

# Chapter IX

## China: Dismantling and Restructuring the Industrial Structure

### 1. *The Self-Contained Industrial Structure — Its Formation and Limits*

From the 1950s to the 1970s, China adopted as one of its most important national goals the formation of a self-contained industrial structure free from any reliance on the outside world. The loss in economic efficiency resulting from the creation of such an industrial structure, however, proved to be too large, and technical progress too slow as well. Starting in the 1980s, therefore, China moved toward a market economy and opened itself up to the rest of the world in order to boost its economic efficiency and to accelerate technological progress. But some of the industrial sectors which had been built so painstakingly up to the 1970s have been unable to cope with the new competitive environment. As a result, China is in the process of dismantling its self-contained industrial structure. The problem of the poor performance of state-owned enterprises has plagued the Chinese government in recent years, but the poor performance of some of these state-owned enterprises has been due to these changes in the industrial structure. This problem can therefore be described as “labor pains” in the birth of a new industrial structure that is better suited to the environment of economic liberalization.

In this chapter, a brief sketch will be given of the process by which the self-contained industrial structure was formed in China and how it is being dismantled since the reforms and open door policy that were launched at the end of the 1970s. A look will also be taken on which kind of new structure will be built on the rubble of the dismantled old industrial structure. The purpose of this chapter is in this way to throw light on the adjustments taking place in China's industries.

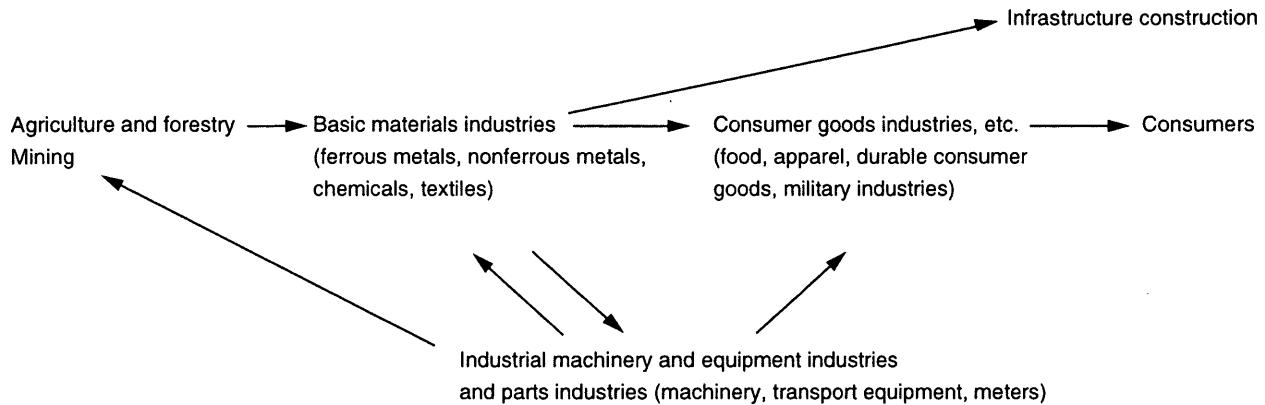
#### **(1) The Heavy-industrialization Policy**

From the 1950s to the end of the 1970s, China adopted a policy of trying to produce everything required in the country within the country itself, that is, it tried to form a self-contained industrial structure.

This was patterned after the “socialism in one country” of the Soviet Union in the 1930s — a time when that country was internationally isolated. In the terminology of development strategies of the developing countries, this corresponds to a full import substitution type of industrialization. Fig. 9-1 illustrates very simply the industrial linkages from natural resources to final consumption. China attempted to set up all of the industrial sectors shown there.

To achieve this goal, China first began with the construction of basic materials industries, industrial machinery and equipment industries, and other heavy industries and mining. From 1953 to 1980, 89% of the investment made in the mining and manufacturing sectors went to heavy industries (including mining). The Chinese adopted such an extreme policy of prioritization for the heavy industries in the belief that, while raising the proportion of investment in the production goods sectors in the early part of the development process would entail sacrifices by the consumer in the short term, it would lead to a higher growth rate in the long term. This theory, however, was predicated on a closed economy. In the 1950s, China was not as isolated as the Soviet Union had been in the 1930s and did not necessarily have to form a closed economy. But it did not come to the minds of Chinese leaders that joining the international division of labor would be an alternative to attain industrialization. The political will to build an independent economy outweighed all economic considerations. Note that the year 1953, when China launched its first five-year plan, was the same year that Stalin died and when the Soviet Union ended its former policy of “plundering” the Eastern Block and adopted a more benevolent attitude. As a result, China was able to start building up its heavy industries with aid from the Soviets.<sup>1)</sup>

Up until the 1970s, foreign trade in China was subordinated in role to this industrial policy. That is, the main purpose of trade was to import the machinery and equipment, industrial materials, and intermediate goods required for the construction of heavy industries. To lower the cost of importing these production goods, the Chinese currency was extremely overvalued. From 1952 to 1970, the rate

**Fig. 9-1 Self-contained Industrial Linkages**

Source: Prepared by the author.

of exchange of the U.S. dollar to the Renminbi was around US\$1=2.5 Rmb. This was further hiked after 1970. The average cost for procuring one dollar's worth of export goods, however, was always over 3 Rmb and sometimes reached close to 7 Rmb, so exports had to be heavily subsidized.<sup>2)</sup> The main exports of China were agricultural products and textile products until 1960s. Despite the fact that demand for these goods in China exceeded the supply, the government cut domestic supplies so as to secure enough for exports. Therefore, exports suffered from the double costs of export subsidies and the difference between the demand price and the government purchasing price of export goods. On the other hand, looking at imports, progress in the domestic production of industrial products in China led to a policy of pricing imports based on the prices of comparable domestic products starting in 1964.<sup>3)</sup> As a result of this policy, pricing in China became completely detached from international prices. Foreign trade was therefore no longer able to function to improve the efficiency of resource distribution. Since foreign trade was conducted contrarily to market principles, it was subject to strict planning and controls and was monopolized by a handful of state-run trading companies.

## (2) Limits to "Self-Sufficiency"

By 1957, when the first five-year plan ended, the Chinese had raised the rate of self-sufficiency in machinery and equipment from 20% at the found-

ing of PRC in 1949 to 60% and the rate of self-sufficiency for finished steel from 10% to 80%.<sup>4)</sup> China had therefore taken a big step toward the construction of a self-contained industrial structure. The deterioration of Sino-Soviet relations that started in 1960, however, forced China to proceed with industrialization without foreign assistance. The original purpose of the construction of a self-contained industrial structure had of course been the formation of an economy free from any reliance on the outside world, that is, the realization of self-sufficiency, so the deterioration of Sino-Soviet relations may have only moved up the achievement of economic independence.

The detachment of domestic prices in China from international prices hid the economic costs of this policy of self-sufficiency. It became more and more clear in the eyes of Chinese economic leaders, however, that the technological gap between China and the rest of the world was widening during the days of self-reliance. In 1972, after improving relations with the United States and Japan, China began importing complete plants and technology from the West. This included plants and technology for the steel industry and other industrial sectors which China already possessed and showed that there were limits to technical progress under the policy of self-sufficiency. An increase in imports of machinery and equipment for technical progress requires exports to pay for them, meaning that it is difficult to pursue self-containment of an industrial structure. Therefore, China decided to adopt a policy of opening its economy to the rest of the world at the

end of the 1970s for the purpose of making use of foreign funding, investment and technology and for boosting exports.

## 2. *Changes in Industrial Structure Since the Reforms and Open-door Policy*

### (1) **New Industrialization Strategy**

While China had adopted a policy of assigning priority to the heavy industries starting in the 1950s, this was found to run counter to the inherent structure of demand and comparative advantages of China. Fundamentally, agriculture and light industries should have been developed first,<sup>5)</sup> but China created a planned economy and built a system under which it squeezed funds from agriculture and light industries and poured investment into the heavy industry and mining sectors.

Excessive, wasteful investment, however, was made in the heavy industries and resulted in a decline in the marginal capital output ratio in this sector. As shown in Fig. 9-1, growth in the basic materials industries requires growth in the mining sector and in the industrial machinery and equipment industries, and growth in the industrial machinery and equipment industries requires proportional growth in the basic materials industries and mining sector. This "self-cycling structure"<sup>6)</sup> in the heavy industries caused the scale of investment to swell. Since the consumer goods industries were suppressed, there was no consequent growth in demand from outside the heavy industries. The policy of assigning priority to the heavy industries was a "forward linkage strategy" aimed at laying the groundwork for the growth of downstream industrial sectors through priority in the construction of upstream sectors of the industrial linkage, but eliminating any suppression of the consumer goods industries and consumption is difficult since it would involve a change of the basic structure of the economic system. As a result, the effect of the forward linkage never appeared.

In the final analysis, it was impossible to raise efficiency in the framework of the old economic system. The system as a whole had to be changed. Starting from the end of the 1970s, the Chinese embarked on various reforms leading to the introduction

of the market mechanism and, at the same time, adopted policies directly increasing consumption such as wage hikes. In the area of industrial policy, one assigning priority to light industries was adopted in 1980. The resulting series of policies constituted a "backward linkage strategy" of increasing consumption demand and giving priority to light industries so as to further stimulate the upstream industrial sectors as well. To get the mechanism for increased demand inducing increased production to work, producers have to be given the incentive to increase profits and the market must not be monopolistic in structure. This accordingly demands reforms of the state-run enterprises and of agriculture, and entry of enterprises with various different types of ownership. In this way, the new industrial policy and policy of economic reforms were mutually complementary as strategies.

### (2) **Over-adjustment of Industrial Structure**

As a result of the foregoing strategies, local governments and enterprises began aggressively investing in the light industries. Production of consumer goods soared and was absorbed by the growing purchasing power of the general public, which had been suppressed until then. The heavy industry-tilted industrial structure was adjusted in a direction that better matched the structure of demand. Since investment by the local governments and enterprises was liberalized while interest rates were kept low under the old skewed price system of expensive consumer goods and inexpensive materials and energy, the adjustment in the industrial structure ended up going toward the opposite extreme of an over-investment in the consumer goods industries. Excessive investment was made in the consumer goods industries in total disregard for demand projections, while investment in the materials industries and energy was low. As a result, the consumer goods industries ended up suffering from low operating rates due to shortages of materials and fuel. This phenomenon was particularly marked in such fields as household electrical appliances, textiles, motorcycles, tractors, tires, aluminum products, and beer. Many of these industries, where excessive investment had been made in the 1980s, ended up with overly large production capacity and therefore found themselves suffering from severe problems of over capacity in the 1990s

when consumer demand slowed in growth. This is a major reason for the poor performance of the state-owned enterprises and other companies at the present time.

### **(3) Changes in the Open-door Policy and Trade Structure**

The change to the consumption-oriented industrialization strategy seen in the previous section entailed a fundamental change of the original economic system. When viewed from the perspective of foreign economic relations, however, the old framework for the import-substitution type of industrialization has remained in force, with domestic consumer goods industries generally being protected by high tariffs and sales in the domestic market by foreign ventures being restricted. In tandem with this, however, a policy of export-promotion has been pushed since the 1980s.

When the open-door policy was first started, the role assigned to exports had been to generate the foreign currency required for introducing technology from abroad – or not that much of a change from the period before the open door policy. The measures for increasing exports, however, differed. The market mechanism was introduced so as to boost exports. That is, the state monopoly over trade was broken, and local governments and enterprises were given the right to trade, controls over trade were eased, and processing and other diverse forms of trade were allowed. Other incentives for increasing exports were introduced as well such as allowing enterprises to retain for their own use a percentage of the foreign currency they earned by exports, a depreciation of the official exchange rate, and tax incentives in the Special Economic Zones and the like.

This policy of boosting exports failed to have that much of an effect in the first half of the 1980s, but began suddenly to produce effects in the second half of the decade. This appears to have been due less to the policy itself than to changes in the external environment such as the appreciation of the Japanese yen, the upward adjustment of the currencies of the Asian NIEs, and rising wages in these countries. These changes sparked a massive international movement of export industries out from the countries of East Asia. A large number of companies shifted their operations to China. China of course should have had a comparative advantage

in the labor-intensive industries, but this never led to increased exports under the old system and enterprises. The rush of investment by export-related companies from Japan, the Asian NIEs, and elsewhere starting in the late 1980s proved to be the catalyst for the flowering of the previously dormant comparative advantages of China.

In this way, Chinese exports began to skyrocket in 1986, growing annually by an average of 19% from 1986 to 1995. Exports grew far faster than the growth rate of the economy, and the export dependency (export value/GNP) consequently climbed from the 4.6% of 1978 to 21.7% in 1995. The growth in exports was primarily due to the increase in exports of industrial goods. The percentage of manufactured goods in exports (exports of manufactured goods/total exports) had been just 50% in 1980 and 49% in 1986, but reached 86% in 1995. Before 1985, mineral fuels, and in particular petroleum, had been the leading export product, but this was replaced by exports of machinery and sundry goods starting in 1986.

A look at the types of exports shows that there has been particular growth in exports of the form of assembling and processing.<sup>7)</sup> Tables 9-1 and 9-2 show the types of exports and imports in 1995 and a breakdown of the companies involved in trade by type of ownership. They reveal that 50% of all exports and 44% of imports were in the form of assembling and processing. That is, about half of the trade of China in recent years has been of a form where all or most of the materials and parts are imported from abroad to be assembled or processed by the inexpensive labor of China into finished products which are then re-exported.

### *3. Bypassing and Dismantling the Former Industrial Structure*

#### **(1) Bypassing the Domestic Production Goods Industry**

The various changes which have occurred since the reforms and open-door policy were introduced have forced major changes in the self-contained industrial structure which China built so painstakingly up to the end of the 1970s. That is, among the self-contained industrial linkages shown in Fig. 9-1, the consumer goods industries grew

**Table 9-1 1995 Exports by Type**

(Unit: US\$ million)

	Total	State-owned enterprises	Foreign affiliated ventures				Collectively owned enterprises	Others
			Foreign ventures total	Joint operations	Joint ventures	Wholly owned subsidiaries		
Total	148770	99256	46876	6791	22689	17396	2281	357
Ordinary trade	71366	65758	4355	370	3202	782	1221	31
Assembling	20660	17271	2870	426	1699	745	514	4
Processing trade	53043	13427	39177	5982	17585	15610	434	5
Bonded warehouse trade	1283	685	463	12	193	258	75	60
Barter trade	1437	1406	0	0	0	0	14	17
Others	981	709	11	1	10	1	23	240

Source: *China's Customs Statistics***Table 9-2 1995 Imports by Type**

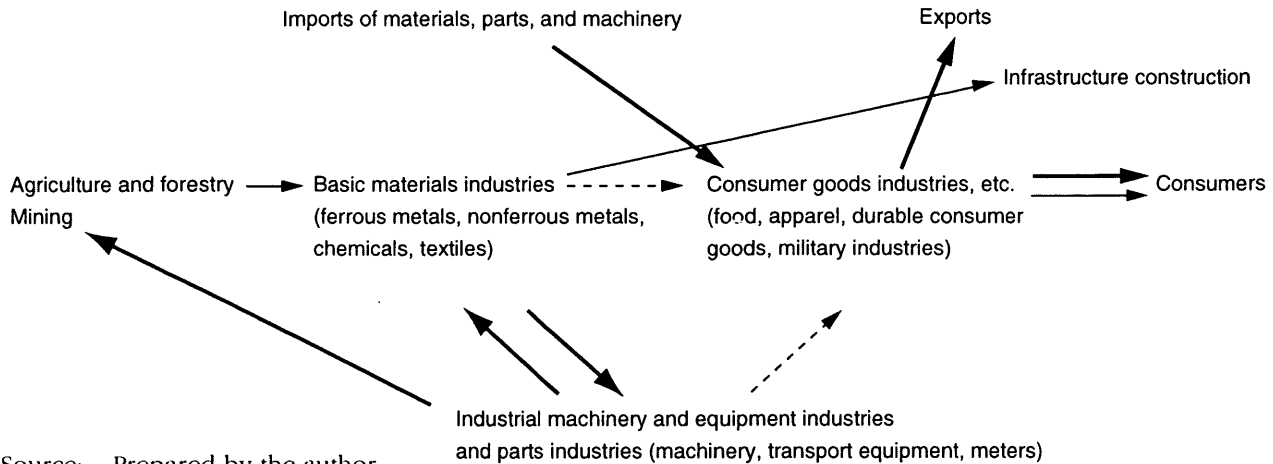
(Unit: US\$ million)

	Total	State-owned enterprises	Foreign affiliated ventures				Collectively owned enterprises	Others
			Foreign ventures total	Joint operations	Joint ventures	Wholly owned subsidiaries		
Total	132078	65386	63943	9010	34818	19114	1530	2219
Ordinary trade	43365	37168	5294	428	4330	537	371	531
Assembling	16226	13199	2662	376	1624	662	363	2
Processing trade	42143	7388	34409	5221	16180	13008	310	35
Imports of machinery for assembling	1209	1163	7	3	3	1	38	0
Imports of machinery and materials due to investment by foreign ventures	18736	0	18736	2938	11260	4538	0	0
Bonded warehouse trade	5950	3072	1797	41	1392	363	327	723
Lease trade	856	852	4	0	4	0	0	0
Barter trade	1476	1444	0	0	0	0	19	12
Others	2117	1100	1034	3	25	5	102	886

Source: Same as that for Table 9-1

strikingly in the 1980s. The basic materials industries, parts industries, and the like were unable to meet the increased demand right away, so an imbalance arose among the industries. In the late 1980s, imports of production goods rose, and China found itself suffering from a trade deficit. Furthermore, starting around 1986, as shown in Fig. 9-2, there was growth in the assembling and processing types of trade, that is, the import of materials and parts for assembly and processing by imported machinery and re-export of the finished products, which led to the formation of an industrial system separate from the domestic self-contained industrial structure.

When the ASEAN countries began developing their export industries, since they had no real industrial machinery and equipment industries or basic materials industries of their own, they naturally had to first rely on other countries for almost all of their input goods. The fact that this occurred in China, however, which had unwaveringly followed a path of forming a self-contained industrial structure since the 1950s and supposedly had a full range of industries, meant that the domestic input goods industries were losing their potential markets and were being bypassed.

**Fig. 9-2 "Bypassing" the Domestic Production Goods Industries**

Source: Prepared by the author

As can be seen from Table 9-1, foreign ventures comprise an important part of the export industries. These foreign ventures have relied heavily on imports for their machinery and equipment. In 1994 and 1995, 50 - 60% of the increase in demand resulting from foreign direct investment flowed out of the country again in the form of imports of machinery and equipment and of intermediate goods.

Of course, the domestic production goods industries can continue to find markets for themselves with the former domestic industrial linkages. Growth in export industries encourages growth in the domestic consumption market through increased income and promotes growth of the domestic consumer goods industries. Furthermore, not all of the backward linkage effects of the export industries ends up flowing out of the country. Therefore, the growth of export industries should work to the advantage of the old domestic industries as well. The domestic consumer goods industries, however, which experienced rapid growth in the 1980s, grew while their domestic markets were protected by high tariffs and further in an environment where domestic demand was soaring, so they have never fully experienced domestic or foreign competition and are weak in terms of competitiveness. Therefore, when the 1990s arrived and China began reducing tariffs and gradually easing restrictions on sales by foreign ventures in the Chinese market with the aim of joining GATT and the WTO, foreign ventures began seizing market share from

the domestic enterprises. When this happened, the investment demand of the domestic consumer goods industries fell and even the surviving domestic enterprises increased their reliance on imported machinery and equipment to strengthen their competitiveness.<sup>8)</sup> Such changes in the industrial structure should be verifiable from I/O tables, but the data on the tables now being released is insufficient, so an analysis must be foregone in this paper.<sup>9)</sup> Instead, a simple analysis will be made of the Chinese machinery industries.

The industries classified as machinery industries in China are grouped into three categories in Table 9-3, that is, industrial machine-building industries, infrastructure-related machine-building industries, and final consumption type of machine-building industries. The industrial machine-building industries dropped sharply in their share of production from 1980 to 1995, while the final consumption type of machine-building industries increased in share by an equivalent amount. This is considered to reflect the fact that the industrial machine-building industries have been bypassed and have lost their chance for growth. In particular, the state-owned enterprises in the industrial machine-building industries recorded losses of 400 million renminbi as a whole in 1995. This stands in stark contrast to the state-owned enterprises in the automobile industry, which recorded profits of 1.4 billion renminbi despite a slump in sales. A look at the share of the industrial machine-building industries in number of employees in Table 9-3, however,

**Table 9-3 Structure of the Machinery Industries**

No. of employees (10,000)	1980	1985	1995
Industrial machine-building industries (metal products, boilers, metalworking machines, general equipment, parts, meters, etc.)	830.27 (72.8%)	967.11 (71.2%)	1069.13 (65.5%)
Machine-building industries for infrastructure construction (shipbuilding, power generation facilities, power transmission and distribution facilities, railroad rolling stock)	169.22 (14.8%)	203.91 (15.0%)	266.08 (16.2%)
Machine-building industries for final-consumption products (household appliances, lighting equipment, automobiles, motorcycles)	141.42 (12.4%)	187.21 (13.8%)	298.13 (18.3%)
Production (100 million rmb)	1980	1985	1995
Industrial machine-building industries	476.11 (63.5%)	938.67 (59.7%)	5073.86 (50.3%)
Machine-building industries for infrastructure construction	157.84 (21.1%)	304.84 (19.4%)	1775.21 (17.6%)
Machine-building industries for final-consumption products	115.50 (15.4%)	327.83 (20.9%)	3241.21 (32.1%)

Notes: Figures in parentheses show the percentages of these three types of industries in the total figures. Figures for 1980 and 1985 are based on prices of those years, while figures for 1995 are based on 1990 prices. Data is from enterprises with completely independent books.

Sources: Prepared from *Zhongguo 1985 nian gongye pucha ziliao (China 1985 industrial census)* and *Zhongguo jixie gongye nianjian 1996 (China Machinery Industries Yearbook 1996)*.

shows that this share has not fallen as much as production. This shows that China has not made much progress in withdrawing from these industries — which currently employ over 10 million people.

## (2) Trade Policy which Promoted Bypassing

The domestic production goods industries are probably being bypassed because, basically, the domestic machinery industries and materials industries were built up without having to face any market competition under the 1950s policy of forming a self-contained industrial structure and, therefore, lack competitiveness in quality, cost, marketing, and other aspects of business. In addition, however, it must be added, the parallel implementation of the import substitution policy and export promotion policy in the 1980s conversely had the effect of aggravating this bypassing phenomenon.

The reason for this is as follows. In the assembling and processing businesses, all of the principle machinery and equipment, auxiliary machinery and equipment, materials, parts, etc. brought into China

for producing export products were exempted from import tariffs and indirect taxes. It was not even necessary to obtain an import license. Furthermore, the machinery and equipment imported as investments by foreign ventures, and the materials and parts imported for producing export products were also exempted from tariffs and indirect taxes. Due to this export promotion policy, the imported production goods purchased by export industries were exempted from taxes. If a company tried to use domestically produced production goods, however, when the latter were produced with imported equipment and materials, they would become more expensive by the amount of the tariffs applied to the imports. Since production goods imported to manufacture products for the domestic market were assessed a high tariff under the import substitution policy, there was a corresponding bias against domestically produced machinery and parts in the export industries.

The tax exemption for imports of machinery and equipment and parts by foreign ventures was abolished in 1996, and moves were seen toward taxation of even the machinery and equipment imported for assembling and processing trade.<sup>10)</sup> These moves should have the effect of eliminating

the bias against the domestic machinery industries that has just been explained, but it is questionable whether the machinery industries will in the end be able to increase sales to the export industries and foreign ventures and thus obtain a new lease on life.

#### 4. *Towards Construction of a New Industrial Structure*

In the way already described, the self-contained industrial structure is in the process of being dismantled. Companies, therefore, have begun restructuring themselves internally in order to survive. In the days of the planned economy, the Chinese machinery industries were structured "vertically" so to speak. That is, each enterprise specialized in the production of final products in a very narrow niche, but nevertheless had all the means for production from the basic materials to the final product; that is, casting and forging, machining, heat treatment, welding, painting, and assembly. Shenyang city had three state-owned machine tool manufacturers each employing 6,000 to 8,000 workers. Each specialized in producing a narrow range of products: general-purpose lathes, boring machines and drilling machines, and multispindle lathes, respectively. However, each of the three companies had a 20,000 to 30,000 ton annual capacity casting plant – a very wasteful structure.

Therefore, some Chinese machinery manufacturers have been trying to break apart this old vertical structure of production to enable them to survive. For example, they are soliciting orders for producing castings from foreign firms to make use of the capacity of their casting plants or have been soliciting orders for machined parts from foreign firms and, therefore, launching businesses that use just certain aspects of their production systems. In other words, they are trying to survive by changing from manufacturers of final products to international subcontractors. If this works, then, in the future, they will be forced to move in the direction of dismantling their own organizations such as selling off assembly plants or slashing work forces. Other companies are now trying to survive by converting to export industries. For example, one of the above-mentioned machine tool manufacturers in Shenyang is now producing inexpensive general-purpose lathes for Southeast Asia as the main line of business.

In the consumer goods industries, the domestic companies, which increased in number too rapidly under the protectionist policies of the 1980s, are now facing tough market competition. China will be joining the WTO within the next one or two years. In view of this, the country is trying to form stronger domestic companies through mergers and weeding out the small and weak firms before submitting to full exposure to competition with foreign companies.

As already explained, a large-scale reorganization of both the industrial structure and business structure is about to begin. The industrial machinery industries, which ballooned in size during the days of the planned economy, will be forced to change to parts subcontractors if they cannot find markets for their goods among foreign ventures and export industries in China or overseas. The consumer goods industries, which grew in the 1980s, will also be the scene of tough competition from inside China and abroad which will drive many companies out of the market.

#### Notes:

1. Ellman, Michael, *Socialist planning*, second edition. Cambridge University Press, Cambridge, pp. 273-274.
2. Lardy, Nicholas R., *Foreign trade and economic reform in China, 1978-1990*. Cambridge University Press, Cambridge, pp. 24-26.
3. Lardy, *ibid.*, pp. 21-24.
4. Jiang Xiaojuan, *Zhongguo gongye fazhan yu duiwai jingji maoyi guanxi de yanjiu (Study on the relationship between industrial development and foreign economic relations and trade in China)*. Jingji Guanli Chubanshe, Beijing, 1993, p. 27.
5. Lin Yifu, Cai Fang, Li Zhou, *Zhongguo de qiji: fazhan zhanlue yu jingji gaige (The Chinese miracle: development strategy and economic reforms)*. Shanghai Sanlian Shudian and Shanghai Renmin Chubanshe, Shanghai, 1994.
6. Shimakura, Tamio and Maruyama, Nobuo, *Chugoku keizai no direnma (The Dilemma of the Chinese economy)*, Yuhikaku, 1983, pp. 122-125.
7. Assembling and processing trade both mean trade by which the foreign side supplies the materials to be assembled or processed, a factory on the Chinese side performs the assembly or processing, and then the entire production is taken back by the foreign side. Trade by which the ownership of the supplied materials and parts and the processed products remains with the foreign side and the Chinese side only receives payment for processing



is called "assembling" ("Duiwai Jiagong Zhuangbei"), while other business is called "processing trade" ("Jinliao Jiagong") to differentiate between the two.

8. Hu Chunli, "Sangyo kozo to sangyo seisaku" (Industrial structure and industrial policy), in Matsuzaki, Tadashi, Hosei University Institute of Comparative Economics (ed.), *Chugoku no denshi tekko sangyo (China's electronics and steel industries)*, Hosei Daigaku Shuppanyoku, 1996.
9. Okamoto, Nobuhiro, "Chugoku sangyo renkanhyo ni okeru 85 nenhyo to 90 nenhyo no hikaku bunseki" (Comparative analysis of 1985 and 1990 input-output tables of China), in Sano, Takao and Nakamura, Jun (eds.), *Kokusai sangyo renkanhyo no sakusei to riyō (VII) (Preparation and use of international I/O tables (VII))*, Institute of Developing Economies, 1996. This work attests to the existence of the bypass phenomenon from the tables.
10. *Tsusho Koho*, September 13, 1996.