

## FOREIGN TRADE IN CHINESE ECONOMY: PRICES AND PRICE RESPONSIVENESS

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### INTRODUCTION

**S**INCE 1979 the People's Republic of China has made it a definite policy to "open" the domestic economy toward the outside world. The quotation marks indicate that various regulations still remain and the degree of openness differs significantly from that of Western market economies.

After the bases for the normalization of U.S.-China and Japan-China relations were established in 1971-72, foreign trade of China gained a new momentum for rapid growth.<sup>1</sup> Meanwhile the controls over foreign trade and regulations have been rapidly relaxed. Currently the conditions on which China joins the GATT are being discussed by the experts. To be precise, China argues that it is not a new entry but a recovery of the membership because Taiwan, a part of China, used to be a member.

Recently deregulations and innovation have been introduced very rapidly in foreign trade and exchange control systems in the country. For example, many trading houses and local governments are now allowed to be directly engaged in foreign trade, and exporters can retain a certain portion of their earnings of foreign exchange for their own use. The retained foreign exchange can today be bought and sold at the swap centers for foreign exchange.<sup>2</sup>

The difficulty in understanding the Chinese economic system is not in the lack of government announcements, but the lack of data which allow one to analyze and measure the effects of the changes in the system and the policies. Although time-series data of some prices have become available, most of those for industrial materials are still unpublished. Data on tariffs and import quota have become available only very recently, but the classification of goods is not clear enough to allow an international comparison. Price data that correspond to the trade data

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<sup>1</sup> See Sekiguchi, ed. [8] for details of China's foreign trade before 1972 and the period 1972-77.

<sup>2</sup> There are a few papers and books that inform of these recent changes. The preparation for China to join the GATT has made this detailed information more easily available, though it mostly remains confidential at the moment.

TABLE I  
IMPORTANCE OF FOREIGN TRADE RELATIVE TO GDP IN SELECTED COUNTRIES

Country	Popula- tion Mid-1987 (Million)	GDP 1987 (U.S.\$ Billion)	GNP per Capita 1987 (U.S.\$)	Value Exports 1987 (U.S.\$ Billion)	Value Imports 1987 (U.S.\$ Billion)	Exports/ GDP Ratio 1987 (%)	Imports/ GDP Ratio 1987 (%)
Japan	122	2,376	15,740	229	146	9.64	6.14
China	1,069	293	290	40	43	13.65	14.68
India	798	221	300	13	19	5.88	8.60
Brazil	141	299	2,020	26	17	8.70	5.69
R.O.K.	42	121	2,690	47	41	38.84	33.88
Hong Kong	6	37	8,070	48	48	129.73	129.73
U.S.A.	244	4,497	18,530	253	422	5.63	9.38
W. Germany	61	1,118	14,400	294	227	26.30	20.30
U.K.	57	576	10,420	131	158	22.74	27.43
France	56	873	12,790	143	158	16.38	18.10

Source: World Bank [13].

are fragmentary, at best. Thus, enormous difficulty remains as far as quantitative analyses are concerned.

What we try to do in this paper, therefore, is to make a preliminary study concerning trade behavior and links between international and domestic prices in China. In order to have a comparative understanding of China's foreign trade, we refer for comparison to the Japanese economy wherever appropriate. China's development during 1960-86 is compared with that of Japan during 1950-76.

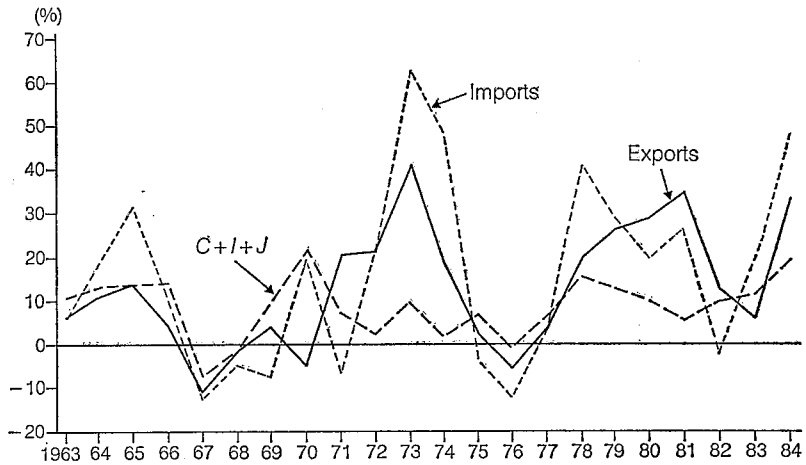
The plan of the paper is as follows: Section I, following this Introduction, gives an overview of China's foreign trade, focusing on the causes of the wild trade fluctuations. Section II reviews recent changes in the control of foreign trade in China and discusses their implications for resource allocation. Section III estimates import and export functions of China to measure trade responsiveness to the changes in the relative prices—domestic against international. Section IV examines the links between foreign and domestic prices in specific goods. The final section summarizes the major findings.

## I. FLUCTUATIONS OF FOREIGN TRADE

Since the latter half of the 1970s China's foreign trade has expanded rapidly and has come to play a more important role. Table I shows the ratios of imports and exports to GDP, together with other major economic indicators for selected countries. In 1987 China's imports/GDP and exports/GDP ratios were 14.7 per cent and 13.7 per cent respectively, which were significantly higher than those of India and Brazil. While these indicators were lower than those of small NIEs (newly industrialized economies) and highly trade-integrated European economies, they were much higher than the two large industrial economies, the United States and Japan.

Fig. 1. Percentage Annual Changes in Trade

## A. China: Trade and Domestic Activities



## B. Japan: Trade and GNP



This fact reflects China's rapid development of foreign trade, partly because domestic trade is more costly due to the lack of inland transportation facilities. China's integration to foreign trade contrasts with the low trade integration of India whose per capita income and population size are more comparable to those of China. Thus, China has become more trade integrated than India and Brazil within the last decade.

A second observation is that China's foreign trade has fluctuated wildly, repeating an explosion of imports when the government deregulated and shrinking drastically as the government controlled imports in the face of overheating of the economy. The question arises as to whether such wild fluctuations were due to drastic policy switching between strict controls and deregulations, or to fluctuations of domestic activities themselves. Figure 1 gives a comparison of trade fluctuations between Japan and China for the period of 1953-74 and 1963-84 respectively.

Mention should be made of the periods adopted for this comparison. The year 1953 was soon after political independence of Japan. In the 1950s the Japanese government implemented strict quota of imports and foreign exchange allocation. It was in 1960 that the government declared the liberalization of imports, which actually meant a shift in policy from quantitative restraint to import tariffs. As Japan achieved Article 11 status of the GATT in 1964, there was a shift from quantitative restriction to import tariffs in the mid-1960s. Deregulation of imports and lowering of import tariffs have proceeded steadily since 1967, however. In the meantime the yen had appreciated by 16.8 per cent at the time of the Smithsonian Agreement in 1971. Then, the yen appreciated again when the major currencies were floated in 1973.

A brief review of China during 1963-84 is as follows: The economy suffered seriously from the Great Leap Forward around the end of the 1950s. Isolated from the international community, confronting the Soviet Union and the United States as well, China had to repay the earlier debt to the USSR. Foreign trade was limited to those through Hong Kong and in unofficial forms with Japan. The decade of the Cultural Revolution, which started in the mid-1960s, pursued a strict "self-dependence" strategy in the management of foreign economic relations, and the Guangzhou trade fairs of every spring and autumn were the only official channel of foreign trade talks on a large scale.<sup>3</sup>

In the early 1970s there was a period in which a radical left-wing policy was pursued by the so-called Gang of Four. After the death of Zhou Enlai and Mao Zedong in 1976, pragmatists took office, and China's trade policy became more practical. An "open door" policy was authorized and became more decisive after the decision by the Central Committee of the Communist Party in 1979, and deregulation has progressed.

In order to obtain a more solid comparison, Table II gives the average and the variance of percentage changes against previous years in imports, exports, and GNP for the two countries. It turns out that the variations normalized by the averages are significantly larger in China than in Japan, largely because of wilder fluctuations of GNP, or a rough equivalent of GNP, in China. Thus, it can be said that the larger variations in China's foreign trade are not because of "stop and go" policies in foreign trade per se, but rather because of domestic activities fluctuations.

In fact, the ratios of standard deviations to the averages (STD/AVG) of exports, imports, and GNP during 1953-74 in Japan were 68.6 per cent, 112.4 per cent, and 39.3 per cent respectively, whereas those of China during 1963-84 were 106.9

<sup>3</sup> For details of this institution, see the following section.

TABLE II  
 VARIATIONS IN FOREIGN TRADE AND GNP: JAPAN AND CHINA (MEASURED IN  
 PERCENTAGE CHANGES AGAINST PREVIOUS YEARS; BASED ON  
 CURRENT PRICES IN RESPECTIVE CURRENCIES)

	Japan (1953-74)			China (1963-84)		
	Export (a)	Import (b)	GNP (c)	Export (a)	Import (b)	C+I+J (c)
Average	18.21	17.33	8.94	12.93	15.94	8.71
Variance	155.97	379.78	12.36	191.15	429.74	45.34
STD/AVG	68.6	112.4	39.3	106.9	130.0	77.3
a/c; b/c	1.75	2.86	1.00	1.38	1.68	1.00

Sources: Calculated from national accounts and trade data: [6, Vol. 3] [9].

Note: STD/AVG=standard deviation divided by the average and expressed in percentage.

per cent, 130.0 per cent, and 77.3 per cent respectively. Thus, most of the larger variations in foreign trade in China can be attributed to the variations in domestic activities. The last row of Table II gives a direct indicator of this feature, namely, the relative magnitude of STD/AVG to that of GNP are larger in Japan than in China both for exports and imports.

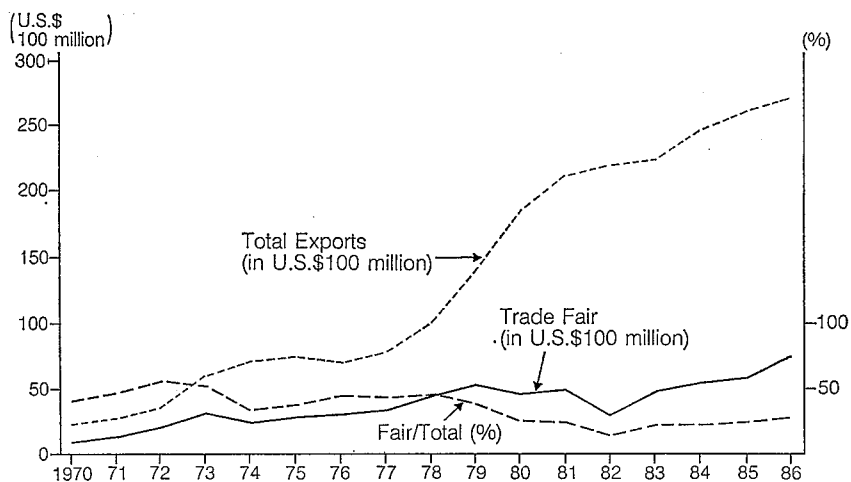
Thus, we can conclude that the larger variations in China's foreign trade are not because of larger swings in foreign trade due to the rush for foreign trade during deregulation periods, but because domestic activities themselves swing more wildly.

It also should be noted that import fluctuations were larger than those of exports in both countries. China during 1963-84 as well as Japan in 1953-74 occasionally faced foreign exchange shortages, and the governments had to restrict imports either through direct or indirect controls. Exports, on the other hand, might have faced cyclical changes in foreign demand. The above indices, however, indicate that the combined effects of export efforts and the changes in the external demand are a steadier growth of exports.

The more drastic fluctuations in China's exports relative to those of Japan's suggest that the exports of China might be more vulnerable to the fluctuations in foreign demand and/or that the domestic supply-demand gap fluctuated more severely. The Chinese government and enterprises might have considered that exports should be a buffer for domestic supply. In fact the Chinese government occasionally restricted the exports of some materials even in the mid-1980s when domestic supply was short of demand.<sup>4</sup> A greater priority seems to be placed on domestic supply in China.

<sup>4</sup> At the time of the overheating of the economy in the mid-1980s, Beijing restricted the exports of some materials to Japan because of the domestic shortage. This became an issue between the two countries. Japan criticized China that China restricted exports to Japan despite the fact that Beijing had strongly requested Tokyo to increase imports from China.

Fig. 2. Guangzhou Trade Fair



Ironically, the control of business fluctuations in socialist China has been less successful than in most market economies. The government failure seems more serious than the market failure. Indeed, the data concerning money supply and the roles of financial institutions are least developed or least published in China, and it is one of the areas for which quantitative analysis is extremely difficult.

## II. TRADE SYSTEM AND PROGRESS IN DEREGULATION

As mentioned earlier, the Guangzhou trade fair had played the most important role in China's foreign trade throughout the 1960s and 1970s. Since the government shifted the right to trade to trading houses and local governments (including provinces, cities, and autonomous regions) in the 1980s, it is inferred that the role of the Guangzhou trade fair is negligible today. The fact is that the trade fair has continued to play a significant role in trade promotion. Figure 2 shows the changes in the percentage share of value exports contracted at the trade fair in the total value exports of every year. According to this, the share still occupied some 27 per cent of the total even in the mid-1980s, though the level itself was much lower than in the 1970s.<sup>5</sup>

The foreign trade regime of China has changed drastically since 1979 and is still under reform. Many textbooks on the trade regime were published in China, but they are not necessarily informative in the sense that they mostly end in explaining the announced changes without analytical examination. Sun Yuzong,

<sup>5</sup> The figure was prepared by myself using the data given in Lin Zetong et al., eds. [5]. As for the trade regime and actual development through 1960s and 1970s, see Sekiguchi, ed. [8] and Sekiguchi [7].

ed. [11] and Lin Zetong et al., eds. [5] are such examples. Kojima, ed. [3] has a chapter which reports on recent developments of the trade regime, but the same criticism applies. Pohl Gerhald [1] also gives an introduction to the recent changes in the trade regime in China. More comprehensive information exists at the GATT, as China and the GATT secretariat formed a working group to investigate the possibility and the conditions on which China could join the GATT. Unfortunately this information is still confidential. Thus, the following is my own interpretation of the information concerning the changes in the foreign trade regime in China before the Tiananmen Incident of June 1989.

#### A. *Principal Institutions and Their Functions*

Foreign trade in China toward the end of the 1980s is divided into two parts: state-planned and the other. The former is planned by the State Planning Commission (SPC) and implemented by the Ministry of Foreign Economic Relations and Trade (MOFERT). As far as the trade in foreign currencies and capital is concerned, however, the Ministry of Finance (MOF) implements and/or supervises. With regard to domestic pricing of traded goods, the State Pricing Administration (SPA) holds control, as long as the goods in question fall into the category for which prices are to be determined by the central government. The People's Bank of China is responsible for money supply and credit controls, and the Bank of China for foreign exchange controls. The foreign exchange policy, on the other hand, is made by the State Administration of Exchange Controls (SAEC) which is guided by the People's Bank of China.

Such institutional frameworks do not differ significantly from many LDCs of market economies and those that Japan adopted in the 1950s. What matters is not the formal division of labor among institutions, but what power each institution actually has, and how effectively and on what principles it performs its functions. Komiya [4] has argued that credit and money supply is not controlled effectively by the central bank, which is responsible for the recent inflation in China.<sup>6</sup>

The core of the problem seems to be that power becomes concentrated in groups whose social roles are not separated. In other words, bureaucrats, political leaders (of the Communist Party), and leaders of enterprises are often intermingled and connections based on political power overwhelm the roles of experts of individual specialty. Such a suspicion may also apply to trade controls. We now turn to more specific aspects of foreign trade.

#### B. *Trade Planning: Directorship and Guidance Plans*

Two categories of trade plans exist: central plan with directorship and guidance plan. The latter means that the central government gives only an aggregate target and induces the trade by individual units through indirect measures. The central plan is made by the SPC and implemented by the MOFERT. Foreign economic

<sup>6</sup> Komiya also argues that there has not been an authentic entrepreneur in China who takes risks for innovation in profit seeking. He points out that the top of a state firm in China is nothing but a factory director in his role.

and trade bureaus of the local governments undertake part of the functions of MOFERT in order to achieve the targets.

The relative size of the directorship plans and the guidance plans are not clear. Gerhald [1] describes them as below:

	(%)		
	Directorship	Guidance	Free
On exports	50-60	20	20-30
On imports	40	30	30

The above figures are rough estimates and the time point is unclear, as he states only that the situation is that of post-1979. Guidance on imports refers to imports for which foreign exchange is allocated by the central government. Free imports mean those paid with the retained foreign exchange by local governments, trading houses, and the productive firms which are given the right to trade.<sup>7</sup>

Thus, it seems better to classify foreign trade into three categories: direct state trading, trade under foreign exchange quota, and trade on retained foreign exchange. Information based on the GATT sources allows us to make the following table concerning the relative importance of each category of foreign trade:

	1978	1986	1988
Number of commodity items under directorship plan	300	60	
Number of items of investment goods allocated by the state	250	20	
Exports:			
Directorship plan			30%
Guidance plan			20%
Imports:			
Directorship plan			20%
Guidance plan			20%

The same source informs us that the imports of the items under licensing (53 items) occupied one-third of total imports in value terms in 1987, and that the numbers of items under export licensing were 159 (as of July 1988), accounting for 55 per cent of total value exports in 1987.

Thus, deregulation seems to have progressed at least until 1988. In comparison with LDCs of market economies, China maintains more restrictions on exports rather than imports. This may reflect the philosophy of the political leaders that securing domestic supply is of first priority, and gains from foreign trade are less evaluated, at least up to the end of 1980s.

<sup>7</sup> The productive firms that are given the right to trade seem to commission foreign trade to trading houses, paying a certain commission fee. Much ambiguity remains, however. It is said that state trading houses have complete autonomy within the defined range of businesses and that the branch offices operate on independent accounts without any territorial restrictions. Then, the power relationship between the parent and branch offices becomes unclear.



The next question is what commodity items are under directorship planning. Around 1988, imports of some items were monopolized by the designated state trading houses: steel, fertilizer, cereals, timber, chemical fiber, automobiles, tobacco, and cotton. On the other hand, exports of thirty-two items were monopolized by the designated trading houses. As the base of commodity classification is not made explicit, however, international comparison is still difficult to make. In July 1988, all imports other than fifty-three commodity items were deregulated. The list of exceptions for free importation, a negative list, was shown to the GATT secretariat.

Since the numbers of foreign subsidiaries have increased, the foreign trade conducted by these firms has also expanded. Thus, there is the trade which cannot be integrated into the state trade plan, which includes imports by: (a) foreign subsidiaries and joint ventures, (b) those financed with the retained foreign exchange, and (c) those made in special economic zones (SEZs).

As the directorship plan can only apply to the trade by state trading houses, it is natural that its importance has declined. More recently, exporters other than state and local trading houses obtained in the trade reform of 1988 the responsibility to conclude trade contracts, only if they agreed with the state government on the target earnings and the contribution to the state in foreign exchange earnings, and some efficiency criteria. Local exporters make similar contracts with the local governments.

Since the guided and the deregulated trade must be controlled by indirect policy instruments such as foreign exchange rates, exchange allocation, interest rates, and others, we now turn to these policy mechanisms.<sup>8</sup>

### C. *Allocation of Foreign Exchange*

The state plan of foreign exchange allocation is made by the SPC and is to be approved by the State Council. MOFERT, MOF, and SAEC join this process. SAEC and Bank of China are in charge of implementation and supervision. Official exchange rates are determined by the SAEC from a basket of major foreign currencies: U.S. dollar, Hong Kong dollar, Japanese yen, German mark, French franc, and British pound. Market rates are those set by actual transactions at the swap centers for foreign exchange established in the major cities. The gap between the official and market exchange rates was significant; for instance, the official rate against the U.S. dollar on November 1, 1988 was Rmb 3.72, whereas the market rate of November 5, 1988 was Rmb 6.63 per dollar. When the official rate overvalues the renminbi, exporters lose as they must sell a large part of the earnings to the state. By selling the retained foreign exchange at the swap centers, explained as follows, the exporters recover some portion of the loss.

The Foreign Exchange Retention System started soon after 1979. As the allocation of foreign exchange is formally under central control, all exporters must sell all foreign exchange earnings to the state. A certain percentage of the earnings

<sup>8</sup> As the guided trade is subject to foreign exchange quota, it is closer to quantitative restraints. Thus, my classification into state trading, exchange quota, and free imports is much clearer.

can be retained in the form of the retention account at the SAEC, but without interest. Exporters can either use this dollar denominated right for their own imports or sell it at the swap centers. The only requirement is to fill in a form with the account number, the value amount, and the currency to be used. Therefore, imports of whatever goods, unless regulated, can be financed with this instrument.

Distribution of foreign exchange as of 1988 is as follows:

	(%)		
	State Government	Local Government	Traders
Earnings within the target (contracted with state government)	75	12.5	12.5
Earnings beyond the target	20	80	

Note: Eighty per cent in the second row is distributed to local governments plus local traders.

The above shares, however, may vary among industries, the details of which are unavailable. The shares of the local governments and traders are the minimum retention which the central government cannot violate.<sup>9</sup> When a domestic firm needs foreign exchange to import foreign technology, it can borrow from the Bank of China by certifying its capability to repay.

It was only recently that the swap centers have been established. In 1988 it was reported that there were forty swap centers including the national center in Beijing, three in SEZs, and fourteen in coastal open cities. Only state, local, and collective enterprises are allowed to join the centers. The currencies dealt with are those included in the currency basket on which the official exchange rate is determined.

It was reported that the trade volume of the centers as a whole in 1987 was 4.2 U.S.\$ billion, 0.3 U.S.\$ billion of which was transacted by foreign subsidiaries. Since the total exports of China in U.S. dollars was 34.7 billion in that year, the market size was roughly 12 per cent of the total exports. Thus, simply assuming that the retained foreign exchange was 25 per cent of the exports of 1987, we can argue that roughly 48 per cent of the retained earnings were transacted at the swap centers. Although this is only a rough estimate to give an idea of the market size, the swap centers now play a significant role in the allocation of foreign exchange.

#### D. *Tariffs and Other Indirect Measures for Trade Control*

New tariff rates and the Rules on Tariff Procedures were established in 1985, and the former have been revised extremely frequently since then. The basic strategy, however, seems similar to that of many LDCs: higher import tariffs on consumption and manufactured goods, but lower ones for producers' goods and those which are not domestically supplied.

<sup>9</sup> Foreign subsidiaries and joint ventures are not subject to foreign exchange allocation. They can open a foreign exchange account at the Bank of China.

Export duty also exists. In value terms, it was reported that 64 per cent and 1.6 per cent of total imports and exports respectively were dutiable. Below is a list of tariff rates, reported to the GATT. Although the average rates of import tariffs are less meaningful because the weights are not shown, we do not have any other information about China's import tariff rates.

IMPORT TARIFF RATES (1987)

Items	Tariff Rate (%)
Iron, metal, agricultural and chemical materials	11.3
Capital goods including machine	19.3
Consumption goods	19.3

By the standard of LDCs of low income levels, these tariff rates seem surprisingly low. Anecdotal evidence suggests higher tariff rates, but this is difficult to confirm. Export tariffs are imposed on nine items: eel fry, prawn, chestnuts, crude lacquer, tungsten ores, goat skins, crude antimony, raw silk, powder and waste of bones. Thus, the government discourages the exports of some raw materials and foodstuffs to protect domestic manufacturing industries and consumers.

The surprisingly low import tariffs were supplemented by the import regulatory taxes on seventeen items, which were introduced in July 1985 to protect domestic production. The list of items include: passenger cars, motor bicycle, small electronic computer, calculator, and synthetic fiber cloth. It was reported that the rates of regulatory tax ranged between 20 per cent as minimum and 80 per cent and that the average (probably simple arithmetic average) was 47 per cent ad valorem. Thus, import tariffs play only a small part in protecting domestic production.

Since there remain quantitative restraints (QR) on imports of these items, the most important factors that differentiate domestic prices from external ones seem QRs. If the state directly imports these goods based on the directorship plan, it is the government that obtains the equivalent of tariff revenues. Domestic prices of these goods are mostly set by the State Price Planning Commission (SPPC). The government revenue, therefore, depends on domestic pricing.

### III. BEHAVIOR AND PERFORMANCE OF FOREIGN TRADE

Before going into foreign trade of China, it is useful to take a glance at macro indicators of the economy. Table III gives an overview of the development of the Chinese economy since 1970.

China's foreign trade has grown rapidly during the last two decades, but ironically slowed down in the 1980s when the government pursued the "open door" policy. This mostly reflects the drastic depreciation of the renminbi against the U.S. dollar and other Western currencies as well. If the price elasticities of demand for China's exports and imports are high, the renminbi's depreciation expands the quantity of China's exports and decreases that of imports. Table III, however, suggests that these elasticities are low, and that China's exports are

TABLE III  
PERFORMANCE IN GROWTH, TRADE, AND PRICE STABILITY OF CHINA

Compound Annual Rate of Changes	1970-75	1975-80	1980-87
(1) Social total products at current price	7.2	9.7	15.3
(2) Retail prices (national)	0.1	2.2	4.4
(3) Real growth: (1) - (2)	7.1	7.5	10.9
(4) Per capita income at current prices	3.0	6.6	12.7
(5) Exports in U.S. dollar	26.3	20.3	9.6
(6) Imports in U.S. dollar	26.3	21.2	8.0
(7) Ratio of tariff revenue to (1)*	30.1	20.0	17.4
(8) Changes in exchange rate (Rmb/U.S.\$)	-5.5	-4.2	13.9
(9) Level of exchange rate (Rmb/U.S.\$)*	2.462	1.860	3.722

Sources: [9] and Nikkei Data.

Note: Rows with an asterisk refer to absolute levels.

insensitive to the depreciation of renminbi. This, in turn, forced the Chinese government to restrict imports.

Import tariffs did not play an important role at least until the early 1980s. The regulatory import taxes and quantitative restraints were more important in controlling imports as explained earlier.

Under the circumstance that many prices are still heavily controlled through direct regulations, how do traders respond to the price changes? This is the question we try to answer, and to this end, we estimate simple regressions of demand for China's foreign trade. The sample period is 1960-86 for China and 1952-76 for Japan. The latter is for comparison to evaluate the results on China.<sup>10</sup>

#### A. *Import Demand Functions*

Table IV gives a summary of the best estimates of import demand functions of the various types which we estimated.

As China made it an official strategy to open the economy to the outside world in 1979, a dummy variable, 0 for 1978 and earlier and 1 for 1979 and after, was introduced to reflect this institutional change.<sup>11</sup>

Although it is difficult to make a strict comparison because of slight difference in the specification, the following points can be made. First of all, a simple linear function better fits to China, whereas the logarithmic linear function is a better estimate for Japan. Thus, China's imports are linearly related to the relevant variables, whereas Japan's is exponentially related. Since the dummy variable substantially improves the estimation, the institutional changes in China after 1979

<sup>10</sup> As this is just a preliminary study in answer to the question, the regression analyses remain very simple, using the software provided by Lotus 1-2-3. The difference in the sample period between China and Japan is due to the lack of data in much earlier years in Japan.

<sup>11</sup> In fact regressions without the dummy variable were also estimated. It turned out that the introduction of the dummy variable improved the estimation significantly.

TABLE IV  
ESTIMATED FUNCTIONS OF DEMAND FOR IMPORTS:  
CHINA (1960-86) AND JAPAN (1952-76)

China's Imports					
CM-1:	Constant	$C+I+J$	$P_m/P_j$	Dummy	Notes
Parameters	-10.28	0.1160	-1.821	76.662	Linear
Standard error	47.798	0.0101	0.6334	39.768	
R-square	0.9513				
CM-2:	Constant	$\ln(C+I+J)$	$\ln(P_m/P_j)$	Dummy	Notes
Parameters	-1.678	0.8671	-0.004	0.4494	Log natural
Standard error	0.2100	0.1711	0.2044	0.1460	
R-square	0.9213				
Japan's Imports					
JM-1:	Constant	$C_p$	$I+J$	$P_m+P_v$	Notes
Parameters	-6,739.0	0.2875	0.5054	67.492	Linear
Standard error	946.52	0.0808	0.1003	19.801	
R-square	0.9908				
JM-2:	Constant	$\ln(V)$	$\ln(P_m/P_v)$		Notes
Parameters	-3.8478	1.2791	-0.1595		Log natural
Standard error	0.07684	0.0555	0.1211		
R-square	0.9932				

Note: Dependent variables are imports in the home currency.  $C+I+J$ =consumption+fixed and inventory investment;  $P_m$  and  $P_j$  refer to import prices and deflators for inventory investment. For Japan,  $V$ =GNP,  $C_p$ =personal consumption,  $P_v$ =GNP deflator, and  $\ln(x)$ =natural logarithm of  $x$ . Units: Rmb 100 million for China and ¥billion for Japan. All variables of expenditures are at constant prices (1980 prices for China and 1970 prices for Japan).

made China's imports more responsive to the changes in the relative prices and domestic expenditures.

Although the relative price meets the sign condition in the logarithmic linear equation, the parameter is not significantly different from zero. Thus, China's imports are less responsive to price changes. The elasticity of imports with respect to  $(C+I+J)$ , or domestic expenditures, is 0.87. This is fairly small by the international standard of market economies. Since a dummy variable is introduced, however, a part of income effects, or expenditure effects more precisely, is reflected in the parameter of the dummy variable. The Japanese counterpart stands at 1.28, which is the so-called income elasticity of imports.<sup>12</sup>

#### B. Foreign Demand for Exports of China and Japan

The demand for exports of China and Japan is specified as below: exports ( $X$ ) are positively related to world trade ( $T_w$ : world exports) and negatively related to

<sup>12</sup> It should be noted that the relative price in the linear equation for Japan is meaningless. Although the variable satisfies the sign condition in log-linear one, the price elasticity of imports is not significant.

TABLE V  
DEMAND FOR EXPORTS OF CHINA AND JAPAN:  
CHINA (1960-86) AND JAPAN (1952-76)

China						
CDE-1:	Dependent Variable $\ln X/\$$	Independent Variables				
		Constant	$\ln(P_x/P_w)\$$	$\ln T_w/\$$		
Parameter		10.0133	-1.4616	0.2508		
Standard error		0.1796	0.2292	0.1116		
R-square		0.972				
CED-2:	$\ln X/\$$	Constant	$\ln(P_x/P_w)\$$	$\ln T_w$	Dummy	
Parameter		7.7819	-1.0747	0.2689	0.4621	
Standard error		0.1306	0.1847	0.0812	0.0956	
R-square		0.986				
Japan						
JED-1:	Dependent Variable $X/\text{¥}$	Independent Variables				
		Constant	$(P_x/P_w)\$$	$T_w/\$$		
Parameter		16,502.5	-796.49	20.1876		
Standard error		1,684.3	179.16	1.8273		
R-square		0.943				
JED-2:	$X/\text{¥}$	Constant	$(P_x/P_w)\$$	$T_w/\$$	Dummy	
Parameter		17,900	-850.26	17.159	1,835.9	
Standard error		1,689	188.49	3.7041	1,951.4	
R-square		0.946				

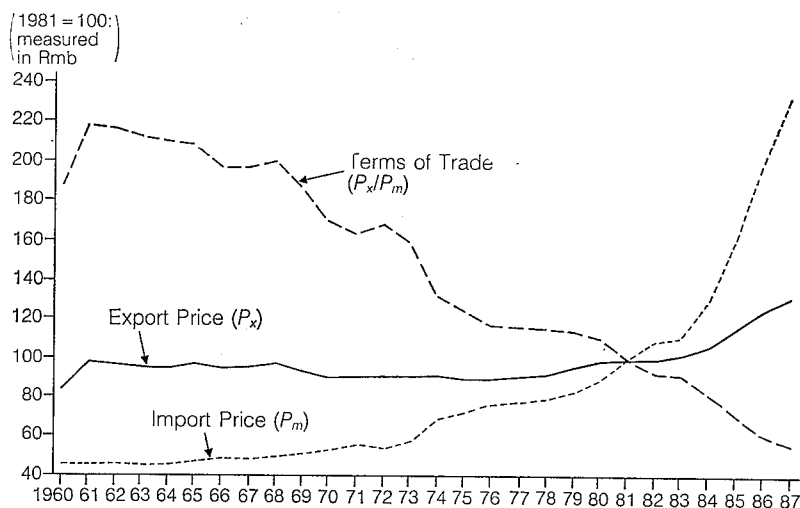
Note: / shows value at constant prices. Currency signs indicate the currency base on which the variables are measured.  $T_w$ ,  $P_w$ , and  $P_{wt}$  are in indices (1985=100).  $\ln(x)$ =natural logarithm of  $x$ .

$(P_x/P_w)$ , or export price of the country ( $P_x$ ) over the world export price ( $P_w$ ). All prices are indices measured in U.S. dollars. As the world price data are not available for the early 1950s, we have used  $P_{wt}$ , or the export prices of world industrial countries for Japan.<sup>13</sup>

The regressions of best fitness are listed in Table V. The results show that the logarithmic linear equations better fit China, that the demand for China's exports is fairly price elastic, and that the dummy variable improves the estimation considerably. In contrast, a simple linear demand function better fits the Japanese case. A dummy variable (1 for year 1971 and after when the exchange rate became flexible and 0 for the earlier period) does not improve the estimate for Japan. In fact, the terms of trade for China have seriously deteriorated in the 1980s, partly due to the currency depreciation (see Figure 3). Thus foreign demand expanded for less expensive Chinese products.

<sup>13</sup> IMF, *International Financial Statistics Yearbook*, various issues, for  $T_w$ ; and UN, *Statistical Yearbook*, various issues, for  $P_w$  and  $P_{wt}$  data.

Fig. 3. Movements in Trade Prices



As log-linear equations for Japan turn out to be meaningless, having a negative elasticity with respect to  $T_w$  and giving a positive parameter to  $P_a/P_{wi}$ , we do not list them. On the other hand, it is reasonable that the dummy variable has not contributed significantly in China, since world demand for China's products may not be affected by the institutional changes in the country.

### C. Export Supply Functions

What is more interesting is the supply function of China's exports, which reflects more domestic factors. Table VI gives a summary of the export supply functions of China and Japan estimated for the same period as above.

Major findings about China are that simple linear equation without the dummy variable gives meaningful parameters for GNP proxy and the relative prices, and that exporters react positively to the relative price,  $P_a/P_j$  (export/domestic prices measured in the home currency this time), which implies price incentives do work, but that the price elasticity is ambiguous, as the parameter of the relative prices is not significantly different from zero in the logarithmic equation.

On the other hand, the price elasticity of Japan's supply of exports does not meet the sign condition. In the simple linear estimation, however, the marginal increase of exports due to one point rise of the relative price turns out to be ¥41 billion, whereas that for China is Rmb 800 million. Assuming the exchange rate of yen against renminbi as ¥30/Rmb, the Japanese figure is roughly Rmb 1,366 million. Thus, the marginal response to the relative prices is slightly lower in China.

These findings suggest that China's foreign trade has become more and more predictable with conventional methods of regression analyses.

TABLE VI  
SUPPLY OF EXPORTS IN CHINA AND JAPAN: CHINA (1960-86) AND JAPAN (1952-76)

China					
CES-1:	Dependent Variable $X/Rmb$	Independent Variables			Notes
		Constant	$(P_x/P_j)Rmb$	$V^*/$ Dummy	
Parameter		-1,025.6	8.3722	0.13345	Simple linear
Standard error		71.37	4.3270	0.00703	
R-square		0.938			
CES-2:					
Parameter		-1,029.9	8.2945	0.14101	-36.787 54.832
Standard error		72.17	4.3769	0.01331	
R-square		0.939			
CES-3:					
Parameter	$\ln X/Rmb$	Constant	$\ln(P_x/P_j)Rmb$	$\ln V^*/$	Log-linear
Standard error		-8.481 0.2349	0.2389 1.3936	1.5678 0.0759	
R-square		0.945			



TABLE VI (Continued)

Japan				
JES-1:	Dependent Variable $X/\text{¥}$	Independent Variables		Notes
		Constant	$P_x/P_0$ $V/$	
Parameter		-9,050.4	41.645    0.2742	Simple linear
Standard error		1,029.6	12.410    0.0143	
R-square		0.979		
JES-2:	$\ln X/\text{¥}$	Constant	$\ln(P_x/P_0)$	$\ln V/$
Parameter		-3.3356	-0.6204	1.3679
Standard error		0.0996	0.2553	0.1406
R-square		0.993		Log-linear

Note: Asterisks show supply of total final products in the renminbi.  $X$  and  $V$  show exports and GNP respectively or its proxy. / shows value measured at constant prices.  $P_x$ ,  $P_j$ , and  $P_0$  are prices of exports, deflators for inventory investment, and GNP in home currency respectively.

#### IV. LINKS BETWEEN DOMESTIC AND EXTERNAL PRICES

The relationship between foreign and domestic prices can only be clarified by investigating them in more specific products. This is because the shares of traded goods are small, and therefore, it is natural that the aggregated indices of domestic prices are less responsive to the variations of export and import prices.

Thus, we go into individual prices in this section. Much difficulty remains, however, because the data of domestic prices are less published, especially for government controlled industrial materials. In what follows, we use the price data published in the Trade Price Statistics Department, State Statistical Bureau, ed. [10], which provides price statistics for 1952–83 only. As we do not have comprehensive statistics for prices after 1984, it is difficult to analyze the relations for more recent years when further deregulation was introduced.<sup>14</sup>

All data which are used in what follows are based on this data book. Quantity units used in domestic trade are converted into those used in foreign trade. Official exchange rates of the year are used to convert the domestic prices into U.S. dollar term prices of foreign trade.

##### A. *An Overview*

As exports and imports of China roughly occupy some 14 per cent of GNP, it is natural that the changes in foreign prices affect the domestic prices only partially. As import prices rose much faster than export prices, the terms of trade have deteriorated significantly especially in the 1980s. Devaluations of the renminbi have been another factor to accelerate this trend.

As for the situation in aggregate terms, Figure 4 gives a comparison of the behavior of import prices and deflators of domestic expenditures in index terms. The two graphs show the evolution of domestic price deflators for consumption, fixed and inventory investment, and those for inputs for light and heavy industries.<sup>15</sup> It is common that input prices have not risen significantly in spite of a drastic hike of import prices. Domestic prices, as long as expressed in the deflators of consumption and investment, rose only modestly despite the fact that inflation became a serious problem in the mid-1980s.

Two problems exist: one is the reliability of deflators and the other is that the price data which are used for the calculation of the deflators might be based on the official figures which do not reflect actual prices at which goods are traded. It has been long since the Chinese government announced that there are three kinds of prices: official, negotiation, and market prices. Neither the percentage shares of the transactions based on each form or actual levels of each price have ever been published.

<sup>14</sup> The English translation of the title of [10] is mine. The original title is *Zhongguo maoyi wujia tongji ziliao*. In China, the term *maoyi* (trade) includes both external and internal trade.

<sup>15</sup> The criterion for the classification is unclear, but we follow that made by the Chinese government.

Fig. 4A. Import Price and Deflators for Consumption and Inventory Investment

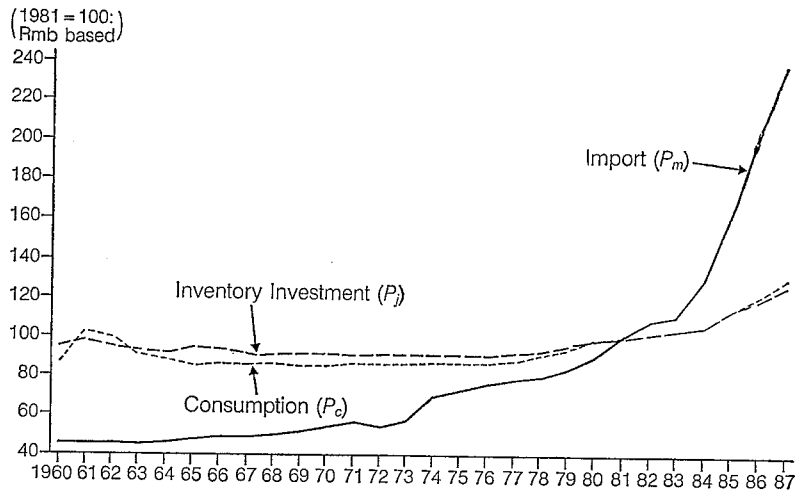
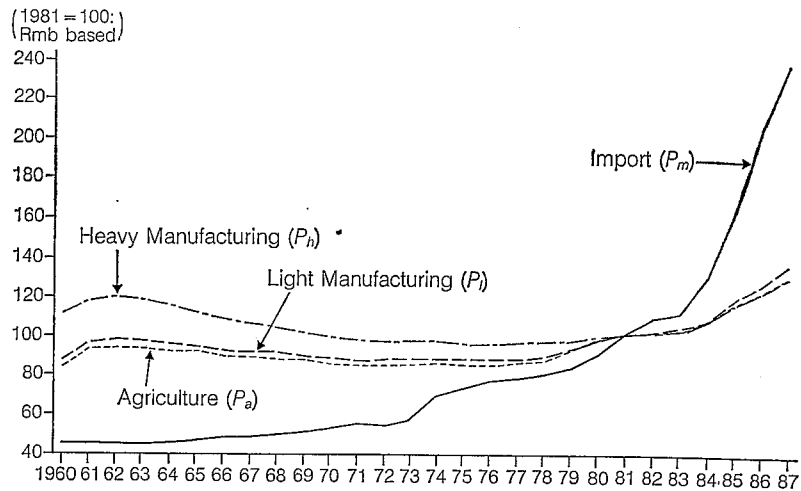


Fig. 4B. Import Price and Deflators for Inputs



There are several reasons for the government attempt to insulate domestic from external prices. For instance, the government might have kept domestic prices low despite the rise in import prices for the sake of a desired income distribution. The price of wheat may be an example. To secure the stability of food prices to

maintain political support, many governments have kept them as low as possible. Chemical fertilizer, an important import item in China, might have been kept low in order to strengthen agricultural production. Energy prices have also been strictly controlled to secure cheap supply for low income families and industrial use.

Export prices might have also been manipulated by the government. To promote exports for foreign exchange earnings, export prices of some goods have been reduced with subsidies, whereas domestic prices are kept high. However, some export items might have been overpriced in order to earn foreign exchange, depending on the market conditions in that specific goods. Export duties and direct controls on exports may reflect such government tactics.

Referring to the Japanese experience may help one understand the situation in China better. The government supported rice production through various means in Japan in the 1950s and 1960s. In order to promote domestic production, the government set a double price for rice: the government purchase price and consumers' price. The former was set high and the latter low for the sake of social stability. The Chinese government seems to have followed a similar policy line.

The public may be ambivalent to the recent deregulations in China. As long as deregulations improve efficiency in production and increase the supply of goods, the public long for deregulation. On the other hand, they may be resentful, perceiving them as the major cause of recent inflation. Implicit subsidies for consumption are likely to be taken for granted by the public.

#### B. *External and Domestic Prices of Selected Goods*

While the price data published by the State Statistical Bureau give time series of prices of some goods for 1952–83, we concentrate in what follows on the period 1960–83 as the earlier period is beyond our scope. First, the prices of selected importables are investigated, and then the prices of exportables.

##### 1. *Prices of importables*

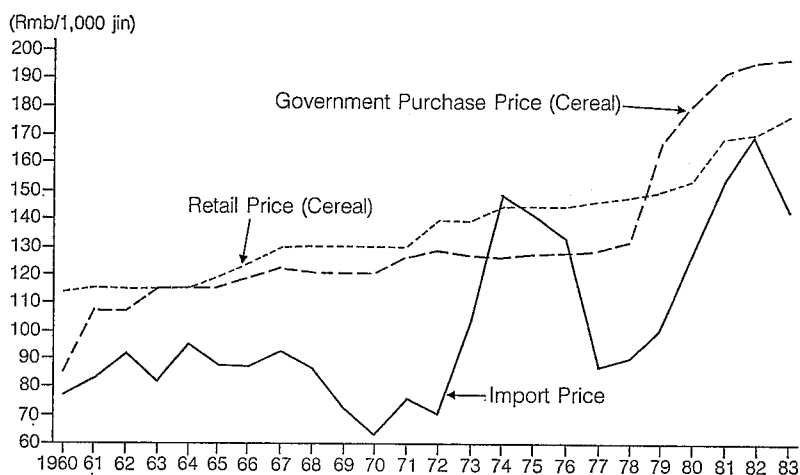
*Wheat:* Figure 5 shows the movements of the prices of imported wheat and domestic retail and government purchase prices of cereals. As the data of domestic prices of wheat are not listed in the document we used, the evidence is still very indirect. Nonetheless, since wheat is the major item of cereal imports to China, this represents a general trend.<sup>16</sup>

It turns out that import prices of wheat have wildly fluctuated, and that they have been substantially lower than the two domestic prices, retail and the government purchase prices, and that the retail prices had been higher than the government purchase prices until 1978. In the 1980s, the government purchase prices exceeded the retail prices, which might indicate a policy change toward encouraging domestic production. As both import and the government purchase prices rose significantly, the government had to increase retail prices in the early 1980s.

In fact the government raised the purchase prices of agricultural goods in the

<sup>16</sup> As noted in Sekiguchi, ed. [8], China has exported rice and imported wheat for many years.

Fig. 5. Wheat Prices



early 1980s and gave a subsidy to consumers in the form of wage compensation for food consumption. The prices of cereals tend to approach the international levels and the patterns of cyclical movements have become more similar.

*Chemical fertilizer:* The government policy toward fertilizer is similar to that for wheat. This is also another important import item. In order to expand production, agriculture must increase fertilizer input. Since domestic production of fertilizer is limited, imports of fertilizer are of crucial importance. Figure 6 gives the movements of the prices of chemical fertilizer.

The government had kept the retail price low until the mid-1970s, even though it was much higher than international prices. Import prices had been always significantly lower than the domestic prices. As in the case of wheat, the government could profitably import fertilizer. Cyclical fluctuations in import prices have been modestly reflected in the fluctuations of retail prices. As a whole, the government has moderated price fluctuations, but the farmers are not subsidized for fertilizer. Instead, state enterprises in this industry have been protected against import competition. Finally, the gap between the two has shrunk through the past decades.

*Cotton:* Cotton has been both exported and imported. In 1983, China exported 92 U.S.\$ million and imported 339 U.S.\$ million, according to the government document used in this section. As the item has been actively traded, this case provides an interesting example. Figure 7 shows that the government purchase prices respond fairly quickly to changes in export and import prices. Not only the pattern of fluctuations, but the level of the three prices, export, import, and domestic prices, have been very close to each other.

Fig. 6. Prices of Chemical Fertilizer

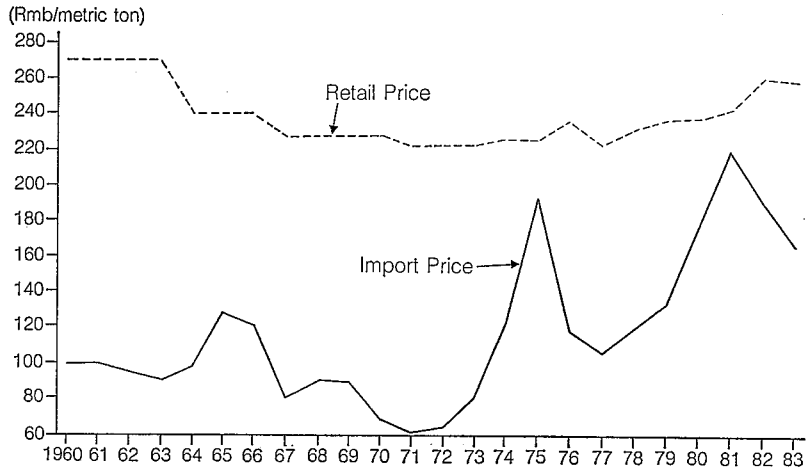
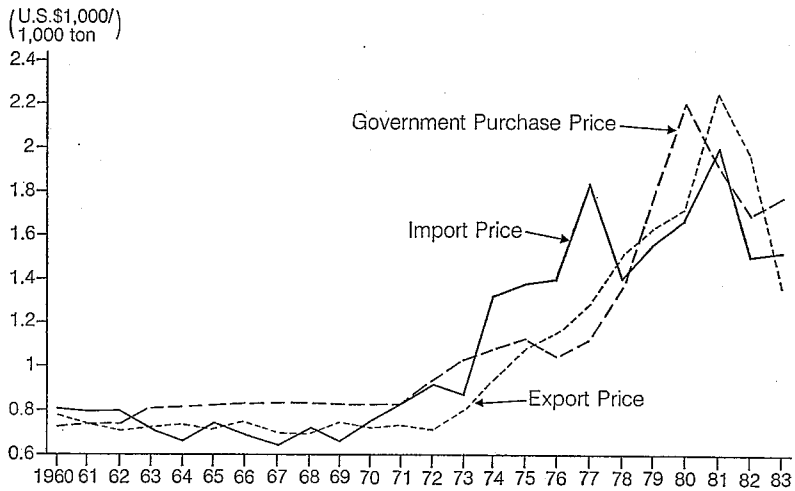


Fig. 7. Cotton Prices



It is to be noted that the distribution of cotton has been directly controlled for many years, since cotton has been considered of crucial importance both for farmers and manufacturers. As a matter of fact, the retail prices have not been listed in the document. As mentioned earlier, exports of cotton are still under direct government control.

Fig. 8. Prices of Cotton Cloth



Nevertheless, the price behavior of cotton has been one of the most internationalized among the cases examined in the present paper. The reason may be that the downstream of this industry has been one of the most important sectors in China's exports, and that a price distortion would have damaged China's exports significantly, if it had been introduced. Traders, even though state trading houses in the past decades, might have been influential in the pricing policy of the government. Thus, the deeper the involvement in foreign trade for the longer period, the more internationalized may be the pricing practices.

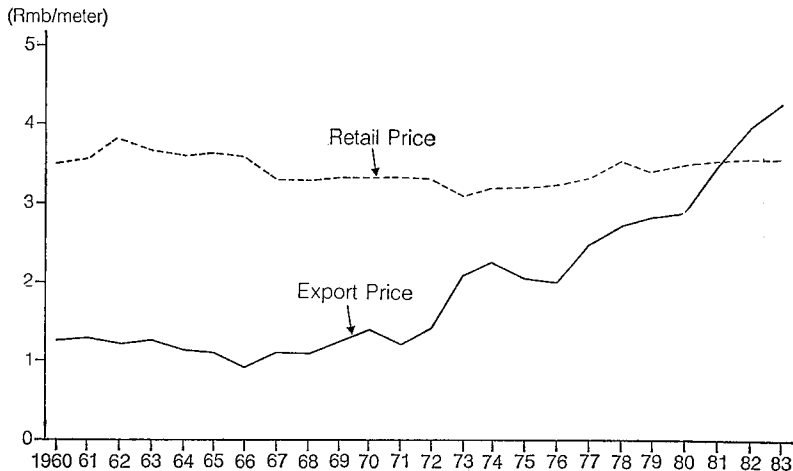
A pricing based on international prices seems a good compromise when the interest groups, producers and users in this case, are heavily involved in international trade.

## 2. Prices of exportables

*Cotton cloth:* It is convenient to start with the price behavior of this item following the preceding discussions, as this is the downstream of the cotton industry. Export prices have been always significantly lower than the domestic retail prices. Since it is not likely that China has exported low grade products by the domestic standard, this seems not to reflect quality differences. Domestic indirect taxes might have raised domestic prices, but the gap seems too large to be explained by this factor. One hypothesis is that exports have been subsidized (see Figure 8).

As Figure 8 indicates, the export price ranged between one-third and one-half of the domestic retail prices. Some portion of this might be distribution costs in the domestic markets. Since China achieved a rapprochement with the United

Fig. 9. Prices of Silk Cloth



States and Japan in 1972, and has been heavily involved in trade with the Western countries, however, the gap between the two prices has decreased. In the early 1980s the export price stood at roughly 65 per cent of the domestic retail price.

*Silk cloth:* This is another important export item for China. Again the export prices had been significantly lower than the domestic retail prices for many years. Since the latter half of the 1970s the gap has shrunk rapidly, and export prices have exceeded the domestic prices, which have been stable for the two decades (see Figure 9).

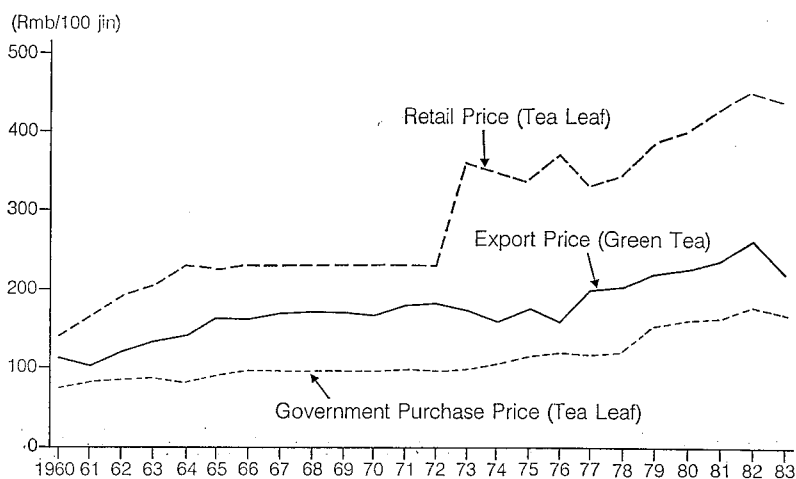
As export expands under a rising trend in prices, it is likely that exports compete with domestic demand, which will trigger a price rise in the domestic retail trade. This case also suggests a steady trend of more involvement in international trade. The government may face a dilemma: to secure domestic supply for downstream manufacturing or to promote exports in this form. Direct control on exports will face resistance from the exporters, if the domestic prices are set low. After all the government will have to raise domestic prices.

*Tea:* Tea has been an important export item for China. Figure 10 shows the movements of the export prices of green tea, the government purchase prices, and retail prices of tea leaf (those for green tea are unpublished). This indicates that tea has been important for the government in the sense that it can make profit both from domestic sale and from export. The retail price rose significantly from 1972, when foreign trade opportunities expanded.

While the levels of the three prices differ, the pattern of fluctuations reflects that of international prices. As an established export item, the government has



Fig. 10. Prices of Tea Leaf (Green Tea for Exports)



made it an important source of foreign exchange earnings. While wheat producers have been protected from foreign competition, and consumers are subsidized in the case of cereals, the farmers have been paid less and consumers are forced to pay more in the case of tea.

*Coal:* Although oil became by far the most important single item for export earnings from the mid-1970s, coal has been a stable export commodity. The government pricing policy for coal seems to be characterized by the fact that domestic consumption is subsidized through extremely low retail prices. Reflecting the oil crises and an increased demand for coal, the export price rose very rapidly, as Figure 11 shows. In contrast the retail prices stayed as low as one-third of the export prices.

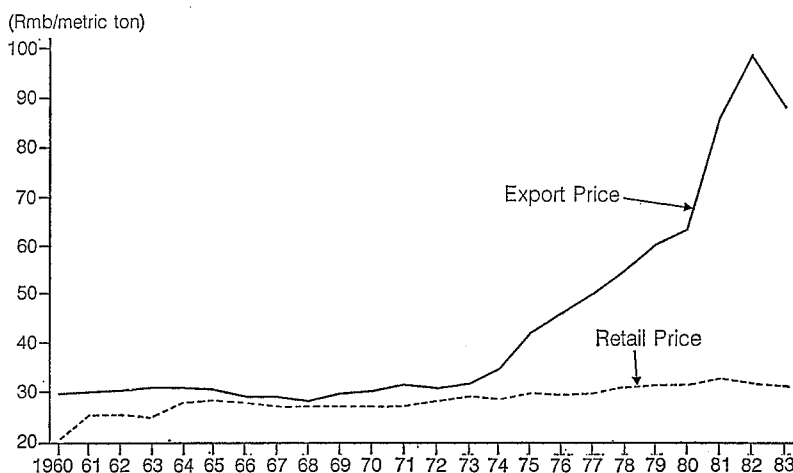
The government reportedly recognized the error of its pricing policy for energy in the mid-1980s. Therefore, the more recent data may tell a new story. The low price policy seems to reflect the government consideration for income distribution. If the producers' prices are kept low, though the data is unavailable, it is natural that China faces a shortage of coal.

### C. Summary of Findings

By looking at the prices of specific products, we have so far found the following features in China's pricing practice up to 1983.

First, the gap between the prices of foreign trade and domestic transactions has decreased since the mid-1970s, and the domestic fluctuations became more similar to international ones. The gaps in the prices of energy and foodstuffs remained significant in the mid-1980s. This is considered to reflect the government

Fig. 11. Prices of Coal



policy for the stabilization of people's life. Thus, the price responsiveness of production and foreign trade in these commodities is naturally ambiguous. This seems also to apply to important intermediate industrial materials.

Second, the domestic prices of goods which have long been internationally traded, such as textiles and special products as tea leaf, tend to approach the international level. The patterns of short-run fluctuations also reflect more closely the international ones. Consumers are forced to pay higher prices for textiles and some special products which are important export goods for China. As the government controlled distribution at least until the mid-1980s, this was attained by means of direct controls rather than by tax and tariffs.

Under such circumstances, actual prices played a less important role, which led to ambiguous price parameters in export and import functions.

#### CONCLUDING REMARKS

Information about China's institutions and policies on economic matters has increased in recent years, at least until June 1989. Information concerning the working of institutions and policies, however, is still scant. This paper has attempted to shed light on the institutional changes and their performance especially in foreign trade.

We have estimated demand functions for imports and exports and supply functions of China in a very simple manner, making a comparison with those of Japan a decade earlier. It was found that China's imports are less price responsive, that the world demand for China's exports is significantly price responsive, and

that China's export supply is considerably price elastic. As the institutional reform started in 1979, and it has been proceeding since then, the equations that reflect the Chinese behavior have become more meaningful by introducing a dummy variable for the period after 1979. This suggests that the behavior of China's foreign trade tends to be more similar to that of market economies.

Next, we have examined the relationship among the prices of foreign trade, domestic retail, and the government purchase for selected specific products. It has turned out that the gap between the prices of manufactured goods in external and domestic trade that have been exported by China for decades have significantly reduced, and that the pattern of short-run fluctuations has become more similar between the domestic and external areas. This indicates a greater integration of China's domestic market to international markets.

For important subsistence goods such as energy, foodstuffs, and intermediate goods for industries, however, government direct controls seem prevalent, at least until the mid-1980s. The official prices set by the government, the limited distribution through the government, and the manufacturing by the state enterprises have often made the price gap between domestic and external markets significantly large. The government sometimes underprices for consumers (in the case of coal), but overprices in other cases (in the case of tea). Most of the textile products have been underpriced on exports.

A reservation should be made: our investigation of the price data covers only the period up to 1983, though we have covered the development of institutional reforms in foreign trade until 1988. This is simply because of the lack of price data for individual goods. The links between the prices in foreign and domestic trade might have become more straightforward since the mid-1980s, a factor which will be tested in the near future.

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