and control over production operations inside cooperating subcontracting firms.

(5) In particular the "Production Management of Combined Enterprise Group" was clearly a result of the recession. The *kanban* system of the Toyota enterprises group spread quickly and "management by watching" became typical of rationalization at that time.

The *Shokochukin* research on subcontracting reorganization shows that the reorganization was generally undertaken through adjustments to other subcontractor's specification of purchase items, co-selling and *madoguchi-ippouka* (in which one of a group of smaller companies acts as a go between for all the group with larger companies), concentration vs. diversification of purchases, reduction of purchasing by increasing in-plant production, etc.

4. Growth and goals of subcontracting enterprises.

The following is a summarization of the growth and goals of the subcontracting system during the temporary business recovery after 1978 and the contemporary recession.

In 1983 the *Shokochukin* research department published the results of research conducted in August 1982 on 2189 companies (return rate = 73%), mostly somewhat larger subcontracting companies.

(1) The most common response given for trading with subcontracting companies was "because I have done so before" (73%), other more specific responses included "high quality" (61%), "special technology" (42%) and "on time delivery" (39.1%).

(2) Eighty-six percent of the companies responded that they have at least one technique developed in the company including:

- own company's plan for process rationalization (79%),
- new technology developed in-house (53%).
- products developed in-house, machines developed in-house, transferred unique in-house technology to parent firm, using in-house developed metal dies (each of the above, around 30%).

(3) Forty-three percent felt that the subcontracting firm's technological level was almost the same as the parent firm's, 8% felt that it was better than the parent firm's and 42% felt that it was inferior to the parent firm's.

(4) Forty-nine percent of the firms had already used mecatronic machines, 36% would like to use them in the future, 36% use NC, 15% use MC, 15% use robots and 17% use other forms including machines with microcomputers.

(5) It is interesting to note that daily and hourly units are being used with increasing frequency for delivery dates, especially in the auto industry. The following is a comparison of appointed delivery dates between 1979 and 1982 with responses from subcontractors in the auto industry given in parentheses.

	1979		1982	
– monthly units	34.4%	(17.1%)	22.0%	(10.3%)
– weekly units	17.1%	(11.2%)	14.0%	(6.0%)
– daily units	43.9%	(58.9%)	52.5%	(51.7%)
– hourly units	3.1%	(10.5%)	9.4%	(30.5%)
– other	1.4%	(2.3%)	2.0%	(1.7%)

(6) Fifty-seven percent of the responding companies indicated they were interested in expanding their business with parent firms.

Concerning the ratio of deliveries to the largest parent company purchaser to total deliveries, 39% would like to increase the ratio while 25% would like to decrease the ratio, which shows a divided trend. Among those desiring a decrease in deliveries to the largest parent company the most common reasons given were, “ending the subcontracting relationship and becoming an independent specialized maker” (40%), “to develop our own products in the future” (39%), “to increase the proportion of our own product’s sales in the future” (30%) and “because the parent firm allows many buyers” (25%).

Subcontracting companies have an average of 6.5 parent companies and the dependence ratio on the largest parent company, on average, is 62% of sales, with little change from 1979 to 1982.

This research gives a general understanding of the sudden growth of subcontracting companies, especially in terms of their technological and management capacities. It also gives insight into their ability to become independent specialized makers through their energetic management policies and their confidence in new product development. In just a few years there has been a remarkable amount of renovation and innovation in subcontracting which is an indication of the ability to meet new situations with vigorous responses.

5. The future course of the subcontracting production system.

As is shown by the short review above, the sudden expansions and contractions of the market, with a conversion from quantity to quality, fostered a dialectic development of the subcontracting system as a Japanese style specialized production system designed to meet expanding markets and innovations.

The Japanese subcontracting system was produced and developed by an economy which lacks accumulated capital, has an excessive population and is without natural resources. The growth of the subcontracting system, the development of innovations, world trade strategies and multiproduction are all expected to make the subcontracting system lighter and more flexible by increasing the number of parent firms, competitive purchase management, adjustment in the use of third level subcontractors, etc. However, one cannot predict how it will develop because it depends on the future recovery and economic growth. As was previously stated, *Shokochukin* research predicts future tech-

nological changes and subcontract reorganization.

Many subcontracting enterprises have undertaken a specific management policy based on the growth of healthy machinery industry subcontracting enterprises. However, research shows that there are many categories and directions for management strategy such as (1) continued growth of high technology and tightened relations with the parent firm or (2) breaking away from parent firms by independent high technology firms, specialized subcontracting firms and finished goods firms.

IV. Main Factors in the Formation of the Japanese Style Subcontracting Production System.

1. Mistaken image of the subcontracting system.

The following is a quote from Felix Twaalfhoven and T. Hattori's *The Supporting Role of Small Japanese Enterprises*, Indiver Research, Netherlands, Oct. 1982. (p. 2)

In Japan almost 75% of all employees in manufacturing industry work in small and medium sized companies. These companies produce over 50% of total Japanese manufacturing shipments.

Most of these small enterprises operate as suppliers to the giant companies. As such, they have benefited from their client's growth and international success. On the other hand, we believe the giants would not have achieved this growth and success without their small suppliers and no explanation of the achievements of Japanese industry is complete without an analysis of the central role played by these small companies. In particular, we have indentified four significant competitive advantages which the large Japanese enterprises can obtain by subcontracting to small domestic suppliers:

- a source of low cost labor
- the freedom to specialize in the big, scale-driven operations such as assembly
- the ability to offer "life-time employment"
- financial flexibility

In this report, we discuss each of these advantages and also develop what we feel are the most important reasons for the growth of this interdependent structure in Japan.

After having read the above it is obvious that they do not understand the merits of the Japanese subcontracting social division of labor production system and it is regrettable that they only looked at the utilization of low cost labor, the large number of fully owned medium and small businesses and the authoritative control of large companies.

Such publications are useful in conveying information to westerners with an interest in Japan because they are written in English. The *Economist* quoted the above paper as very interesting information in an article entitled "Five Ways to Go Bust" (January 8, 1983).

In essence they are saying that as a whole the subcontracting laborers work for a long time and for low wages. Western countries would like to copy the Japanese supplier structure by taking advantage of large enterprise specialization and division of labor between medium and small enterprises in order to form their own version of the Japanese subcontracting system, so they assert.

They discuss the necessity of looking at those aspects of the development of the Japanese subcontracting structure which relate directly to historical and socio-cultural factors, but, unfortunately, they are often misunderstood. I will cite here their summary of factors which seems incorrect or misleading to me. (p. 34)

How has this interdependent system of small and large enterprises developed in Japan? History, culture and, to a lesser extent, government policy have all played a part in encouraging the supporting role of small enterprises.

1. Historical

After World War II, American occupation forces implemented policies that:

- A) Forced large enterprises to break up into smaller units, each of which lacked adequate capital to undertake rapid expansion on their own;
- B) Divided large landholdings among many tenants, giving many families a source of collateral against which they could borrow money to set up a small business.

2. Cultural/Social

Because of the essentially vertical structure of Japanese society, small enterprises develop an allegiance to their large client, facilitating a smoothly functioning business relationship. In addition, Japanese labor unions are organized by company rather than by industry, which enables small enterprises to keep their labor costs below those of large enterprises.

3. Government Policy

Although few government policies have been designed to buttress the supporting role of small enterprises, those policies, especially the availability of low-interest loans, have created an environment in which small enterprises could at least survive.

It is rather difficult to grasp the formative causes of the Japanese subcontracting social division of labor production system as it is rather mercurial, however a rough summary will be attempted below.

2. Demand – the sudden expansion of industrial production and the large enterprises' policy of encouragement of medium and small co-enterprises.

As has been demonstrated, the present Japanese subcontracting system is a result of the high growth period, although it has existed since before the war. In the pre-war period people sought recovery from the Showa financial panic (1927) in public capital and war production. There was much research and dispute over changes in the wholesale industry and the expansion of the factory subcontracting system. However, an analysis of the postwar period will show the importance of the demand aspect after the start of the high growth economy.

As was explained previously, parent enterprises increased orders from subcontracting firms in order to meet expanding production needs, and this quantitative growth led to qualitative change. Large Japanese machinery industry enterprises met this sudden expansion by the use of outer orders which, in turn, increase the utilization of core factories. This led to the formation of tight groups by companies such as Toyota and Nissan due to a shortage of investment capital, in order to utilize low cost labor (which implies responsibility of personnel management), and to absorb the shocks of industrial fluctuations.

Subcontractors brought these benefits to parent firms and in economic terms it is called "quasi-vertical integration". It is similar to a unified or integrated system, however, it still operates on free market principles with social division of labor and oligopsony problems and severe competition. Under the economic conditions of expanding industrial production and progressing social division of labor, subcontracting firms which increased their technological level and specialization in parts production were gradually growing out of the frame imposed on them by parent firms and groups.

3. Supply – the expansion of business opportunities and the strong drive to establish new firms by ex-employees of medium and small enterprises.

Among present subcontracting enterprises there are many which have 30–40 years of experience, and it is not rare to find others that date back to the Taisho or early Showa Periods (1910's and 1920's).

After the war large numbers of engineers and factory workers were released from war production (this has no relation to land tenure reform) and, having no chance for employment, set up their own factories. Second, ex-employees of medium and small businesses had opportunities to set up their own businesses in the expansive atmosphere at the beginning of the high growth period. Third, around 1965, during the serious labor shortage, many subcontracting enterprises allowed capable employees to set up independent enterprises as subcontracting factories, which is called *norenwake* (employees splitting off to form smaller firms, but retaining the trademark and customers of the parent firm). Other than *norenwake*, those people who had accumulated technology received help from *shosha* in setting up their own subcontracting enterprises.

In Japanese management theory "life-time employment" and "long-term employment" are often ghost images. Changing jobs is rather frequent in medium and small enterprises and relatively so in large enterprises. The "life-time employment contract"

seems unbelievable to westerners, but actually it is a competitive labor system which excludes incompetent workers and includes compulsory retirement.

On the other hand, the Japanese economic and social situation guarantees the right to set up one's own business, and the entrepreneurial spirit is alive and well in Japan. Japan has a high social mobility, especially as compared to the European class system, and although the American Dream is based on high mobility, the chances for survival and growth in small manufacturing enterprises and the machinery industry are quite slim. One of the many economic motives for Japanese employees of medium and small enterprises to set up their own business is increasing income – the more one works, the more one's income increases. Recently there has been a large increase in the number of employees who wish to show their own abilities by running their own businesses.

The characteristic of Japanese industrial society is that the development of industrial production is based upon the division of labor and specialization, and there is no supply shortage of medium and small enterprises.

4. Driving forces of systematization.

The general circumstances of supply and demand in the formation of the subcontracting system have been reviewed. In this section, other factors which help to complete the system will be presented.

(1) Vertical Technical Change, or Technology Transfer.

Japan is an industrial country and the development of machinery industry technology (introduced by advanced countries) took place through the initiative of large companies (including the Imperial factories of an earlier time) and, as is often the case, these technologies were transferred vertically to medium and small enterprises. The subcontracting system was an important aspect of vertical technology transfer and became a standardized system for technology transfer as employees of large firms with advanced technical knowledge, as well as employees of subcontracting firms, split off and formed their own businesses.

(2) Vertical Society.

Japanese society is a vertical society and as such is characterized by group behavior, paternalism and the transference of main reference group from extended family to company, all of which have allowed tyrannical actions by parent firms, drastic competition, as well as co-existence and co-prosperity. Such aspects of Japanese management are sometimes complicated and difficult to understand, e.g., cooperation and co-existence through competition and management control, but they have made the subcontracting system more specific and effective.

(3) Subcontracting Strength through Personnel Management and Technology.

Improvements in management techniques have meant an improvement in quality, by systematizing subcontracting and division of labor, which was necessary to meet the demand of parent companies for a severe reduction of costs. VA suggestion (rationalization and efficiency through parts and model adaptation), R&D and technology adaptability (an ability to react quickly to fluid changes in technology) spontaneously combined to create effective *shitauxe*. The Japanese educational average is very high and Japan

is a noncontractual society, therefore, subcontracting management is very anxious to fulfill the trust placed in it by parent firms, to recover costs and to work hard and research eagerly.

(4) One important factor in the development of the system which can't be overlooked is the lack of physical space in Japan which constrains factory space in the narrow plains, like the Kanto Plain. However, the expansion of the road system has allowed an expansion of the geographical limit of the subcontracting trade. On the other hand, medium and small businesses which mass in large city industrial belts create their own merit in crowding by forming a unique subcontracting system (they conduct any miscellaneous subcontracting work for any industry or enterprise).

V. Trade Friction and the Japanese Subcontracting System.

1. Explicit contractual societies and implicit contractual societies.

Japanese-English words and concepts like just-in-time production, just-in-time purchasing and *kanban* management make Japanese management and the subcontracting system more interesting and understandable to foreigners. One of the typical books on the Japanese production system is Richard J. Schonberger's *Japanese Manufacturing Techniques – Nine Hidden Lessons in Simplicity*, (New York: Free Press, 1982). Foreigners who come to study the subcontracting system are often surprised and appreciative. They say it is impossible to institute such cooperative organization, severe quality management and delivery management in their countries.

The social division of labor system, or the relationship between supply and parts production and specialization in the machinery industries in the West is based on temporary short-term contracts. The profitability in terms of quality/quantity, prices, delivery terms, etc. in the short-term is their only concern.

In Japanese industrial society trade is usually based on long-term profitability with both sides trying to maintain the relationship. This is the *kashi-kari* (literally lend-borrow, it actually means a reciprocal, interdependent relationship between companies) principle based on long-term "handshake" credit relationships. However, these traditional Japanese practices do not exclude competition. Even if a subcontracting company can't adapt to a changing environment it won't be abandoned quickly (in order to maintain harmony), but it will be re-educated or dropped in position from a first to a second level subcontractor.

It seems to be difficult to get an exact understanding of the precise characteristics of Japanese culture and society. It is therefore questionable to criticize these characteristics of Japanese industry as NTBs (non-tariff barriers) and obstacles to trade.

2. Impact of raw material and parts imports on the subcontracting system.

"Japanese large enterprises are tightly organized and manage a vertical relationship with their subcontracting enterprises. This is one reason why western exports cannot expand into Japan; thus, the subcontracting system is an NTB." This statement is a misconception in two ways. First Japanese large enterprises will buy freely from outside

their group if the goods are cheap and have a high quality and stable supply. A large enterprise can't survive if it relies on a supplier just because that supplier is in its group.

Second, Japanese firms must buy many products from abroad which are either unavailable within Japan, or have a higher quality and lower price than Japanese products. Therefore, if foreign firms don't produce quality goods (constant and dependable) or continue producing those which are expensive and have unstable delivery, Japanese large producers will continue to buy a disproportionate amount of supplies from domestic suppliers. Most importantly, enterprises which don't produce goods to meet user demands won't be able to sell anywhere, domestic or foreign.

3. Subcontracting and purchasing system of foreign manufacturing enterprises in Japan.

"Japanese subcontracting manufacturing enterprises (parts makers, specialized process industries, etc.) are organized as a group under a large parent enterprise. If foreign capital tries to invest directly in Japan and manufacture from factories there, it can't find any suppliers or subcontractors. The subcontracting system is an obstacle to pushing into Japanese markets." This is also a misrepresentation which overlooks the facts.

There is no problem if you break down the barriers of social custom, behavior and culture. Foreign manufacturers like Japan IBM have been operating in this country for a long time. Of course, foreign enterprises have been largely co-funded by Japanese capital. Generally speaking, when these joint firms leave the concrete production performance to the Japanese side there is almost no problem with the subcontracting system or outer orders. If IBM or NCR had problems with subcontracting or outer orders, it is because they adhered to their familiar American policy of short-term contract order purchasing. In recent years the characteristics of Japanese management seem to be better understood and, it is agreed that the division of labor system is effective in Japan.

Japanese subcontracting companies are still willing to supply even though it is on a short-term contract. Even foreign companies which use a "tender system" or "written estimate" for purchase, and which purchase on short-term contract, will find merits in using the Japanese outer order system. Lately there are some large multinational enterprises which have become "Japanized" in that they changed their policy to be similar to Japanese OEM (original manufacture equipment) production and have attempted to create core-factory groups.

As we have seen, Japanese subcontracting enterprises rely on technology, management and expansion of the number of parent firms. Expensive establishment costs could be a problem in Japan, but foreign firms should not have a difficult time when they try to push into the Japanese market with the help of Japanese subcontracting firms.

4. Conclusions.

We can't deny there are "unfair trade" problems in subcontracting trade. However, the 1956 "Law for the Prevention of Delay in Payment of Subcontracting Charges and Related Matters" and the general revision of the description of "unfair trade" in last year's Anti-Monopoly Law were introduced in order to promote competition and maintain fair trade.

The formation, goals, characteristics, etc. of the Japanese subcontracting production specialization system, apart from the problems concerned with trade, have been reviewed. It can be concluded that the subcontracting system is an excellent and unique system for Japanese industry and is not an obstacle to foreign goods in the Japanese market.

Finally, in addressing the probability of transferring the *shitauke* system to countries like Korea, Hong Kong or Taiwan, they seem to be successful in adopting the system. Regarding the auto and TV set invasion of western markets, there are examples of Japanese factories which have used and helped develop those foreign subcontractors who have been willing to cooperate. It is obvious such relationships are possible.

(August 1983)

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