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THE ECONOMICS OF INDUSTRIAL DEVELOPMENT IN THE PEOPLE'S REPUBLIC OF CHINA

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Hong Kong Institute of Asia-Pacific Studies
The Chinese University of Hong Kong

**The Economics of Industrial
Development in the
People's Republic of China**

by

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Tun-oy WOO**

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Preface

Back in 1988–89, Tun-oy Woo and I got a chance to prepare a background report on *The Industrial Sector in the People's Republic of China* for the Asian Development Bank. Two years later we have another occasion to prepare this monograph entitled *The Economics of Industrial Development in the People's Republic of China* for the Hong Kong Institute of Asia-Pacific Studies (HKIAPS). On the basis of the background report, we have widened the coverage of development issues in the industrial sector and have analyzed them in depth. We have also furnished additional materials and information, particularly concerning the period of 1988–91.

It is noted that HKIAPS has been newly established for promoting multi-disciplinary research on social sciences issues in the Asia-Pacific areas; China's Reform and Development (CRD) is one of its strategic programmes. As a matter of fact, CRD grew out of the Chinese Economic Research Programme of the Centre for Contemporary Asian Studies under the previous Institute of Social Studies. A two-year research project (1986–88) of the latter programme in cooperation with the Beijing Institute of Information and Control resulted in the *Studies on Economic Reforms and Development in the*

People's Republic of China, the Chinese version of which was published by the Commercial Press in Beijing in 1990, and the English version is forthcoming from the Chinese University Press.

As declared by the Chinese authorities both in Beijing and in Hong Kong, Hong Kong serves as a base or an outpost for China. To my mind, such an expression is correct only in the sense of Hong Kong's role in the academic exercise of China's studies. It is exactly on this line that CRD is set up: to play the role of bridge and exchange its China's research findings with the students of China all over the world. The publication of this monograph just illustrates a common Chinese saying: that is, to cast a brick to attract jade.

I would like to take this opportunity to extend our heartfelt thanks to Prof. Yue-man Yeung, Director of HKIAPS for his generous support of the publication, to Dr. Maurice Brosseau and Ms. Po-san Wan of the Institute of the excellent editorial work and to Ms. Linda Mah, Ms. Anissa Tang and Mr. Kam-wah Mok for typing the manuscript. Needless to say, none of them is to be blamed for whatever mistakes that still remain, for which we are solely responsible.

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Introduction

Judging from her population and occupation structures, the People's Republic of China (PRC) is unambiguously rural. On the basis of production structure, however, at present she does possess a very substantial and broad-based industrial sector. As a matter of fact, the output growth rate of China's industrial sector generally exceeds that of the national economy (see Table 2 in Chapter I). During 1985-89, despite the cry for restraining the growth of over-expanded processing industries, the industrial sector still accounted for 51% of the growth of China's national income. In 1989, at current price, industrial value added directly contributed 47% of China's national income. In comparable prices, the percentage share was higher — 50%. Its overall contribution should be even higher if the linkage effects which are very substantial are incorporated. Obviously, in the past forty years, China's industrial sector via its direct linkage and demonstration effects played a very significant (and in balance, a positive) role in China's economic construction.

China's spectacular industrial growth was, however, attained with quite severe fluctuations, consuming unnecessarily huge quantity of resources (strictly from an economic point of view) and has led

to severe problems of sectoral disproportions both inter-sectoral and intra-sectoral. Under the prevailing productivity level and resource constraint, unduly rapid growth of industries, especially those generating little forward linkage effects, has inhibited steady growth of non-industrial sectors (such as agriculture, transports and communication) to such an extent that the latter become bottlenecks to a steady and healthy growth of the national economy. Within the industrial sector, before 1979, major imbalances refer to the over-expansion of heavy industry, especially simple processing and semi-manufactured product industries in contrast to the stagnant growth of light industry, especially consumer goods industries and industries supporting agricultural and light industrial production. In the eighties, particularly since 1984, major disproportions, however, involved the unduly rapid expansion of consumer goods industries and simple processing heavy industries with mining and timber, raw materials and basic industries becoming bottlenecks; as well, the market saw the over supply of low-quality consumer durables. In addition, concerning industrial organization and size of operation, before 1979, nearly all industrial activities of significance were absorbed in the public sector either as state-owned or collective-owned. The trend was socialization of ownership and management — from private to state and private joint-venture and collective-owned, and then to state-owned. As for the size of operation, unlike the Soviet model, small industries managed by local authorities were encouraged even before 1978. Yet, there was always the temptation for local authorities to increase investment and to enlarge the production scale. On the other hand, in the eighties, there has been the trend of a relatively more rapid growth of enterprises of non-state ownership (especially private ownership) and small to medium size operation which have helped to lessen the unemployment problem but are generally less efficient in utilization of material inputs.

The salient features and problems of China's industrial development in the past forty years could be attributable to China's historical and economic heritage, military and strategic consideration and ideological-political pursuit of the top decision makers as well as the features of administrative institutions and policies shaped by the

socialist economic system. As a matter of fact, the reform of industrial development strategy and administration since 1979 aimed at rectifying the above-mentioned defects — unstable growth, structural disproportions and low efficiency — and was made possible by the dramatic diminution of the importance of ideological-political pursuit in socialist construction as interpreted by the top decision maker. The core objective of the reforms could be summarized as the pursuit of intensive growth rather than extensive growth strategy via productivity improvement with greater emphasis on current consumption welfare, so that economic growth could be more stable, harmonized and “economical” and could serve consumers' interests better. The major means for achieving the above objective was administrative institutional reform which could be characterized as the enhancement of the role of material motivation, the decentralization of decision making and management, the enlargement of the role of market forces at the expense of administrative control in guiding and coordinating economic activities as well as the tolerance and even encouragement of the establishment and operation of non-state owned enterprises. Unfortunately, despite more stable industrial growth (mainly due to the suppression of mass political movement) and more rapid growth in the supplies of consumer goods, especially consumer durables, up to 1990 the reform failed to rectify problems of structural imbalances (which assumed a different form compared with the pre-1979 period) and to enhance efficiency but led to other severe problems, such as inflation, widening income disparities and corruption. The problems intensified abruptly in 1985 and culminated in the economic crisis of 1988 and ultimately triggered the June-Four 1989 incident.

Although as a result of the pursuit of retrenchment cum readjustment policies the symptom of the economic crisis — hyperinflation was repressed — inherent economic problems remained or were at best disguised. At present, the Chinese authorities have learnt from the mistakes committed in the eighties and are in investigating the real inner causes of economic problems, searching for more appropriate development strategies and administrative system. Obviously, a comprehensive study and analysis of the performance and problems of China's industrial sector in the past forty years, especially during the

reform period is essential to arriving at a more accurate diagnosis of China's economic problems, which is the core objective of this monograph.

In what follows, Chapter I gives an overall picture of the structure, growth profile and efficiency of the industrial sector. Chapter II presents a disaggregated sectoral analysis based on different classification schemes by production activities, by ownership system and production scale, by spatial distribution, and by foreign trade activities. Chapter III discusses problems inhibiting steady and healthy development of the industrial sector. Chapter IV analyzes the measures for containing and eliminating the problems exposed in Chapter III during the post-1978 period. Chapter V discusses the 1988 Economic Crisis and its aftermath with special emphasis on the policies and performance of the industrial sector in 1989 and 1990. Finally, the epilogue: Summary and Conclusion summarizes the most important issues on China's industrial development in the past, and offers some preliminary thoughts on the prospects of China's industrial development in the near future.

I An Overview: Structure, Growth Profile and Efficiency

Scope and Structure of the Industrial Sector

The PRC's industrial sector covers the following four aspects of activities,¹ namely, the extraction of natural resources — mining, and lumber felling; processing and reprocessing of farm and side-line products — food processing, textiles etc; processing and reprocessing of extraction products — refining iron and machinery manufacturing and so on; and repairs and renovation of industrial products such as repairs of machinery equipment.

China adopts the classification scheme of Marxian economics by which the industrial sector is divided into two major categories: the heavy industrial sector (which corresponds to Department I) including means of production, and the light industrial sector (which corresponds to Department II) supplying consumer products and manufactured manual instruments. According to this definition, it is possible for part of the output of an industry to be classified as heavy industry while the remaining as light industry. For example, products in electrical machinery and equipment manufacturing,² and products in mechanical industry specialized for production activities of the

industrial sector belong to the heavy industry whereas those for final consumption use belong to the light industry.

The heavy industrial sector is further divided into extraction, raw materials, and manufacturing (or processing) industries, and the light industry is composed of those manufactures using raw materials from agricultural and non-agricultural produces. The details are shown in Figure 1 and Table 1.

With regard to the structure of the heavy industrial sector, in terms of either the percentage share of gross output value or the long-run growth rate, the manufacturing (processing) industry exceeded raw materials industry. The long-run average percentage share for the former reached 49.9% during 1952–89, starting from 41.9% in 1952, and 45.7% in 1957 in contrast to 37.9%, 42.8% and 39.7% respectively of the corresponding years for the latter. Meanwhile, the raw materials industry was ahead of the extraction industry. The percentage shares for the extraction industry appeared to be 12.3%, 15.3% and 14.6% for the corresponding years. Obviously, the percentage shares of both raw materials and extraction industries tended to be declining during the period under review (1952–89). Unfortunately, such changes in production structure have led to structural disproportion problems inhibiting steady growth of the national economy.

China's sectoral imbalance within the industrial sector intensified in the 1970s and worsened further from 1982 onwards. For instance, the output share of mining and timber, plus raw materials heavy industries (which are bottleneck sectors) in the gross output value of heavy industry dropped from 54.3% in 1957 to 44.4% in 1971 (at 1957 prices) and then from 51% in 1971 to 47.5% in 1978 (at 1970 prices). Then the share rose to 51% in 1981. However, it dropped again starting from 1982. As a matter of fact, in the 1970s, structural disproportions had already become serious. For instance, the utilization rate of metal-cutting machine tools in 1975 was 55.6% and dropped further to 52.1% in 1979. It's estimated that in 1977, due to insufficient supply of fuels and energy, 1/4 of industrial enterprises operated under capacity; 20–30% of equipment could not function properly giving rise to a loss of industrial output above RMB70

Figure 1. The Structure of the Industrial Sector in the PRC

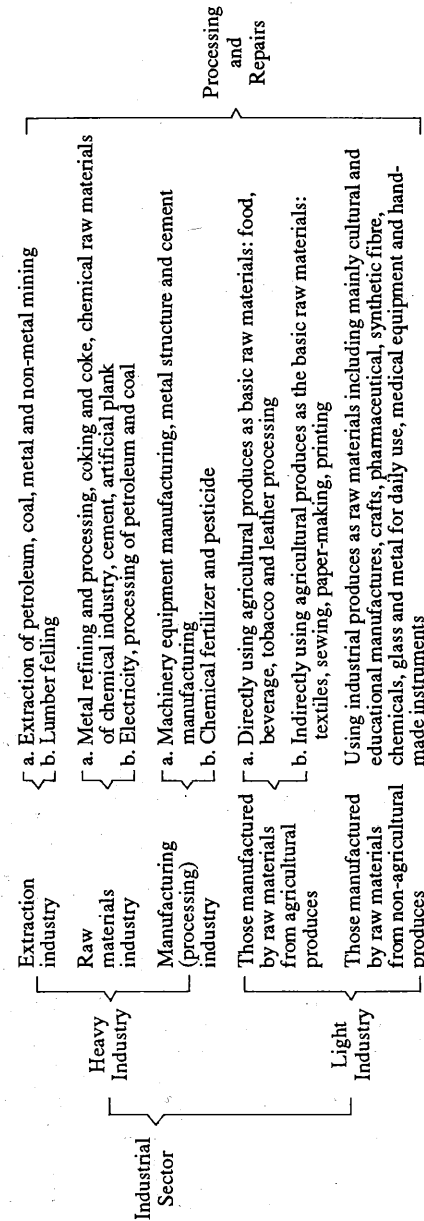


Table 1. Structure of Gross Output Value of Light & Heavy Industries, 1952-89*

Period	Light Industry			Heavy Industry		
	Farm produces as raw materials	Industrial produces as raw materials	Manufacturing	Extraction	Raw materials	Manufacturing
Rehabilitation period	87.5	12.5	42.8	15.3	42.8	41.9
First Five-year plan	83.2	16.8	39.7	14.6	39.7	45.7
Second Five-year plan	76.3	23.7	37.3	13.8	37.3	49.0
Great Leap Forward	78.1	21.9	35.3	13.6	35.3	51.1
	73.5	26.5	40.4	14.0	40.4	45.7
Readjustment period	73.5	26.5	40.4	12.7	40.4	46.9
	73.6	26.4	40.4	11.9	40.4	47.8
Cultural Revolution	69.7	30.3	36.9	11.4	36.9	51.7
Third Five-year plan	68.6	31.4	37.2	10.8	37.2	52.1
Fourth Five-year plan	70.9	29.1	37.0	11.9	37.0	51.1
Post Mao	68.5	31.6	35.1	12.2	35.1	52.8
Fifth Five-year plan	68.8	31.2	36.0	11.9	36.0	52.2
Sixth Five-year plan	69.5	30.5	37.9	13.3	37.9	48.7
	68.9	31.1	37.3	11.8	37.3	50.9
	68.8	31.3	39.3	11.4	39.3	49.3
Longer period	71.7	28.3	37.9	12.3	37.9	49.9
Pre-economic reforms	72.9	27.1	37.7	12.4	37.7	50.0
Post-economic reforms	69.1	30.9	38.0	12.4	38.0	49.7

Source: 1952-84: *Statistical Data of China's Industrial Economy 1949-84*, p. 26.

1985-86: *Statistical Yearbook of China 1987*, p. 259.

1986-87: *Statistical Yearbook of China 1988*, pp. 312-313.

1988: *Statistical Yearbook of China 1989*, p. 273.

1989: *Statistical Yearbook of China 1990*, p. 419.

Note: * 1952 at 1952 prices; 1957-70 at 1957 prices; 1970-80 at 1970 prices; 1981-86 at 1980 prices; and 1987-89 at current prices.

† Data are not available during 1953-56.

billion. Similarly, in 1979, owing to insufficient supply of energy and raw materials, 20% of industrial production capacity could not function. In 1980, oil available to agricultural machinery was only sufficient for 1-2 months operation. The utilization rate of machine tools reached merely 50% in 1980,³ simply because the supply of mining and timber products fell short. In fact, shortage in raw materials and energy supplies resulted in serious under-utilization of the production capacity of heavy manufacturing industries. For light industries, the percentage share of those which require farm produces as raw materials dropped from 87.5% in 1952 to 68.8% in 1988-89, with an average of 71.7% during 1952-89. In contrast, the percentage share of those requiring industrial products as raw materials went up from 12.5% in 1952 to 31.3% in 1987-89 with an average of 28.3% during 1952-89.

Development Highlights: the Basis for Reforms

The weakness of the industrial sector before 1949, especially machinery manufacturing urged the Chinese Communist Party (CCP) to list the reconstruction of the industrial sector, particularly the heavy industry, as the top priority when it seized power in 1949. In August 1952, Premier Zhou Enlai led a team to Russia to exchange views on the issues concerning the First Five-Year Plan (FFYP). The most important tasks were to realize the rapid construction of key heavy industries so as to lay down a solid foundation for industrialization. However, the Soviet side questioned the feasibility of the very high 20% planned annual growth rate of the industrial sector and suggested to cut it down to 14-15%. As shown in Table 2, in effect, the realized average growth rate of net output value (NOV) of the industrial sector at comparable prices during the FFYP was exactly 20% and that of gross output value (GOV) was 18.4%. The average growth rates of heavy industry in GOV and in NOV are 25.9% and 22% (at current prices) respectively. In other words, the industrial sector developed by leaps and bounds with the planned growth rate basically achieved despite the queries of the Soviet experts. Nevertheless, the success of

Table 2. Growth of the National Economy by Sectors, 1952-89
% (at comparable prices unless otherwise indicated)

Year	Gross social product	National income	Industry Sector			Light Industry		Heavy Industry		Agriculture	
			Gross output value (GOV)	Net output value (NOV)	%	GOV	NOV*	GOV	NOV*	GOV	NOV*
1952	—	—	29.9	—	—	23.5	—	43.5	—	—	—
1953-57	11.5	9.0	18.4	20.0	14.5	13.3	14.5	25.9	22.0	4.5	3.7
1958-62	2.4	-1.5	9.5	7.7	3.2	3.2	2.6	16.7	14.8	-4.0	-5.4
1958-60	18.4	9.6	34.0	31.9	15.3	15.3	13.9	50.9	45.7	-7.9	-11.0
1961-62	-21.8	-18.1	-27.4	-28.6	-15.0	-15.0	-14.4	-34.6	-31.6	1.9	3.1
1961-65	0.6	1.6	-0.06	1.5	7.6	7.6	9.3	-4.8	-4.1	7.4	8.1
1963-65	15.6	14.7	18.2	21.5	22.6	22.6	25.1	15.0	14.2	11.1	11.5
1966-76	8.2	6.4	10.6	10.3	8.2	8.2	6.0	13.2	10.8	3.3	2.6
1966-70	10.4	9.2	13.4	14.7	9.2	9.2	8.0	17.7	15.1	4.1	3.1
1971-75	7.4	5.5	9.4	8.6	8.2	8.2	7.1	11.0	8.7	3.4	3.1
1977-78	11.7	10.1	14.1	16.0	12.8	12.8	13.0	15.1	18.5	3.8	0.7
1976-80	8.3	6.2	9.7	9.4	11.6	11.6	8.9	8.4	10.3	3.2	0.8
1981-85	11.2	9.9	12.2	10.4	13.6	13.6	11.6	11.0	12.9	8.2	8.4
1986-87	12.2	9.3	14.7	12.0	15.4	15.4	20.0	13.9	13.7	4.6	4.3
1988-89	10.5	7.3	14.7	11.7	15.2	15.2	22.9	14.2	19.9	3.5	15.7
1953-89	9.4	7.3	13.4†	12.6	11.8†	11.8†	11.5	15.7†	14.3	4.0	3.9
1953-78	8.8	6.6	13.6‡	13.4	10.7‡	10.7‡	9.7	17.7‡	14.7	3.1	2.1
1979-89	10.7	8.8	12.6	10.7	14.4	14.4	15.7	11.0	13.4	6.0	7.8

Source: *Statistical Yearbook of China 1988*, pp. 39, 46, 53; 1989, p. 34; 1990, pp. 34, 36, 51, 58, 419. *Compilation of Statistical Data on National Income 1949-85*, p. 14.

Note: * At current prices. For the source and compilation of net output value of light and heavy industries, see also Table 3.

† 1952-87.

‡ 1952-78.

—: Not available.

the FFYP encouraged the top leaders to go to another extreme. During the Great Leap Forward period (1958-60), the annual growth rates of the industrial sector were as high as 34% in GOV and 31.9% in NOV, and those of heavy industry, 50.9% in GOV and 45.7% in NOV, which resulted immediately in a great leap backward, -27.4% in GOV and -28.6% in NOV for the industrial sector as a whole and -34.6% in GOV and -31.6% in NOV for heavy industry in 1961-62. Then after 1960 it came the readjustment period which lasted for five years (1961-65).

The development of the industrial sector was again retarded during the Cultural Revolution with the annual growth rates of NOV of the whole industrial sector at -15.7% in 1967, -9.1% in 1968, and -3.7% in 1976 (at comparable prices). Similarly, heavy industry achieved growth rates of -23.7%, -12.7% and -0.2%, while light industry achieved -8.7%, -9.6% and -10.1% respectively during the corresponding years.

Nevertheless, throughout the period under review (1952-89) the industrial sector made impressive achievement. The average growth rate of the industrial sector was as high as 13.4% in GOV and 12.6% in NOV. Correspondingly, heavy industry grew at 15.7% in GOV and at 14.3% in NOV (current prices, 1953-89) and light industry at 11.8% in GOV, and at 11.5% in NOV (current prices, 1953-89) annually.

The importance of the industrial sector in the national economy can be seen from Table 3. The contribution of the industrial sector to national income evidenced by its percentage share grew from 19.5% in 1952 to 46.8% in 1988-89 with an average share of 39.3% in 1952-89, and was at its highest of 48.6% in 1977-78, when Hua Guofeng boosted the Ten Daqing's campaign. Of the industrial sector, heavy industry took a share of 35.5% in GOV and 42.6% in NOV in 1952, 50.9% and 55.5% in 1988-89, and 56.5% and 60.4% in 1977-78 respectively. The ratios went to a peak during the Great Leap Forward (1958-60) at 59.6% and 62.8%. As a matter of fact, the GOV of heavy industry began to surpass that of light industry in 1958 (RMB58.0 billion to RMB50.3 billion) and thereafter, except for 1965, 1967-69 (the early period of Cultural Revolution), and 1981-

Table 3. Share of Light Industry, Heavy Industry, Industrial Sector and Agriculture in the National Economy, 1952-89

Year	$\frac{LI}{I+A}$	$\frac{HI}{I+A}$	$\frac{HI}{I}$	$\frac{i}{NI}$	$\frac{hi}{I}$	$\frac{hi}{I+I}$	$\frac{hi}{I+I}$	$\frac{hi}{I+I}$	$\frac{a}{I+I}$
1952	27.8	15.3	35.5	19.5	42.6	10.8	14.5	74.7	
1953-57	29.8	20.7	40.8	24.1	46.5	15.0	17.1	67.9	
1958-62	28.9	40.2	57.8	38.5	61.1	31.3	19.5	49.2	
1958-60	29.2	43.7	59.6	41.8	62.8	35.6	20.7	43.7	
1961-62	28.4	35.0	55.2	33.7	58.5	24.9	17.6	57.5	
1961-65	28.7	33.7	53.9	34.7	56.8	24.2	18.4	57.3	
1963-65	29.0	32.8	53.1	35.4	55.7	23.8	19.0	57.2	
1966-76	31.1	35.9	53.3	40.6	54.5	27.1	22.3	50.6	
1966-70	31.5	31.2	49.6	36.2	51.0	22.8	21.7	55.5	
1971-75	30.6	39.7	56.4	44.1	57.1	30.5	22.9	46.6	
1977-78	32.7	42.4	56.5	48.6	60.4	35.7	23.4	40.9	
1976-80	32.7	41.0	55.6	48.1	59.9	34.4	23.0	42.6	
1981-85	34.8	36.2	51.0	45.4	56.6	30.5	23.4	46.1	
1986-87	36.0	38.7	52.1	45.6	57.1	32.6	24.5	42.9	
1988-89	37.5	38.9	50.9	46.8	55.5	32.8	26.4	40.8	
1952-89	31.6	34.5	51.5	39.3	55.2	27.3	21.3	51.4	
1952-78	29.2	33.2	51.4	36.4	54.4	25.3	20.2	54.4	
1979-89	35.1	37.8	51.8	46.3	57.1	32.0	24.1	43.9	

Source: *Statistical Yearbook of China 1990*, pp. 34, 49, 56.

Statistical Yearbook of China's Industrial Economy 1989, p. 49.

- Note: 1. LI (li): Gross (Net) output value of light industry; HI (hi): Gross (Net) output value of heavy industry; I (i): Gross (Net) output value of the industrial sector; A (a): Gross (Net) output value of agricultural sector; NI: National income.
2. 1989 figures for hi and li: The value added ratios of HI and LI in 1988 are applied to estimate the corresponding hi and li in 1989; the statistical discrepancies arising are then proportionally distributed to the estimates.

82 (readjustment period); and for NOV in 1957 (RMB13.0 billion to RMB12.7 billion) and thereafter, except for 1967-68.

China's economic construction emphasized the development of the industrial sector. The GOV of the industrial sector has surpassed that of the agricultural sector since 1956 (RMB64.2 billion to 61.0 billion), and the NOV of the former has exceeded that of the latter since 1959 (RMB52.7 billion to RMB37.6 billion) except for 1961-69. In 1988-89, in terms of NOV, the percentage share of industry in the total industrial and agricultural output grew to 59.2%, with heavy industry accounting for 32.8% and light industry for 26.4%.

By the very nature of Chinese socialism,⁴ the path of industrialization follows an extensive growth policy based on mass construction of heavy industries. By and large, the growth of the industrial sector stemmed from the forward and backward linkage effects through the input-output activities of heavy industries. However, under the state monopoly economic system, the heavy industrial sector gradually adopted a self-sufficiency and self-service pattern. The ultra bias for heavy industrial production based on extensive growth strategy reached its climax during the Great Leap Forward period. In that period, the policies of the so-called "while steel takes the lead, light industry gives way" were implemented. These included⁵ (1) steel products originally distributed to the light industry for production activities and basic construction had to be reduced; (2) contracts originally signed by the machinery industry department for supplying equipment to the light industrial sector had to be cancelled because the department needed to give production precedence to the heavy industrial sector; (3) transportation and communications gave top priority to serving heavy industries in such a way that raw materials and fuels originally scheduled to supply to the light industries were delayed; (4) the workforce in the light industrial sector, particularly in collective-owned production cooperatives, was transferred to smelting and processing steel or to undertake other heavy industrial production; (5) factories for ordinary kiln ceramics were forced to produce refractory products or were even converted to refine steel and iron.

The drive for rapid growth in steel and iron in order to catch up

with the UK and USA within 15 years had resulted in the erection of lots of indigenous blast furnaces and steel refining facilities equipped with inferior technology, which turned out plenty of useless products.

In fall 1958, the Ministry of Light Industry dispatched cadres to conduct experiments at Gaotang county, Shandong province, to establish more than 1,000 "factories" within 40 days. Towards the end of 1958 and the first quarter of 1959, the Ministry initiated again experiments in 10 counties to establish 200 commune-owned factories within 40 days.⁶ The Ministry scheduled to set up large numbers of small indigenous enterprises regardless of the supply conditions of raw materials, technology and even equipment. As a result, a significant portion of tobacco, wine, soap, leather, and sugar beet refining factories which mushroomed during the Great Leap Forward period supplied products of very low quality. The failure of the Great Leap Forward resulted during 1961–65 in the shutdown, suspension, merging and transfer of the industrial enterprises concerned. In 1962, some 70.5% of metallurgical, 50.7% of building materials, 42.2% of chemical engineering and 31.6% of machinery enterprises were slashed. The production capacity of steel and iron refining, cement processing, heavy equipment for machine industry, and equipment for power stations, automobile, machine tools and electric motors, was reduced by some 50%.⁷

It was not until 1965 that the tragic consequences of the Great Leap Forward Movement were basically contained and the national economy recovered. However, in 1966, the outbreak of the Cultural Revolution brought development back again onto a speed and extension-oriented growth path. In 1966, the target of steel production was set at 15 million tons, 25% more than 1965's. As a result of the turmoil during the early stage of the Cultural Revolution, the output of ferrous and nonferrous metallurgical industries slid down.⁸ In 1970, emphasis was placed on agricultural mechanization. The output of steel products had to be doubled and small scale steel factories developed on a large scale. Thus, in February 1970, the National Planning Meeting stipulated that, in 1975, steel and iron output should reach 35 to 40 million tons (a 97–125% increase over 1970s output)⁹ and electricity output double. Furthermore, the nine provinces in the

south of the lower Changjiang River should be self-sufficient in coal supply. Meanwhile, it called for each province to establish its own independent industrial production structure and to become self-sufficient in coal, steel and iron, electricity and agricultural machinery. All these planned targets were, of course, unrealistic. Serious attempts for their fulfilment would only lead to economic chaos.

In the early 1970s, China also stressed on self-sufficiency in the light industrial system for provinces and districts. A case in point was that, although Hunan and Hubei provinces are not suitable for planting sugar crops, nevertheless, they were urged to construct some sugar refining factories. As a result, most factories had to be shut down shortly after production started simply because of the lack of supplies of raw materials. Similarly, factories for manufacturing light industrial consumer goods such as bicycles, sewing machines and watches were also established by local governments regardless of the technology available.

After the downfall of the Gang of Four in 1976, Hua Guofeng followed the extensive growth policy which led to severe economic structural imbalance. It was not until the Third Plenary Session of the Eleventh Central Committee of the CCP held in December 1978 that the rectification of sectoral disproportions became an important item on the agenda. As a result of the pursuit of readjustment policies, in 1981,¹⁰ some 4,400 heavy industrial enterprises were to be cut, including 367 metallurgical enterprises, 458 chemical fertilizer and insecticide enterprises and 3,127 machine enterprises. In addition, some 1,034 commune-owned enterprises were to be closed. They included mainly those which consumed energy intensively and operated with backward technology, turning out low quality products and those which suffered huge losses, such as small-scale machine, nitrogenous fertilizer, steel and iron, oil-refining, paint, lumber-processing, wine, knitting, leather and paper mill factories. For example, small nitrogenous fertilizer factories were reduced from the original number of 1,533 to 1,253 at the end of 1982. However, there were still some 375 enterprises suffering losses in 10 provinces and autonomous regions. Others like agricultural machinery, tools and repairs factories were shut down during 1981–82 in quite a large number, because of their

poor-quality products or after long periods of losses. In 1982, some 176 chemical plants above county level were also in the situation of either to be shutdown, merged, or transformed because of their high consumption of energy, poor quality of product, and long periods of loss and poor sales performance. Thus, the percentage share of heavy industrial output changed from 41.0%, 55.6%, 59.9% and 34.4% in terms of HI/I+A, HI/I, hi/i, and hi/a+i in 1976–80 to 36.2%, 51.0%, 56.6% and 30.5% respectively in 1981–85 (see also Table 3). Meanwhile, the percentage share of the light industrial sector changed from 32.7%, 44.4%, 40.1% and 23.0% to 34.8%, 49.0%, 43.4% and 23.4% respectively. And the percentage share of agricultural output (a/a+i) surged up from 42.6% in 1976–80 to 46.1% in 1981–85.

In fact, the readjustment of industrial structure caused a serious contractionary impact on the heavy industrial sector in 1981, evidenced by the negative growth rate of its GOV, -4.6% at comparable prices, and that of NOV, -6.2% at current prices. As a result, the growth rates of gross social output and national income (at comparable prices) dropped from 8.4% and 6.4% in 1980 to 4.7% and 4.9% in 1981 respectively. Such a drastic decline in growth rate was intolerable to the Chinese leaders. Moreover, due reallocation of labour force released from the shutdown of the factories in the heavy industrial sector became a social issue, which was also unwelcome by the leaders. With the government's blessing, the heavy industrial sector recovered again with rapid growth during 1982–85, particularly in 1982–83. Restoration of the high growth rate of heavy industry was, in effect, at the expense of that of light industry through re-adoption of the extensive growth strategy. Since 1985, however, as a result of the relaxation of control on rural industries accompanied with the pursuit of the fiscal "Cheng-bao" (contract) system, rural industries, particularly small-scaled light industries, flourished. Furthermore, price controls on light industrial products were gradually reduced and more lenient compared with heavy industrial products, particularly products of mining and timber, and raw materials industries. On the other hand, overhead investments for establishing enterprises engaging in mining and timber and heavy industrial raw materials produc-

tion were generally much greater than those required for running light consumer goods enterprises. Thus, light industry grew faster during 1985–88, with an average annual growth rate of 19.06% in real GOV compared with 16.61% attained by heavy industry. Within heavy industry, processing industry grew faster than mining and timber, and raw materials industries with its share in real heavy industrial output surging from 53.4% in 1985 to 56.7% in 1988. The above changes in output composition worsened the supply conditions of energy and raw materials thus fuelling the inflation pressure. To curb the severe inflation ignited in 1988, the Chinese authority had to pursue retrenchment cum readjustment policies, suppressing the growth of light industries, especially the inefficient rural industries while encouraging the expansion of mining and timber as well as raw materials heavy industries. As a result, in 1989, for the first time since 1985, heavy industry grew faster than light industry (16.1% in NOV at current prices and 8.9% in GOV at comparable prices for the former in contrast to 14.2% and 8.2% respectively for the latter). Within heavy industry, both mining and timber, and raw materials industries attained a higher growth rate than processing industry. In fact, since 1985 the nature of the structural imbalance has changed significantly. The problem is no longer simply the growth of light industry at a snail pace in contrast with over-expansion of heavy industry.

Labour Productivity and Production Efficiency

Starting from the official estimates as shown in Table 4,¹¹ in general, the growth rate of industrial labour productivity appeared to be in a cyclical pattern. Namely, according to series (B), the rate achieved during the FFYP period (1953–57) was at a peak: 16% for the industrial sector, and 14.4% and 16.7% for the light and heavy industries respectively. It was followed by a trough in 1958–62, with average growth rates of 0.2%, 1.9% and 3.5% respectively. It then reached another peak in 1963–65: 22.4%, 24.6% and 20.9%. It was then followed by another trough in 1966–76 with respective growth

Table 4. Growth Rate of Labour Productivity† in Industrial Sector, 1953–89

	% at comparable prices			
	Industrial Sector		Light Industry (B)	Heavy Industry (B)
	(A)	(B)		
1953–57	115.5	116.0	114.4	116.7
1958–62	96.9	100.2*	101.9*	103.5*
1958–60	103.6	107.0*	108.6*	112.9*
1961–62	87.7	90.0	91.8	89.3
1961–65	107.1	109.4	111.5	108.3
1963–65	122.3	122.4	124.6	120.9
1966–76	100.6	101.3	100.8	102.0
1966–70	103.4	104.6	103.1	106.5
1971–75	99.5	99.7	100.1	99.5
1977–78	108.9	108.9	111.2	107.8
1976–80	103.0	103.2	104.6	102.0
1981–85	106.7	104.5	103.2	105.3
1986–87	106.2	106.3	105.6	106.7
1988–89	109.0	109.0	109.1	109.0
1953–89	105.8	106.4*	106.5*	107.1*
1953–78	105.6	106.9	107.2	107.7
1979–87	105.7			
1979–89	106.3	105.3	104.9	105.5

Source: (A) is from *Statistical Yearbook of China's Industrial Economy 1990*, p. 68; (B) is from *Statistical Data of China's Labour Force and Wages 1949–85*, p. 218; *Statistical Data of China's Industrial Economy 1987*, p. 71; *Statistical Yearbook of China 1988*, p. 381; 1989, p. 328; 1990, p. 444.

Note: † Labour productivity = $\frac{\text{Gross output value}}{\text{man-year}}$

* These figures are incorrect in one way or another simply because the growth rates of components — light and heavy industries, were greater than that of the aggregation, total industrial sector.

rates of 1.3%, 0.8% and 2.0%. There was some recovery during 1977–78. The respective growth rates were 8.9%, 11.2% and 7.8%. During 1976–80, the growth was quite moderate: 3.2%, 4.6% and 2.0% respectively. Then, it surged up again in the eighties achieving the spectacular growth rates of 9.0%, 9.1% and 9.0% in 1988–89. A comparison of the pre-economic reform period (1953–78) with the post-economic reform period (1979–89) shows that the labour productivity growth rate of the latter was not substantially higher based on series (A), and even lower according to series (B) in Table 4. Nevertheless, the productivity growth rates post-reform were more steady. It seems that the average growth rate of labour productivity was quite impressive throughout the period under review 1953–89: 6.4% for industrial sector, and 6.5% and 7.1% for light and heavy industries respectively according to Series (B).¹² However, these high rates of growth were accompanied by the extremely high accumulation rate of capital stock in the industrial sector and so did not necessarily come from the improvement of quality and performance of the labour force per se.

In comparing the data on labour productivity of various state-owned industries by cross sections, Table 5 further shows that the high-productivity industries (calculated as ¥RMB/man-year) included petroleum ¥49,707; food ¥23,677; (electric) power, ¥22,758; textiles, ¥18,960; chemical, ¥18,099; metallurgy, ¥15,334; and paper making, ¥13,431 which were all above the average productivity of all industries ¥13,263 in 1981–85. During the same period, low-productivity industries included machine building, ¥9,883; building materials, ¥5,943; forestry, ¥5,296; and coal and coke, ¥3,432. It is interesting to point out that the average labour productivity of the last two industries were already as high as ¥6,545 and ¥4,200 respectively in 1953–57, which thus implied negative growth rates of -18.3% and -19.1% during the period under review. The growth rates of other low-productivity industries during the two aforementioned periods were paper making, 19.1%, food, 43.8%, metallurgy, 77.6% and textiles, 93.4%.

There are several reasons behind such a growth pattern.

First, the government's adoption of a low price policy for coal

Table 5. Labour Productivity of State-Owned Industrial Enterprises, 1953-85

Year	At 1980 constant prices (RMB/man-year)											
	All industries	Metal-lurgy	Power	Coal & coke	Petroleum	Chemical	Machine building	Building materials	Forestry	Food	Textile	Paper making
1953-57	5660	8633	8239	4200	12788	4857	3290	2222	6545	16470	9803	11277
1958-62	5226	4913	13083	3929	15690	4874	3818	2583	4874	14394	9180	10228
1958-60	5704	4649	14016	4432	16738	4851	4528	2775	5573	15039	10063	11104
1961-62	4509	5310	11684	3175	14118	4910	2754	2295	3827	13427	7855	8913
1961-65	6297	9894	12768	3965	20229	7483	3733	3291	4779	16635	10415	12584
1963-65	7489	12951	13490	4041	24303	9198	4386	3956	5415	18773	12122	15032
1966-76	9387	12337	21419	3453	40735	12734	6007	4469	4977	18613	13409	13150
1966-70	9046	12814	18704	3489	34617	12741	5299	4538	5133	17908	13224	14224
1971-75	9770	12339	23998	3502	44915	13086	6632	4501	4886	19628	13586	12398
1977-78	10523	11743	24218	3367	58456	12587	7367	4563	5091	20436	15993	12469
1976-80	10827	12536	23239	3328	57297	13252	7479	4707	5148	20642	16640	12643
1981-85	13263	15334	22758	3432	49707	18099	9883	5943	5296	23677	18960	13431
% of petroleum	26.7	30.8	45.8	6.9	100.0	36.4	19.9	11.9	10.7	47.6	38.1	27.0
1981-85	234.3	177.6	276.2	81.7	388.7	372.6	300.4	267.5	80.9	143.8	193.4	119.1
1953-57												

Source: *Statistical Data of China's Labour Force and Wages 1949-85*, pp. 224, 227-228.

and coke and forestry industries caused a disincentive effect on them, especially after 1978 when profits gradually became a very important production motive, and a source for financing investment.

Second, the government did not pay much attention to the industries producing consumer goods such as food and paper making, especially before 1979.

Third, it was not until the economic reforms period that the comparative advantage doctrine played an important role in the external sector, and the open-door policy made the promotion of textile industry possible.

As mentioned above, the growth of labour productivity of the industrial sector in the post-reform period, in fact, was not substantially higher than that of the pre-reform period. This may be a hint that the economic efficiency of the industrial sector (at least the rate of improvement) tended to be falling during the period under review.

The efficiency (measured in terms of various efficiency indicators) of China's industrial sector appeared to have remained low without significant improvement after the mid-sixties. Consider the efficiency of capital utilization over the period 1953-89: on average, the growth rate of capital stock exceeded that of net industrial output in comparable prices. The only exceptions occurred during 1953-57, 1963-65 and 1966-70 (see Table 6). Meanwhile, the growth rate of labour productivity (defined as real industrial net output per worker) fluctuated widely. It became more steady after 1978. Yet, the average annual growth rate was only 5.3% during 1979-87, still below the one during 1953-78 (5.6%). It was only due to the significant upsurge of the growth rate during 1988-89 (10.2%) that the post-reform average growth rate (6.1%) rose above the one during 1953-78. The average incremental output-capital ratio in the industrial sector during 1979-89 was 0.431, even smaller than that during the Cultural Revolution, 1966-76 (0.504). Similarly, the cumulative output-capital ratio dropped from 0.572 to 0.515 during the same period of comparison. The elasticity of labour productivity with respect to capital stock (% change in labour productivity/% change in fixed assets) was smaller than one (0.496). Although there appeared to be some increase in the size of the elasticity during 1979-89, 0.496 compared with 0.434

Table 6. The Average Annual Growth Rate* of Industrial Capital Stock, Real Net Industrial Output and Real Industrial Labour Productivity in China, 1953–89

Period	K	Y_I	Y_I/K	$\frac{\Delta Y_I}{\Delta K}$	$\frac{\Sigma Y_I}{\Sigma K}$	(Y_I/L)	$(\frac{Y_I}{L})/K$
1953–57	17.9	19.6	1.095	0.873	0.836	16.8	0.938
1958–62	20.8	1.8	0.087	0.0494	0.654	-2.1	-0.101
1958–60	29.4	30.3	1.031	0.861		1.4	0.0476
1963–65	6.8	21.3	3.132	1.264	0.451	18.6	2.735
1958–65	15.3	8.7	0.569			5.2	0.340
1966–70	7.2	12.3	1.708	0.999	0.542	3.1	0.431
1971–75	11.3	8.5	0.752	0.467	0.599	-0.3	-0.027
1966–76	9.3	9.1	0.978	0.504	0.571	0.62	0.067
1976–80	9.9	9.2	0.929	0.529	0.537	3.5	0.354
1981–85	10.7	10.2	0.953	0.528	0.520	3.5	0.514
1986–87	15.7	11.9	0.758	0.397	0.513	5.2	0.331
1988–89	16.7	11.6	0.692	0.344	0.488	10.2	0.611
1953–78	12.9	11.4	0.884	0.546	0.572	5.6	0.434
1979–89	12.3	10.5	0.854	0.431	0.515	6.1	0.496

Source: *Statistical Yearbook of China 1988*, pp. 52, 373, 383;
Statistical Data of China's Industrial Economy, 1986, p. 176; 1989, pp. 50, 53.
Statistical Data of China's Labour Force and Wages, 1949–85, p. 220;
Statistical Yearbook of China 1990, pp. 34–35, 114, 440.

Note: * Average annual growth rate = geometric mean e.g. the growth rate during

$$1953-57 = 100\% \left(\sqrt[5]{\frac{\text{value of 1957}}{\text{value of 1952}}} - 1 \right)$$

K = average annual compound growth rate of the value of fixed assets at original value of independent accounting industrial enterprises.

Y_I = average annual compound growth rate of industrial net output at comparable prices.

$(\frac{Y_I}{L})$ = average annual compound growth rate of industrial net output per worker at comparable prices.

$\frac{\Delta Y_I}{\Delta K}$ = incremental output-capital ratio
 = increase in real net industrial output during the period concerned/increase in the value of fixed assets of independent accounting industrial enterprises during the period concerned.

$\frac{\Sigma Y_I}{\Sigma K}$ = summation of the value of net industrial output for each year during the period concerned/summation of the value of fixed assets of independent accounting industrial enterprises at original value for each year during the period concerned.

during 1953–78, it should have been mainly attributed to the absence of mass political movement as well as the shift of the output structure in favour of light industry in which average labour productivity was in general higher than that of heavy industry.¹³ As a matter of fact, even by 1985, the historical peak levels of labour productivity in many key industries such as metallurgy (in 1966), electricity (in 1971), coal (in 1956), petroleum (in 1979), forestry (in 1966) and paper manufacturing (in 1965) could not be attained again.

Concerning the efficiency of utilizing intermediate input, and transports facilities, as demonstrated by the World Bank, according to international standards, by 1981, China's industry sector was an inefficient user.¹⁴ Unfortunately, China has not experienced substantial real improvement since then. By and large, the share of the intermediate input cost in gross industrial output value has risen no matter how it is counted, either at current prices or comparable prices. For a more disaggregated analysis, the material content in the output of both heavy industry and light industry has surged up (see Table 7). In assessing changes in the realized level of 33 major input efficiency indicators (in physical units) concerning the coal industry, chemical industry, machine-building industry, building material industry and textile industry, it can be shown that the performance level on most of them during 1984–85 followed the original trend set before 1978. Only 4 items showed significant improvement as against the trend. On the other hand, 2 items experienced deterioration reversing the pre-1979 situation.¹⁵ As for 1986–87, especially in 1987, there was a widespread increase in energy (especially electricity) and material consumption per physical unit of output. For instance, the per unit electricity consumption in the production of coal, crude oil, electricity generating factories, the electrolysis of aluminium, sulphuric acid, cement and chemical fibres surged up in 1987.

Similarly, coal consumption per unit of output increased for the production of electricity, plate glass, etc. Altogether, as recorded by the State Statistical Bureau, seven showed a persistent increase in (per unit) electricity consumption from 1985 onwards, while only 5 experienced continual decrease. Others fluctuated during 1985–87. However, most showed a net increase judging from the average con-

sumption level during 1986–87 compared with 1985's. Thus, the decrease in electricity consumption per 100 million yuan of gross industrial output is most likely mainly attributable to the shift in output structure. As a matter of fact, there was no substantial rise in the output elasticity of electricity and energy consumption during 1981–87.

Table 7. Percentage Share of Material Cost in Gross Industrial Output, 1952–89

Year	Industrial Sector	%	
		Light Industry	Heavy Industry
1952	67.05	70.67	60.48
1953–57	65.70	69.00	60.88
1958–62	65.50	68.13	63.47
1958–60	64.31	67.07	62.26
1961–62	67.29	69.72	65.29
1961–65	65.67	67.83	63.85
1963–65	64.60	66.57	62.89
1966–76	63.86	64.82	63.01
1966–70	63.73	64.76	62.70
1971–75	63.52	64.07	63.09
1977–78	65.50	68.60	63.12
1976–80	65.49	68.83	62.82
1981–85	66.75	70.54	63.13
1986–87	68.62	71.89	65.61
1988–89	70.97	73.67	68.37
1952–89	65.62	68.11	63.10
1952–78	64.83	66.90	62.62
1979–89	67.56	71.08	64.29

Source: As for Table 3.

Concerning the consumption of steel, coal, oil and wood, by (industrial) sectoral analysis we cannot arrive at an unambiguous conclusion, even though judging from the decrease in consumption per 100 million yuan of gross industrial output, it appears that there

has been some moderate reduction. Nevertheless, the most discouraging thing was the deterioration of the quality of product. In 1987, the percentage share of output at or above the national standard declined in quite a lot of key industries such as electricity, rolled steel, machine-building, plate glass, forestry, wool, silk articles, newspaper, bicycle, watches, tobacco etc., indicating that the apparent decrease in material consumption (even if it was real) was achieved at the expense of output quality. The efficiency of material input utilization and the quality of the output of key industrial enterprises during 1988–89 did not experience noticeable improvements over 1985's. Certainly, the most unambiguous indicator reflecting the change in the efficiency of utilizing intermediate inputs is the unit cost of comparable products. According to changes in unit production cost of comparable products by state-owned independent accounting industrial enterprises, on average, China achieved an annual rate of decrease of 3.8% during 1952–79 but a rate of increase of 6.21% during 1980–89. In fact, during 1980–89, only in one year (1983) China did experience some decrease, which was, however, very meagre (0.2%). And the rate of increase has accelerated since 1984. Definitely, the cost increase should have been due to price increase. It indicates that China could not rely on the enhancement of material input utilization efficiency to absorb rising costs due to the upsurge of input prices. Thus, any attempt to raise the prices of raw materials in order to rationalize the price structure would lead to inflation. As a matter of fact, during 1985–89, state-owned industrial enterprises could only absorb less than 20% of cost increases resulting from the rise in prices for productive means and wage rates. The average annual rate of decrease for the unit cost of comparable products deflated by the price index of productive means and the wage index was below 2% during 1985–89 and almost zero for 1986–89, much lower than that during 1952–79.¹⁶

For assessing the change in general physical productivity, we have computed the contribution of technical progress (implied by the shift of production function) made to China's industrial growth taking only capital goods and labour as the productive factors. Assuming the presence of a linear homogeneous aggregate production function and

applying an output elasticity of fixed assets of 0.2 or 0.3, we find that the contribution made by technical progress fluctuated widely (see Table 8). Nevertheless, the percentage contribution of the shift of production function to the net industrial output growth during 1979-1989 (0.515 or 0.414) was smaller than that during 1953-78 (0.56 or 0.436). However, when larger output elasticities of fixed assets are employed such as 0.4 or 0.5, the post-1978 period performed better than the period 1952-78: 0.314 or 0.214 in contrast with 0.313 or 0.189 respectively.

Apart from the efficiency of input utilization, economic efficiency should include the capacity of the products to satisfy consumer desires, which may be reflected by the sales level. In general, the indicators which can best reflect efficiency from both the supply and demand side are financial indicators, especially the profit rate if prices are rational. As shown in Table 9, three criteria are used to make the assessment, namely, GOV realized per 100 yuan of gross fixed assets, and profit and tax realized per 100 yuan of gross fixed assets, or funds invested. It is found that for state-owned independent accounting industrial enterprises, GOV realized per 100 yuan of gross fixed assets appeared to drop from ¥179.6 in 1958-60 (the highest) to ¥96.6 in 1986-87, and ¥127.0 in 1988-89 or from ¥116.8 in 1952-78 to ¥102.6 in 1979-89. Profits and taxes realized from ¥100 gross fixed assets and funds invested were ¥53.2 and ¥46.3 (the highest) respectively in 1958-60 falling to ¥19.6 and ¥20.5 in 1986-87, and ¥19.5 and ¥18.9 in 1988-89, or correspondingly ¥29.2 and ¥27.8 in 1952-78 in contrast to ¥21.7 and ¥22.4 in 1979-89.

Some fragmentary information in Table 10 further shows the economic efficiency of collective-owned ones. For example, GOV per ¥100 gross fixed assets in collective-owned light industry was as high as ¥262 in 1983, in contrast to ¥227 in the state-owned one. The figures then came to ¥301 in contrast to ¥206 in 1985. However, the corresponding profit and tax per ¥100 gross fixed assets turned out to be ¥34 against ¥47 in 1983 and then ¥36 against ¥43 in 1985.

In comparing efficiency indicators of light with heavy industries during the period 1965-89, the figures clearly show that the light industry was much more efficient than the heavy industry: ¥192-¥321

Table 8. Sources of Growth of Industrial Net Output, 1953-89

Period	$\Delta K/K$	$\Delta L/L$	$\Delta Y_I/Y_I$	\dot{A}	$\dot{A}/\frac{\Delta Y_I}{Y_I}$
1953-57	1.276	0.124	1.445	1.0906 (0.9754)	0.755 (0.675)
1958-62	1.570	0.217	0.0937	-0.394 (-0.529)	
1963-65	0.219	0.072	0.787	0.685 (0.6704)	0.871 (0.852)
1958-65	2.133	0.305	0.954	0.283 (0.1006)	0.297 (0.105)
1966-70	0.417	0.537	0.789	0.276 (0.288)	0.350 (0.365)
1971-75	0.710	0.525	0.503	-0.059 (-0.078)	
1966-76	1.655	1.567	1.615	0.0304 (0.0216)	0.0188 (0.0134)
1971-78	1.307	0.783	0.946	0.0577 (0.0053)	0.061 (0.0056)
1976-80	0.604	0.307	0.552	0.185 (0.1554)	0.336 (0.282)
1981-85	0.658	0.244	0.627	0.3005 (0.259)	0.479 (0.413)
1986-87	0.330	0.119	0.253	0.0913 (0.0702)	0.362 (0.278)
1988-89	0.362	0.241	0.244	0.152 (0.119)	0.623 (0.488)
1953-78	22.308	3.020	15.624	8.746 4.889* (6.818) (2.960)**	0.560 0.313* (0.436) (0.189)**
1979-89	2.587	0.571	2.008	1.034 0.631* (0.832) (0.429)**	0.515 0.314* (0.414) (0.214)**

Source: As for Table 6.

Note: $\Delta K/K$ = proportional change in fixed assets at original value of independent accounting industrial enterprises.

$\Delta L/L$ = proportional change in industrial employment.

$\frac{\Delta Y_I}{Y_I}$ = proportional change in real net industrial output.

\dot{A} = $\frac{\Delta Y_I}{Y_I} - \alpha \frac{\Delta K}{K} - (1 - \alpha) \frac{\Delta L}{L}$

() = \dot{A} or $\dot{A}/\frac{\Delta Y_I}{Y_I}$; when $\alpha = 0.3$; without parentheses: $\alpha = 0.2$

* = \dot{A} or $\dot{A}/\frac{\Delta Y_I}{Y_I}$ when $\alpha = 0.4$

()** = \dot{A} or $\dot{A}/\frac{\Delta Y_I}{Y_I}$ when $\alpha = 0.5$

to ¥61–¥88 in terms of GOV per ¥100 gross fixed assets; ¥33–¥76 to ¥13–¥22 for profit and tax per ¥100 gross fixed assets; and ¥26–¥64 to ¥14–¥23 in profit and tax per ¥100 funds invested.

Table 9. Selected Efficiency Indicators of State-Owned Independent Accounting Industrial Enterprises, 1952–89

Year	Gross output value realized per ¥100 of gross fixed assets	Profit and tax realized per ¥100 of gross fixed assets@	Profit and tax realized per ¥100 of funds invested
1952	134.1	25.1	25.4
1953–57	141.1	30.7	31.5
1958–62	140.4	38.6	34.0
1958–60	179.6	53.2	46.3
1961–62	81.5	16.9	15.5
1961–65	84.1	22.0	21.4
1963–65	85.8	25.4	25.3
1966–76	104.7	26.6	25.1
1966–70	100.3	26.8	25.9
1971–75	111.0	27.6	25.6
1977–78	100.7	23.3	22.7
1976–80	100.3	23.2	22.9
1981–85	95.4	22.3	23.7
1986–87	96.6	19.6	20.5
1988–89	127.0	19.5	18.9
1952–89	112.69	27.0	26.3
1952–78	116.8	29.2	27.8
1979–89	102.6	21.7	22.4

Source: (1) *Statistical Data of China's Industrial Economy 1949–84*, pp. 125–26.

(2) *Statistical Yearbook of China 1986*, p. 326; 1987, p. 323; 1988, p. 389; 1989, p. 333; 1990, p. 448.

Note: @ 1952–84 calculated by $[(\text{Profit \& tax}/\text{Net fixed assets})/(\text{Profit}/\text{Net fixed assets})]/(\text{Profit}/\text{Gross fixed assets})$ from source (1), p. 125.

On the other hand, the GOV per ¥100 gross fixed assets was in the range of ¥166–¥190 for the collective-owned heavy industry in

contrast to ¥65–¥67 for the state-owned one during 1983–85. As a result, for the whole industrial sector, the figures turned out to be ¥215–¥245 for the collective-owned in contrast to ¥95–¥96 for the state-owned industry in 1981–85.

Under Chinese socialism especially before 1979, the industrial policies such as pricing were favouring processing manufactured products and discriminating against mining, timber, and basic means of production. Some heavy industries, especially the processing industries, operated with low economic efficiency but could still keep on expanding at the expense of light industry and bottleneck sectors. Many collective-owned enterprises were run more efficiently but received little government encouragement. Those successful collective-owned enterprises were even forced to become state-owned under administrative order from the top during the pre-economic reform period.

In order to analyze economic efficiency in depth, a further breakdown of the industrial sector is necessary and helpful. As shown in Table 11, in 1986, the light industry based on agricultural products as raw materials and the one based on non-agricultural products as raw materials were equal in efficiency, as evidenced by labour productivity ¥15,147 for the former and ¥15,104 for the latter. However, the figures changed to ¥17,687 and ¥21,342 respectively in 1988. Similarly, in 1986, the GOV per ¥100 gross fixed assets was ¥205.2 against ¥165.7, and profit and tax realized was ¥41.5 against ¥32.8 respectively. Correspondingly, in 1988 they were ¥248.1 against ¥220.1, and ¥36.9 against ¥32.1.

Concerning the heavy industry sector, the labour productivity of raw material industry was ¥18,891 in contrast to ¥10,035 for manufacturing industry, and ¥5,429 for mining and timber industries in 1986. The figures became ¥20,696, ¥13,783 and ¥6,084 respectively in 1988. The GOV per ¥100 gross fixed assets stood at ¥61.2 : ¥87.4 : ¥32.3 in 1986, and then at ¥88.8 : ¥145.7 : ¥49.6 in 1988. Profit and tax realized per ¥100 gross fixed assets appeared to be ¥20.6 : ¥15.4 : ¥4.9 in 1986 which changed to ¥19.9 : ¥19.9 : ¥4.5 in 1988.

By and large, large-scale enterprises had more equipment per

Table 10. Selected Efficiency Indicators of Independent Accounting Industrial Enterprises, 1965, 1978, and 1981-89

		Gross output value			Profit & tax			Profit & tax		
		¥100 gross fixed assets			¥100 gross fixed assets			¥100 funds invested		
		All industry	Light industry	Heavy industry	All industry	Light industry	Heavy industry	All industry	Light industry	Heavy industry
1965	National State-owned Collective-owned	(α) 98	(β) 321	(σ) 62	(α) 30	(β) 76	(σ) 22	(α) 30	(β) 64	(σ) 23
1978		(α) 103	(β) 265	(σ) 74	(α) 25	(β) 64	(σ) 18	(α) 24	(β) 54	(σ) 18
1981		(α) 96	(β) 271	(σ) 61	(α) 23	(β) 64	(σ) 15	(α) 24	(β) 54	(σ) 16
1982		(α) 95	(β) 246	(σ) 63	(α) 22	(β) 57	(σ) 15	(α) 23	(β) 46	(σ) 17
1983		(α) 95	(β) 227	(σ) 65	(α) 22	(β) 47	(σ) 16	(α) 23	(β) 39	(σ) 18
1984		(α) 96	(β) 214	(σ) 67	(α) 22	(β) 44	(σ) 17	(α) 24	(β) 37	(σ) 20
1985		(α) 115	(β) 232	(σ) 78	(α) 24	(β) 41	(σ) 19	(α) 24	(β) 32	(σ) 20
1986		(α) 109	(β) 215	(σ) 74	(α) 21	(β) 36	(σ) 16	(α) 20	(β) 27	(σ) 17
1987		(α) 124	(β) 217	(σ) 91	(α) 21	(β) 33	(σ) 16	(α) 20	(β) 26	(σ) 17
1988		(α) 137	(β) 239	(σ) 99	(α) 22	(β) 35	(σ) 16	(α) 21	(β) 27	(σ) 17
1989		(α) 140	(β) 235	(σ) 103	(α) 20	(β) 39	(σ) 15	(α) 21	(β) 31	(σ) 17
		(α) 117	(β) 216	(σ) 88	(α) 18	(β) 29	(σ) 14	(α) 17	(β) 21	(σ) 14
		(α) 117	(β) 216	(σ) 88	(α) 17	(β) 33	(σ) 13	(α) 17	(β) 26	(σ) 14

Source: *Statistical Yearbook of China 1981*, p. 263; 1983, p. 295; 1984, pp. 267, 269; 1985, pp. 379, 381; 1986, pp. 325-328; 1987, pp. 321, 323; 1988, pp. 387-389; 1989, pp. 320, 333, 335; 1990, pp. 445, 448.
Statistical Data of China's Industrial Economy 1949-84, p. 127.

Table 11. Economic Efficiency Indicators by Various Categories of Enterprises, 1986, 1988

	Value-added ratio#		Profit & tax realized per ¥100 gross fixed assets*		Gross output value per ¥100 gross fixed assets*		Profit & tax realized per ¥100 funds invested		Profit realized per ¥100 funds invested*		Working capital occupied per ¥100 gross output value*		Labour productivity† (¥/person-year)	
	1986	1988	1986	1988	1986	1988	1986	1988	1986	1988	1986	1988	1986	1988
I Type of Industry														
Light industry	28.0	26.5	38.6	35.3	191.9	238.5	31.9	13.6	24.9	23.7	15133	18827		
Agricultural products as raw materials	26.5	26.0	41.5	36.9	205.2	248.1	33.6	12.3	24.7	23.3	15147	17687		
Non-agricultural products as raw materials	31.3	27.5	32.8	32.1	165.7	220.1	28.4	16.3	25.4	24.4	15104	21342		
Heavy industry	34.6	32.2	15.1	16.4	62.6	99.3	16.8	9.6	38.5	27.2	10872	13692		
Mining & felling	48.0	46.3	4.9	4.5	32.3	49.6	6.8	3.4	31.6	19.7	5429	6084		
Raw materials	33.8	31.6	20.6	19.9	61.2	88.8	24.5	12.9	24.0	17.9	18891	20696		
Manufacturing	31.7	29.4	15.4	19.9	87.4	145.7	13.8	9.2	54.2	36.2	10035	13783		
II Scale of Industry														
Large enterprises	36.5	34.4	19.5	20.0	69.8	92.3	22.2	11.2	31.8	25.0	19880	23763		
Medium enterprises	31.2	28.8	22.2	22.5	98.6	135.2	22.1	10.6	33.3	26.1	16814	19792		
Small enterprises	28.7	26.7	18.5	23.0	122.4	197.5	16.6	9.6	32.8	25.7	9676	12484		

Source: *Statistical Data of China's Industrial Economy 1987*, pp. 50, 65, 67, 69, 71.
Statistical Yearbook of China 1989, pp. 273, 292, 320, 328.

Note: # For the whole nation.

* State-owned and independent accounting enterprises.

† Enterprises with independent accounting.

labour force in comparison with the smaller ones, but were not necessarily more efficient in all aspects. In 1986, labour productivity of large, medium and small enterprises was ¥19,880, ¥16,814 and ¥9,676, which in 1988 became ¥23,763, ¥19,792 and ¥12,484 respectively. The GOV per ¥100 gross fixed assets appeared to be ¥69.8 : ¥98.6 : ¥122.4 in 1986, and then ¥92.3 : ¥135.2 : ¥197.5 in 1988. Profit and tax realized per ¥100 gross fixed assets were ¥19.5 : ¥22.2 : ¥18.5 in 1986 which grew to ¥20.0 : ¥22.5 : ¥23.0 in 1988. These numbers indicate a much larger overhead cost but a smaller operation cost and so higher efficiency in utilizing intermediate inputs in large and medium-sized enterprises. For instance, in 1988, profit and tax realized per 100 yuan of GOV by the large enterprises was ¥21.66, larger than that of medium-sized (¥16.61) and small-sized (¥11.62) ones.

The state-owned independent accounting enterprises are grouped into 11 industries in Table 12. As far as the GOV per ¥100 gross fixed assets is concerned, food and textile industries were ranked at the top with ¥397.6 and ¥274.2 in 1965 to ¥262.7 and ¥215.6 in 1984 respectively; coal and coke, and (electric) power were at the bottom with ¥35.2 and ¥27.2 in 1965 to ¥29.8 and ¥34.0 in 1984. As for profit and tax realized per ¥100 funds invested, petroleum, food and textile were at the top, all above ¥56.5, except textile in 1984 (¥27.1), coal and coke, and forestry at the bottom with the former realizing merely or less than ¥5.6 and the latter not more than ¥20 in 1965, 1978, and 1984. Meanwhile, as to profit and tax realized per ¥100 GOV, petroleum and (electric) power were ranked at the top, all no less than ¥42, and coal and coke at the bottom, ¥13.4 in 1965, ¥4.7 in 1984.

By and large, the arithmetic means for GOV per ¥100 gross fixed assets, for profit and tax per ¥100 funds invested and for profit and tax per ¥100 GOV appeared to be declining in the three years under review (1965, 1978, and 1984): ¥127.3, ¥124.8 and ¥104.3; ¥36.1, ¥32.5, and ¥26.6; ¥33.5, ¥25.6, and ¥24.5 respectively. This clearly implies that measured in nominal value, the economic efficiency of state-owned enterprises was in a downward trend. The coefficient of inequality for the three efficiency indicators aforementioned tended also to be declining: 0.943, 0.814 and 0.714; 0.598, 0.720 and 0.542;

Table 12. Economic Efficiency Indicators of State-Owned and Independent Accounting Enterprises by Industry, 1965, 1978 and 1984

Item	A. Gross output value realized per ¥100 gross fixed assets				B. Profit & tax realized per ¥100 funds invested			C. Profit & tax realized per ¥100 gross output value					
	Year				1965	1978	1984	1965	1978	1984	1965	1978	1984
	1965	1978	1984	1984	1965	1978	1984	1965	1978	1984	1965	1978	1984
Industry													
Metallurgy	79.0	70.8	73.3	73.3	25.9	14.2	20.8	31.6	19.3	24.5	31.6	19.3	24.5
Power	27.2	42.7	34.0	34.0	23.8	26.2	20.3	67.0	44.6	42.0	67.0	44.6	42.0
Coal & coke	35.2	34.7	29.8	29.8	5.6	3.0	2.0	13.4	8.2	4.7	13.4	8.2	4.7
Petroleum	94.0	123.0	81.6	81.6	56.9	88.4	59.0	53.4	52.7	42.4	53.4	52.7	42.4
Chemical	104.1	124.9	121.9	121.9	47.5	27.4	29.9	49.3	22.6	23.5	49.3	22.6	23.5
Machine building	66.5	93.2	97.6	97.6	16.2	14.5	17.5	27.7	19.1	19.7	27.7	19.1	19.7
Building materials	73.1	68.1	61.5	61.5	24.7	16.0	18.4	32.1	22.1	26.7	32.1	22.1	26.7
Forestry	108.6	60.4	61.9	61.9	19.5	12.7	16.3	21.2	21.9	24.0	21.2	21.9	24.0
Food	397.6	345.8	262.7	262.7	65.8	64.5	56.6	18.7	22.7	26.6	18.7	22.7	26.6
Textile	274.2	296.7	215.6	215.6	70.2	60.6	27.1	26.3	24.0	14.9	26.3	24.0	14.9
Papermaking	140.9	112.2	107.8	107.8	41.3	30.1	24.2	27.7	24.7	20.8	27.7	24.7	20.8
Means (\bar{z})	127.3	124.8	104.3	104.3	36.1	32.5	26.6	33.5	25.6	24.5	33.5	25.6	24.5
(Zu)	397.6	345.8	262.4	262.4	70.2	88.4	59.0	67.0	52.7	42.4	67.0	52.7	42.4
(Ze)	27.2	34.7	29.8	29.8	5.6	3.0	2.0	13.4	8.2	4.7	13.4	8.2	4.7
Coefficient of Inequality†	0.943	0.814	0.714	0.714	0.598	0.720	0.542	0.352	0.351	0.266	0.352	0.351	0.266

Source: *Statistical Data of China's Industrial Economy 1949-84*, p. 127.

Note: † Coefficient of inequality is calculated by $\sqrt{\sum_i (z_i - \bar{z})^2 / \bar{z}}$

where Z_i : item A or B or C by industries ($i=1, 2, \dots, 11$);
 \bar{z} : arithmetic means of Z_i ;
 Z_u : upper bound of Z_i ;
 Z_e : lower bound of Z_i ;
 (x_i/\bar{x}) : % share of gross output value by industry i , at constant prices.

and 0.352, 0.351 and 0.266 respectively. Judging from the time series data relevant to the indicators, they show that the size of decrease was larger (during 1965-84) for the maximum value — the upper bound than that of the minimum value — the lower bound — of the eleven industries' (see Table 12). We, therefore, conclude that more efficient industries, in fact, suffered much severe retardation in economic efficiency as time went on.

On the whole, efficiency of China's industrial sector fluctuated quite severely in the past, especially before 1979. Disregarding the impressive output growth rate attained (by international standard), China achieved only modest improvement in factor productivity. In fact, (at current price) the marginal efficiency of fixed assets has been on a declining trend. This, along with the very modest contribution of the shift in production function to output growth, indicates that China's spectacular industrial growth has been achieved basically via the increase in intake of inputs, that is exactly the extensive growth strategy. The reform of industrial policies and management system since 1979 has not succeeded in putting the industrial sector on an intensive growth path. Obviously, the relatively poorer performance in productivity improvement during 1979-89 as measured by various efficiency indicators in nominal value should be mainly attributable to the rapid and drastic increase of factor prices and wage rates.¹⁷ Even if measured at constant prices, however, after isolating the efficiency impact of structural changes in output, productivity growth during the reform period was at best meagre and definitely could not be significantly faster than that during 1953-78. Certainly, enhancing industrial efficiency should remain one of the Chinese priorities; it is a task of utmost importance, otherwise, any attempt to boost industrial growth will lead to inflation, triggering another vicious economic cycle.

II Performance: Development in Major Sub-sectors

Growth Trend and Structure by Production Activities

As shown in Table 13, the basic industries — (electric) power, coal and coke, and petroleum made a tremendous growth during the First and Second Five-year Plan periods, with average growth rates of 20.6–24.7% for (electric) power, 17.2–20.5% for coal and coke, and 25.8–33.5% for petroleum. Consequently, their percentage shares (in GIOV) increased from 1.3%, 2.3% and 0.8% in 1953–57 to 2.4%, 4.1% and 1.6% in 1958–62 respectively. The other rapidly expanding sectors include machine-building (with a growth rate of 31.2% in 1953–57 and 21.6% in 1958-62) of which agricultural machinery grew at an average rate of 44.3% to 57.1%; chemicals changed from 31.8% to 19.9%, of which chemical fertilizers grew at an average rate of 45.9% to 51.6%; metallurgy with the growth rate of 29.4% to 17.6%, and building materials with the growth rate of 21.0% to 11.8%. All these are heavy industries.

On the contrary, the light industrial sectors, food, textile, paper making and forestry (part of the products belong to heavy industry), registered relatively slower growth in the FFYP period, 13.3%, 9.2%,

Table 13. Growth Rate and Percentage Share of Major Industrial Sectors, 1983-88**

							%											
Item		53-57	58-62	58-60	61-62	61-65	63-65	66-76	66-70	71-75	77-78	76-80	81-85	86-88	53-88	53-78	79-88	
Light Industry	Food	A	13.3	-0.5	8.5	-14.1	1.3	11.6	5.2	2.9	8.5	10.2	8.1	9.2	11.7	7.7	6.8	10.1
		B	21.9	13.6	13.0	14.4	13.9	13.6	11.1	9.8	12.3	11.4	11.5	12.7	11.2	13.4	14.0	12.0
	Textiles	A	9.2	0.6	15.3	-22.5	4.6	21.9	6.1	9.0	4.5	15.9	13.5	12.1	10.2	9.5	8.2	12.7
		B	22.7	15.1	15.9	13.9	14.9	15.5	13.3	14.4	12.5	12.5	12.9	15.6	14.6	15.4	15.6	15.0
	Paper making	A	19.3	7.0	26.5	-22.1	-1.6	12.1	5.0	4.2	6.8	13.9	9.3	9.3	14.3	10.0	9.7	10.8
		B	2.0	1.9	1.9	1.9	1.9	2.0	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.6	1.7	1.3
	Forestry	A	14.8	-2.0	14.3	-26.4	-5.7	8.1	3.8	-0.7	7.5	8.6	7.3	4.8	10.0	5.9	5.7	6.6
		B	6.2	3.9	4.0	3.7	3.4	3.3	2.0	2.0	2.0	1.9	1.8	1.9	1.5	2.9	3.3	1.7
	Machine building	A	31.2	21.6	62.5	-39.7	-2.6	22.2	16.0	21.1	14.0	13.5	7.5	15.3	17.6	18.7	20.5	14.0
		B	15.4	23.8	25.2	21.8	21.4	21.2	24.9	23.3	26.0	27.6	27.0	23.6	28.1	23.4	22.6	25.5
Agricultural machinery	A	44.3	57.1	121.5	-39.4	-3.0	21.2	26.9	41.3	16.8	15.7	2.1	2.5	—	24.1§	34.5	-2.0§§	
	B	0.4	1.1	1.1	1.1	1.0	1.0	1.9	1.5	2.3	2.8	2.5	1.2	—	1.8§	1.9	1.5§§	
Chemical	A	31.8	19.9	45.3	-18.1	7.2	24.1	14.2	20.7	10.7	20.8	11.6	10.4	16.7	18.0	20.3	12.3	
	B	6.0	9.1	8.1	10.6	11.7	12.4	13.1	15.4	11.2	11.9	11.9	11.6	11.8	11.1	10.8	11.8	
Chemical fertilizer	A	45.9	51.6	68.1	27.0	34.7	39.9	14.9	20.6	12.4	29.2	15.9	2.4	—	26.2§	31.9	4.8§§	
	B	0.2	0.5	0.4	0.8	1.4	1.7	1.9	1.9	2.0	2.3	2.3	2.1	—	1.5§	1.3	2.2§§	
Building materials	A	21.0	11.8	53.7	-50.9	-2.3	30.1	12.0	12.6	11.7	18.4	12.8	12.6	15.0	15.2	16.3	12.6	
	B	3.1	3.6	4.3	2.6	2.6	2.7	3.0	2.8	3.0	3.6	3.6	4.0	4.5	3.4	3.1	4.1	
Metallurgy	A	29.4	17.6	52.4	-34.6	-1.5	20.6	8.1	13.5	5.8	18.2	8.9	7.2	10.1	14.0	16.2	8.2	
	B	7.4	10.9	11.1	10.7	10.6	10.6	9.5	9.2	10.3	8.3	8.4	8.4	7.9	9.1	9.4	8.3	
Power	A	20.6	24.7	48.2	-10.6	3.5	12.9	11.2	12.8	11.0	11.7	8.7	7.7	9.3	13.7	15.8	8.3	
	B	1.3	2.4	1.9	3.3	3.3	3.3	3.6	3.3	3.8	3.8	3.8	3.6	3.1	3.1	2.9	3.5	
Coal & coke†	A	17.2	20.5	51.3	-25.6	-10.0	0.3	7.7	11.2	5.7	13.9	5.1	5.6	5.0	9.5	11.6	4.1	
	B	2.3	4.1	3.9	4.4	3.6	3.2	2.6	2.2	2.9	2.8	2.7	2.6	2.2	2.8	2.9	2.5	
Petroleum	A	33.5	25.8	44.5	-2.2	15.9	28.1	17.1	20.7	14.7	7.8	7.1	5.3	8.2	17.9	22.5	5.9	
	B	0.8	1.6	1.3	2.2	2.4	2.9	4.7	4.0	5.1	5.8	5.7	5.0	4.2	3.7	3.2	4.8	
GIOV	A	18.4	9.5	34.0	-27.4	-0.1	18.2	10.4	13.4	9.3	13.9	9.3	10.9	13.7	12.5	12.9	11.3	

Source: *Statistical Data of China's Industrial Economy 1949-84*, pp. 34-35; *1986*, pp. 130-131. *Statistical Yearbook of China's Industrial Economy 1989*, pp. 58-61.

Note: * 1953-57: at 1952 constant prices; 1958-71: at 1957 constant prices; 1972-81: at 1970 constant prices, and 1982-88: at 1980 constant prices.
 ** % share of 1957, 1971 and 1981 is calculated at 1957, 1970, and 1980 constant prices respectively.
 † 1953-85 including coal only.
 ‡ Arithmetic mean of year-on-year % changes during the period concerned.
 § % share of GIOV = arithmetic mean of the % shares of the pertinent item for all years during the period concerned.
 GIOV: Gross industrial output value.
 § 1953-85.
 §§ 1979-85.

19.3% and 14.8% respectively, and in 1958–62 some of them even recorded negative growths, -0.5%, 0.6%, 7%, -2.0%. It is quite obvious that in those days China's national policy was dedicated to the reconstruction of heavy industries even at the expense of light industries. The drive for rapid growth of heavy industry was made possible by first transforming private enterprises into joint-ventures with the state as the partner, and then adopting the redemption policy by the state for conversion of the joint-ventures into state-owned enterprises in the mid 1950s.

The Energy Industries

Comparing with other sectors, the (electric) power industry developed on a path of relative stability and its percentage share (in GIOV) climbed to a summit of 4.0% in 1976. Then it started to decline, 3.8% in 1977–81, 3.3% in 1985 and 3.1% in 1986–88. The GOV of coal and coke grew at a high speed up to 1960, reaching 6.51 billion yuan (at 1957 constant prices), and then fell, fluctuating within the range of 2.9 billion yuan (1967) to 5.49 billion yuan (1970). It was not until 1971 that the GOV reached 6.27 billion yuan at 1957 constant prices or 7.92 billion yuan at 1970 constant prices. Since then it has been growing at a snail's pace with the percentage share falling from 3.9% in 1960 to 2.3% in 1985 and 2.2% in 1986–88. The development of petroleum industry was quite impressive with the percentage share growing from 0.5% in 1953 to 6.1% in 1977 (6.2% in 1976). Since then the share has tended to decline from 5.5% in 1978 down to 4.5% in 1985 and 4.2% in 1986–88. Although its average percentage share of 4.8% in 1979–88 looks more brilliant than the 3.7% for 1953–88, yet it is smaller than the 5.5% for 1972–78. Thus the energy industries achieved some remarkable growth in the early period of development but encountered difficulties in maintaining stable rapid growth afterwards.

On the other hand, the high energy-consumption sectors such as metallurgical, chemical and building material industries continued to keep high growth rates: their percentage shares appeared to be 8.3%,

11.8% and 4.1% in 1979–88 in contrast to 9.4%, 10.8% and 3.1% in 1953–78. They were by far larger than those of basic industries ((electric) power, coal and coke, and petroleum) in the corresponding periods (see also Table 13). In 1979, the former three sectors which consumed 19 tons, 13.5 tons and 14.6 tons of standard coal equivalent per ¥10,000 GOV, accounted for as high as 20.4%, 19.9% and 6.4% respectively of total energy consumption by the whole industrial sector¹⁸ whereas their percentage shares in GIOV were 9.0%, 12.2% and 3.6% only.¹⁹ Moreover, in the heavy industrial sector, small-scale enterprises consumed one or two times more energy (per ¥10,000 GOV) than large and medium-scale enterprises. In 1978, the average energy consumed for every 10,000 yuan GOV of small-scale industry was 13 tons, of which small-scale heavy industries (which included those producing iron and steel, synthetic ammonia and coke) consumed on average around 58.5 tons. Energy consumed by small-scale light industry was 6 tons per 10,000 yuan GOV. The share of small-scale enterprises in GIOV was 56.2% in 1980. Changes in output proportion between light and heavy industries also caused changes in energy consumption. As shown in Table 14, energy consumed for every 10,000 yuan of heavy industrial GOV was 12.4 tons (standard coal equivalent), whilst that for light industry was merely 2.7 tons in 1979. And in 1988 they were 7.1 ton and 1.9 ton respectively. In the past 30 years, the share of heavy industrial output surged up and became greater than that of light industry both in GOV or in NOV. Energy consumed rose likewise.

During 1953–80, China's output elasticity of energy consumption was as high as 1.3, whilst the level for other developing countries stayed at 1 or so, and for highly industrialized countries at lower than 0.9.²⁰ The high energy consumption was very much due to China's extensive growth strategy. Under this strategy, the industry department emphasized the adding of input factors, with relative neglect of output growth per unit input. The backward production technology, obsolete equipment and poor management resulted in the low utilization rate of energy. In the production structure, the output share of high energy-consumption heavy industry was large. And the output of small- and medium-scale enterprises accounted for a substantial

Table 14. Energy Consumption of Light Industry, Heavy Industry and Industrial Sector, 1979, 1985 and 1988

	Light Industry			Heavy Industry			Industrial Sector		
	1979	1985	1988	1979	1985	1988	1979	1985	1988
Gross output value† (billion yuan)	204.5	413.4	683.2	263.6	464.6	703.5	468.1	878.0	1386.7
% share	43.7	47.1	49.3	56.3	52.9	50.7			
Net output value† (billion yuan)	63.2	118.4	184.8	99.6	167.4	228.5	162.8	285.8	413.3
% share	38.8	41.4	44.7	61.2	58.6	55.3			
Energy consumption (million ton, standard coal)	56.0*	101.56	133.11	326.0*	409.12	497.29	382.0*	510.68	643.40
% share	14.7	19.9	21.1	85.3	80.1	78.9			
Energy consumption - output ratio (ton, standard coal / 10,000 yuan of output)	2.7	2.5	1.9	12.4	8.8	7.1	8.2	5.8	4.5
Gross output	8.9	8.6	7.2	32.7	24.4	21.8	23.5	17.9	15.3
Net output									

Source: (1) *Statistical Yearbook of China 1990*, pp. 33, 49, 56, 492.

(2) *Statistical Yearbook of China's Industrial Economy 1989*, p. 49.

(3) Shi Jingxing ed. (1986) p. 503; Wang Jiacheng (1981) p. 4.

Note: † At 1979 constant prices. Output value is deflated by the price index of the secondary industry of gross national product, calculated from source (1), p.33.

* Obtained from source (3).

proportion of GIOV. Moreover, industrial planning was not well coordinated. In the interior regions, the requirements of engineering projects did not match the capability of basic infrastructure. The spatial distribution of factories made them too scattered for efficient cooperation. Thus, in 1980, the social product for every ton of standard coal equivalent consumed in China was 50–75% lower than that of developed countries.²¹

As for energy production, the national income elasticity of energy production (% change in energy production/% change in national income) dropped from 0.68 in 1982 to 0.44 in 1988, which implied an urgent need for encouraging energy supply; otherwise production would be disrupted as a substantial enhancement in the efficiency of energy utilization could not be expected in the near future. For closely related industries (which can be vertically integrated) the output growth rate of mining and timber (e.g. iron ore mining) was lower than raw material industry's (e.g. metallurgy) which was, in turn, lower than the related manufacturing industry's (e.g. consumer durables). It implies that the growth of final industrial output and efficiency should have been constrained by the insufficient supplies of raw materials. According to some estimates, electricity shortfalls in 1977 and 1978, had forced one-quarter of the industrial enterprises to operate below capacity. The inadequate supply of electricity and coal had kept 20–30% of the equipment from full operation in the country.²² In fact, structural imbalance was so severe that for some time in the latter half of 1988, nearly all large state-owned aluminium enterprises had to stop production because the supplies of power and aluminium plate ran short. Similarly, early in 1989, many factories in the coastal regions, such as those in Shanghai could only operate for three or four days per week due to the shortage of energy supply.²³ At the same time, in many cities, the inventory of coal could only meet one or two days of consumption needs. Many local authorities had to "rob" coal and other fuels passing through their administrative region. In 1989, (especially during the latter half) thanks to the pursuit of retrenchment cum readjustment policies, the output share of energy, mining and timber as well as raw materials industries rebounded. The national income elasticity of energy production reached a record-high

1.85. The share of mining and timber and of raw materials output in total heavy industrial output value (at constant prices) were 11.6% and 39.4% respectively in contrast with 9.5% and 33.8% in 1988.

The Machine-building Industry

Since 1958–62 and afterwards, the output of machine-building industry accounted for the largest share of the industrial sector, 15.4% during 1953–57, and over 20% henceforth, reaching 27.6% during 1977–78, and 25.5% during 1979–88 (see Table 13). Immediately after 1949, the original repair and assembling workshops were reorganized or merged to become renovated machinery plants. During the FFYP, of the equipment of 150 construction projects, except for those key and big items which were imported, the majority were manufactured by the renovated plants. The ratio of self-made equipment reached above 40%. A large batch of backbone plants producing automobiles, tractors, power generating equipment, petroleum equipment, electronics equipment, different hauling machine tools, ships, large-scale precision machine tools, forging and pressing equipment, and aviation and space navigation equipment were successively established.

The Chinese economy (especially before 1979) operated a machine-building industry which adopted a management system with multi-tier levels and many departments. As early as the 1950s, the two production systems were established: production for defense and civil use, and then later, production for general equipment and special equipment. Moreover, different industry and non-industry sectors have had their own machinery plants, which were even operated in rural communes. By and large, before 1979, the general machinery department only produced equipment required by heavy industry, ignoring the needs of other industries. Only a small proportion of the machinery industry took care of the light industry. The machine-building industry mainly produced heavy-duty machines, and machines for mineral mining, petroleum and chemical industries. Machines made for light industry suffered from a shortage.

Under the system of self-service and self-reliance, the machine-building industry had to set up many large- and small-scale comprehensive plants. Meanwhile, “rigid” batch production was undertaken. Actually, the machinery industry which generates strong backward and forward linkages is the heart of different production sectors. Products of machinery industry are complex in structure. For efficiency sake, further subdivisions for more varieties of the product and rational division of labour are always advisable. Thus, it would be best for the industry to develop specialized and distinct forms of product under appropriate coordination. Thus, some industrial enterprises could be “small and specialized” or “medium-size and specialized.” And “soft” batch production should be undertaken.

In 1980, in Liaoning, the output value of machinery industry came to some 10 billion yuan. Yet, those serving light industry stayed below 0.9%.²⁴ Within a period of ten years, 330 plants of Liaoning’s No. 2 Light Industry Department had to be transferred to heavy industry. Two-thirds of Shanghai’s paper-making machinery plants were allotted to the heavy industry. Similarly, the sugar processing machine plant originally invested into by the Guangzhou General Machinery Plant to serve light industry had been transformed to become a heavy-duty machinery plant. These all stemmed from the emphasis of rapid development of heavy industry on self-reliance basis under Chinese socialism.

The Chemical and Metallurgical Industries

Inadequate internal coordination of the management system also plagued the chemical industry. The share of chemical industry in the gross industrial output value rose from 6% during 1953–57 to 11.6% during 1981–85, and 11.8% in 1986–88 (see Table 13). It was the second biggest production sector. Yet the demand of agriculture and light industry for chemical products could not be fully satisfied. Shortfalls in chemical fertilizers and pesticides hindered the growth of production of agricultural crops, grains and cotton in particular. Inadequate supply of dyestuff also impaired the development of

dyeing and printing industry.

The metallurgical industry was closely linked with the ups and downs of China's political movement. Its percentage share increased from 7.4% in 1953–57 to 11.1% in 1958–60. The readjustment period which began after 1979 saw the closing down of several hundred small-scale and high energy-consuming kilns. One of the sectoral disproportions within the metallurgical industry was an excessive supply of some products serving the basic construction of heavy industry which accompanied the shortfalls in the supply of products that served light industry and civilian construction; another one was the large proportion of ferrous metal industry in contrast to the unduly small proportion of non-ferrous metal industry; imbalance also existed among the preparation, refining and processing capability of minerals, with the first two lagging far behind; and poor economic cooperation characterized the relations among large, medium and small scale enterprises. Since 1980 when adjustment was undertaken, the share of metallurgy in gross industrial output value showed a drastic fall, which was only 8% in 1985 and 7.9% in 1986–88.

The Light Industry

In the face of the built-in closed nature of heavy industry, light industry had to strive hard to produce raw materials and the necessary equipment by itself. For example, during the FFYP period, raw materials were basically not produced by the light industry. However, it reached 0.7% during the second FYP, and 26.7% in the first three years of the fifth FYP (1976–78).²⁵ As shown in Table 1, the (output) share of light industry using agricultural products as raw materials reached 87.5% in 1952. The share remained at the high level of 70% in 1987 and 68.8% in 1988–89. The (output) share of light industry using industrial products as raw materials was 30% in 1970 and remained so in late 1980s. The relatively stagnant growth of industrial products as raw materials for light industry was simply a result of inadequate supports from heavy industry. Moreover, heavy industry took up a huge amount of capital, raw materials and energy, thus

relatively reducing the supplies for light industry. Consequently, the development of the latter lagged far behind the needs of the society, especially before the eighties.

One can see from Table 13 that the output of industries for food, textiles, and paper making all grew with severe fluctuations. The share of food processing industry dropped from 21.9% during the FFYP to 9.8% during 1966–70, after which rises were recorded. It stayed at 12.7% in 1981–85 and 11.2% in 1986–88. The share of textiles industry was similar. It had dropped from 22.7% during the FFYP period to 12.5% during 1977–78, but reached 15.6% in 1981–85 and 14.6% in 1986–88. The shrinking share of the three sectors in gross industrial output value on one side showed that light consumer goods industries were neglected during the course of development; this was especially true before the eighties. On the other hand, changes in consumption pattern in favour of consumer durables (especially electrical appliances) took place particularly after 1984. These statistics are, however, recorded in machine building industry.

Under the socialist system of public ownership, fund allocation by the government took the form of soft budgeting, in contrast with the rigid budgeting of fund disposal. Once the government had agreed to undertake a construction project, it would give support throughout. Before reform, profits reaped by the enterprises could not be at their free disposal. Prior government approval was required. Nevertheless, as the budget constraint faced by the enterprises and even local governments were soft even in the reform period, the principle of self-responsibility for losses could not be seriously implemented. This “soft-budget-constraint” problem together with imperfect market operation and inelastic factor supplies led to coexistence of over supply and shortage of commodities inflicting huge wastes.

For example,²⁶ before 1980, the supply of the popular “three big items” (bicycles, sewing machines and watches) was tense, inciting widespread social discontent. In 1981, heavy industry was readjusted. Tianjin and Shanghai respectively shifted 49 and 8 factories to their light industrial bureaux for manufacturing the three commodities. Later, when finance was decentralized, some provinces and cities saw the three big items as money spinners, and they set up many plants

outside the state plan. The number of factories for producing bicycles surged to 140, including 83 unspecified enterprises in 1983. As a result, the national production capacity for bicycles reached 44 million, surpassing the planned level of 30 million in 1985. Some bicycle plants had to lie idle or to operate at half capacity. At the end of 1987, the stock of bicycles reached 10 million, equivalent to one-quarter of the national annual output. Others like the household sewing machine factories had 44 main plants before reform. But by 1983, the number had gone to 95; and for watches, the number of enterprises leapt from 38 to 77 by 1983.

The production of the "New Three Items" (refrigerators, washing machines and electric fans) followed a similar track. This resulted in a stockpiling of 1.8 million refrigerators and 7 million electric fans by 1987. Consequently, the Ministry of Light Industry had to restrict the production of 11 light industrial products, including the "three old" and "three new" items, plus clocks, air conditioners, dust collectors, pianos and electronic pianos.

By Ownership System and Production Scale

Classified by ownership system, in 1989, Cun-owned (village-owned) and rural cooperatives, plus urban and rural private enterprises accounted for 93.2% of the total number of industrial enterprises which amounted to 7.440 million (see Table 15). Although the urban and rural private enterprises were the largest in number (76.7%) their output share was 4.8% only, and the per enterprise output value was merely 17,000 yuan. In the same year, the corresponding average output values were: private light industrial enterprises, 16,000; private heavy industrial enterprises, 21,000; state enterprises, 12,065,000; cun-run enterprises, 293,000; and rural cooperatives, 75,000. Of the total number of individual-owned enterprises, rural enterprises accounted for 93.1%. Compared with 1985's, the number of individual-owned enterprises in 1989 rose by 2.776 million, almost equivalent to the increase of all industrial enterprises (2.795 million), while its share of gross industrial output

rose by 2.9 percentage points. As for classification by the size of operation, in 1989, small enterprises accounted for 98.77% of the total number of industrial enterprises and contributed 57.8% to the total gross industrial output with an average (per enterprise) output value of RMB159,710. Compared with 1985's, the number of small enterprises increased by 2.791 million accounting for 99.84% of the total increase in the number of industrial enterprises while the percentage share of gross output value rose by 0.1 percentage point. Since 1979, the output shares of state-owned and collective-owned industrial enterprises have been declining. In 1989, the gross output value of state-owned industrial enterprises accounted for 56.1% of total industrial output, lower than that in 1985 (64.9%) and 1979 (78.5%). Similarly, the respective percentage share of collective-owned industrial enterprises was 35.7%, 32.1% and 21.5%.

As for private enterprises, their number (including both rural and urban) rose impressively from 3.35 million in 1985 to 6.12 million in 1989. As shown in Table 15, in 1985 they accounted for 64.6% of all industrial enterprises, 69.4% of light industrial enterprises and 53% of heavy industrial enterprises. In 1989, the corresponding shares surged up to 76.7%, 80.2% and 69.2%. At the same time, their gross output share increased from 1.9%, 2.9% and 1% to 4.8%, 6.5% and 3.2% of overall industrial output value, light industrial and heavy industrial output respectively. In general, the production scale of private enterprises was smaller. In 1989, their average per enterprise output value was merely 0.017 million yuan, much smaller than the 12.065 million yuan of all state-owned enterprises and the 0.45 million yuan of collective-owned industrial enterprises. Indeed, private industrial enterprises in China are very small in size, playing merely a minor and supplementary role to state and collective-owned enterprises. They have been seriously restricted under Chinese socialism.

It is noted that without a sound private sector, market forces serving individual interests have extreme difficulty forming and functioning, if not finding it impossible to do so. Obviously, lacking privately initiated market forces, the market mechanisms have simply few channels to operate²⁷ and serve private interests.

In response to the call for the pursuit of Maoist economic

Table 15. Industrial Enterprises by Various Types of Classification, 1985, 1989

	Industrial Sector						Light	
	(1)		(2)		(3)		(1)	
	1985	1989	1985	1989	1985	1989	1985	1989
State-owned	1.8	1.3	64.9	56.1	672.6	1206.5	1.0*	0.7*
Collective-owned	33.6	21.9	32.1	35.7	17.9	45.0	4.6*†	3.4*†
Xiang-owned	4.2	2.9	7.8	10.0	35.0	93.6	2.6*	2.0*†
Cun-owned	12.2	9.0	6.8	9.6	10.5	29.3	10.4	7.5
Cities & Xiangs cooperated	14.3	7.9	1.6	2.3	2.0	7.9	13.0	7.2
Cities & towns cooperated	—	0.4	—	0.2	—	14.1	—	0.5
Rurals cooperated	14.3	7.4	1.6	2.0	2.0	7.5	13.0	6.7
Urban & rural private enterprises	64.6	76.7	1.9	4.8	0.5	1.7	69.4	80.2
Cities & towns	6.4	5.3	0.3	0.4	1.0	2.1	8.0	6.5
Rurals	58.2	71.4	1.5	4.4	0.5	1.7	61.4	73.7
Others	0.0	0.1	1.2	3.4	690.6	1053.4	0.0	0.1

Source: *Statistical Yearbook of China 1990*, pp. 409, 412-13.

Industry	Heavy Industry									
	(2)		(3)		(1)		(2)		(3)	
	1985	1989	1985	1989	1985	1989	1985	1989	1985	1989
	54.1*	45.5*	696.6*	1271.3*	2.2*	1.4*	70.8*	62.0*	1061.9*	1993.8*
	27.6*†	26.3*†	75.0*†	154.7*†	8.7*†	6.2*†	17.7*†	18.8*†	68.6*†	134.2*†
	7.6*	10.9*	36.5*	108.3*	5.9*	4.3*	7.5*	9.6*	42.7*	98.3*
	7.1	9.8	8.5	25.7	16.5	12.3	6.6	9.4	13.5	34.2
	2.1	2.8	2.0	7.8	17.3	9.4	1.1	1.7	2.1	8.0
	—	0.4	—	14.2	—	0.3	—	0.1	—	13.8
	2.1	2.5	2.0	7.3	17.3	9.1	1.1	1.6	2.1	7.8
	2.9	6.5	0.5	1.6	53.0	69.2	1.0	3.2	0.6	2.1
	0.6	0.7	1.0	2.0	2.5	2.8	0.1	0.2	1.4	2.7
	2.3	5.8	0.5	1.6	50.5	66.4	0.8	3.0	0.6	2.0
	1.4*	3.9*	698.0	1056.2	0.0	0.1	0.9*	2.1*	633.7	1165.7

Note: * Including only independent accounting enterprises.
 † Covering Xiang-owned enterprises only.
 (1) % share of no. of enterprise.
 (2) % share of output value.
 (3) Output value per enterprise (10,000 yuan).

development strategy which emphasized regional economic self-sufficiency and the contributive effort of basic economic units' self-reliance and self-initiatives, small industries mushroomed in the rural areas during the Great Leap Forward Movement period. The result, however, was tragic. A large proportion of their products was useless. Worse still, their rapid growth severely inhibited agricultural development.

In the seventies, as a result of decentralization of administrative control, small industries run by local authorities surged up again. After 1978, small rural enterprises developed further at an increasing rate. As shown in Table 16, on the average, over 40% of coal, 70–80% of cement, more than 50% of synthetic ammonia and more than 60% of chemical fertilizers were contributed to the national output by small enterprises. In 1978, small enterprises turned out 9.7% of steel and 14.4% of iron, higher than the respective 6.8% and 10% in 1975. During 1980–84, small and medium-sized enterprises produced 18% of the steel, 27% of the iron, and 31.5% of the steel products.²⁸ As for electricity, based on their percentage contribution, small enterprises seemed to be not too significant. In 1978, small enterprises generated only 12.6% of the electricity supply. However, the small hydroelectric power stations have been very important to the rural areas. In 1981, small hydroelectric power stations supplied one-third of the electricity consumed in rural areas. At present, one-third of Xiang (countries) in China depend on them as the major source of electricity supply. As for the production of plate glass, small enterprises turned out about 50% of the national total in the 1980s, much larger than the 30% in 1978. Small enterprises provided a significant share of the overall cement output, from 52.6% in 1973 up to 82.4% in 1989. Even at present, nearly at all levels of administration, central, local and even down to the Xiang level, small indigenous enterprises are involved in machinery industry, and for some time, all provinces except Tibet produced automobiles. In 1978, altogether small heavy industrial enterprises contributed 10% of the national income, accounting for 34.5% of the net output value of heavy industry.²⁹

Small indigenous enterprises play an important role in fostering

Table 16. Output Shares of Small Enterprises in the Industrial Sector, 1973–89*

Industry	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Overall share	48.2	49.2	49.0	50.3	56.6	56.8†	56.9**	55.5**	55.0**	55.1**	57.7	58.0	58.2	58.2	59.3	57.8	
Coal mine	36.8	36.6	37.1	38.2	43.7	40.0	39.1	39.8	43.6	43.6	43.6	43.6	43.6	43.6	44.3	44.3	
Electricity	9.2	8.7	8.7	8.9	12.6	54.0	54.8	52.6	54.2	56.4	57.3	50.3	55.1	56.9	56.1	56.1	
Synthetic ammonia	66.4	66.2	69.0	65.0	59.4	59.9	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	
Chemical fertilizers	52.6	57.5	58.2	65.7	65.2	68.0	70.0	72.8	75.0	76.4	78.4	80.6	80.6	81.6	83.1	82.4	
Cement	30.0	30.0	30.0	30.0	30.0	36.3	42.6	47.6	50.5	55.2	55.1	51.9	51.9	50.4	49.6	48.0	
Plate glass	10.0	12.0	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	
Iron	6.8	7.6	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	
Steel	11.8	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	

Source: 1973–78: *China's Industrial Economic Management 1983*, p.176 for overall, small coal, electricity, synthetic ammonia, chemical fertilizers and small cement plants; for small iron and steel plants, Sun Shengqing and Chen Shengchang 1983, p. 27–28.

1979–89: For overall, *Statistical Yearbook of China 1981*, p. 208; 1983, p. 222; 1984, p. 201; 1985, p. 315; 1986, p. 276; 1987, p. 259; 1988, p. 310–11; 1989, p. 264; 1990, p. 412–13.

For small coal plants, *Yearbook of China's Coal Industry 1983*, p. 60; 1984, p. 21; 1987, p.10; 1989, p. 7.

For small synthetic ammonia plants, *Almanac of China's Economy 1981*, p. iv-68; 1982, p.v-185; 1985, p. v-136; 1989, p. v-98; 1990, p. iii-77.

For small chemical fertilizer plants, *Almanac of China's Economy 1981*, p. iv-68; Liu Guoguang (ed.), (1984), p. 246.

For small cement plants, *Almanac of China's Economy 1981*, p. iv-89; 1982, p. v-205; 1984, p. v-167; 1985, p. v-163; 1986, p. vi-180; 1987, p. vi-118; 1988, p. v-81; 1990, p. iii-89.

For small plate glass plants, *Almanac of China's Economy 1981*, p. iv-89; 1982, p. v-208; 1984, p. v-167; 1985, p. v-163; 1986, p. vi-180; 1987, p. vi-118; 1988, p. v-81; 1990, p. iii-89.

For steel, *The Yearbook of Iron & Steel Industry of China 1990*, p. 201.

Note: * According to China's official classification, an enterprise is small if its annual production capacity is below a specific level for the industry concerned: coal (2 million tonnes), electricity (25,000 k w), synthetic ammonia (45,000 tonnes), chemical fertilizers (0.2 million tonnes for phosphate), cement (0.2 million tonnes; for specialized; 50,000 tonnes), plate glass (0.5 million standard cases) and steel (50,000 tonnes).

** At 1980 constant prices.

† At 1990 constant prices.

economic development. In theory, small enterprises employing mainly local resources and supplying local markets help mobilize local resources (which may remain idle if production relies solely on centrally-controlled large scale modern enterprises); they may also tackle regional unemployment problems, restrain the influx of rural population into urban areas, reduce rural-urban disparities, better serve the needs of local inhabitants, and reduce long distance inter-regional transportation. However, owing to the inferior quality of indigenous resources, poor production techniques and less competent management, by and large, the efficiency of small and collective-owned enterprises is lower than that of large and medium-sized enterprises. For instance, in 1987, the average labour productivity of small industrial enterprises was only about 49.3%, and 59.8% respectively of that of large and medium-sized enterprises. In addition, total wage payment and funds of small enterprises accounted for 49.19% and 38.33% of the whole industrial sector while their contribution to total profits and tax payment only amounted to 35.15%. This implies the lower efficiency of small enterprises compared with large and medium-sized ones. Similarly, the share of intermediate input costs in gross output value of small enterprises was larger than that of large and medium-sized enterprises, and it was increasing. In 1987, the share was 72.53%, larger than that of medium-sized (70.44%) and large enterprises (63.61%), while in 1985 it was 70.5% only. In terms of physical input consumption, small enterprises (especially small heavy industrial enterprises) are less efficient. For instance, the coke consumption ratio (coke consumption/GOV) of small steel enterprises was 39% higher than that of large enterprises. In 1980, investment required to produce one ton of steel by large enterprises was only 47% of that of an average small enterprise. Or, investment required to produce one walking-tractor by large enterprises was only 37% of the small enterprises. At the same time, the unit cost of steel and synthetic ammonia produced by large enterprises was respectively 64.5% and 40% of that of small enterprises. Furthermore, energy consumed per unit of output of small enterprises was also higher. In 1981, the output of steel per thousand tons of energy consumed by large enterprises was 57.5% higher than small enterprises' output.

Energy consumed per ton of ammonia output by large enterprises was usually lower than small enterprises by 40–50%. As a whole, in 1978, the net output per ton of energy consumed by small enterprises in heavy industry was about 57% lower than large enterprises.³⁰ On the other hand, the output/fixed asset ratio of small enterprises was much larger, equivalent to 272.4% of that of large and medium-sized industrial enterprises in 1989. As expected, the average labour/fixed assets ratio of the small enterprises was also much larger. Thus, the choice of production scale is, in fact, to strike the balance between higher utilization efficiency of fixed assets and larger labour absorbing power on one side and higher efficiency of utilizing raw materials and higher output quality on the other.

Spatial Distribution: Industrial Development in the Coast Areas in Contrast to the Interior Region

The spatial distribution of China's industrial activities was substantially affected by military and ideo-political consideration, particularly during the Cultural Revolution period. During the Third FYP period (1966–70), economic activities, in particular heavy industry, was affected by the war panic induced by US direct participation in the Vietnam War and the Cultural Revolution itself. The Third FYP as originally formulated in April 1964 gave top priority to consumption needs, in particular agricultural development, followed by national defence. However, as a result of Mao's criticism, the Central Committee decided in October 1965 that the basic spirit and tasks would be national defence first, accelerating the construction of the "Third Line", that is, altering the spatial distribution of industrial activities and moving industries from the coast to the interior. As a result, the structure of basic investment was altered. The percentage share of industrial investment in total basic construction investment was raised from 47% to 52.4%, of which the defence industry's share rose from 9–9.5% to 10.2%. Investment in transport increased from 11.5% to 15.6%. The most important change was the emphasis on "Third Line" construction. Investment in regions of the "Third Line"

was planned to account for 42.4% of the national total. Of the 1,400 medium and large construction projects, 55.8% would be within the "Third Line" region. Construction in the region was concentrated on strategic industries such as national defence, raw materials, energy, machinery, and railway transport. From 1966, there were massive movements of factories and construction projects from areas of the "First Line" (the coast areas) to the interior regions — the "Third Line". On the whole, except for the "Third Line" construction drive, the Third FYP was hardly enforced due to social and political disturbance.

The first draft of the Fourth FYP (1971–75) was prepared under the influence of Lin Biao. It stressed to the utmost the importance of war preparation, concentrating efforts on the construction of "Third Line" regions. Corresponding to the military regions, the economy was divided into 10 self-sufficient economic regions which could fight independently. Each province and autonomous region was to aim at achieving self-sufficiency in supplies of agricultural and light industrial products. Very high growth rates for key products such as steel, energy products and machines were set as targets.

After the ten years (1966–75) of construction, economic activities within the "Third Line" regions expanded greatly. As shown in Table 17A, when comparing the key industrial production indicators of the eastern (coastal) with those of central and western regions, one can see that the respective shares of gross industrial output value changed from 68.3% : 27.4% : 4.3% in 1952 to 57.8% : 35.3% : 6.9% in 1965, and to 59.2% : 32.6% : 8.1% in 1978. For the corresponding years, the percentage shares of light industrial output value in the inland regions (including central and western regions) were 28.5%, 32.7%, and 35.5%; for heavy industrial output value, the shares stood at 34.5%, 41.2% and 41.8%. The percentage shares of various industrial products showed that the interior regions, particularly the central region, had a tremendous growth in crude oil, steel, rolled steel, tractors, plate glass, cement, chemical fertilizer, sulphuric acid, soda ash, metal cutting machine tool, yarn and cloth; and the western region had a tremendous growth in coal, electricity, pig iron, plate glass, cement, chemical fertilizer, sulphuric acid, metal

cutting machine tool, machine-made paper and paperboard, and yarn during the years under review (1952, 1965, 1978).

However, following the implementation of the open-door policy and the granting of special privileges to the Special Economic Zones and coastal open cities (the introduction of quasi market economy in partial replacement of command economy during the reform period), there are some indications that the eastern region regained its dominant role in the national economy, mainly at the expense of the Central. For example, the percentage shares of gross industrial output value in the three regions, the Eastern, the Central, and the Western were 62.2% : 25.9% : 11.9% in 1989, compared with the respective share 59.2% : 32.6% : 8.1% in 1978. For some individual products, the percentage shares in 1989 were as follows: cloth, 59.9% : 28.3% : 11.8%; metal cutting machine tool, 70.8% : 18.2% : 11%; cement, 53.5% : 29.9% : 16.6%; steel, 57.5% : 30.1% : 12.4%; machine-made paper and paperboard, 51.8% : 36.0% : 12.2% (see Table 17A).

The granting of special privileges to industrial enterprises in the coastal areas, especially the Special Economic Zones,³¹ led to spatial reallocation of industrial activities in favour of the coastal areas, particularly since 1984 (see Table 17B). Such reallocation boosted demand pressure in the coastal areas: it intensified disproportions between production and the supplies of energy, raw materials, and transports facilities; it induced a massive inflow of migrants from the interior regions, and degraded the living conditions. For instance, in 1983, the (East) coastal areas contributed 59.5% to the national total of industrial output, with 26.3% of coal and 49.2% of electricity output. In 1989, the coastal areas produced 62.16% of gross industrial output, 22.46% of the coal, and 48.13% of the electricity of the national total. Thus, without an increasing support from the interior and the West, in due course the energy problem should become more acute. Increasing needs for transports of materials from the interior and the West, of course, exerted a much larger burden on the transportation system which was already under great strain. In 1988, the problem became more serious. The increase in gross industrial output within the (East) coastal areas accounted for 2/3 of the national increase, of which Shandong, Jiangsu, Zhejiang, Fujian and

Table 17A. Spatial Allocation of Industrial Activities among Eastern, Central and Western Regions, 1952-89

Item	1952			1965			1978			1980			1984			1987			1989		
	E	C	W	E	C	W	E	C	W	E	C	W	E	C	W	E	C	W	E	C	W
No. of industrial worker	60.5	39.5								43.6	56.4								48.5	35.6	15.9
No. of industrial enterprises	50.3*	49.7*								43.9	56.1								41.6	39.6	18.8
Original value of fixed asset of industry†	72.0	28.0								43.9	56.1								50.8	32.5	16.7
Gross output value of light industry	71.5	28.5		67.3	32.7		64.5	35.5					65.2	34.8	64.9	35.1			67.6	22.6	9.8
Gross output value of heavy industry	65.5	34.5		58.8	41.2		58.2	41.8					58.2	41.8	54.8	45.2			56.9	29.1	14.0
Gross industrial output value	68.3	27.4	4.3	57.8	35.3	6.9	59.2	32.6	8.1	59.9	32.4	7.7	58.3	33.8	7.9	61.2	26.6	12.3	62.2	25.9	11.9
Yarn	82.0	16.9	1.1	63.8	33.0	3.2	58.7	36.9	4.5	56.8	38.6	4.7	58.4	36.8	4.8	58.5	30.1	11.4	60.6	29.0	10.4
Cloth	81.1	16.7	2.3	64.8	31.3	3.9	58.5	36.4	5.1	56.3	38.7	5.0	58.3	36.5	5.1	58.5	28.8	12.7	59.9	28.3	11.8
Textiles	86.0	13.2	0.8	86.9	12.1	1.1	81.1	15.3	3.6	81.3	15.6	3.6	80.2	17.8	2.0	81.7	11.3	7.1			
Machine-made paper and paperboard	69.7	29.7	0.5	60.7	35.9	3.4	54.1	39.6	6.3	52.8	41.4	5.8	51.9	42.4	5.7	53.6	34.8	11.6	51.8	36.0	12.2
Timber products	15.2	72.8	12.0	18.7	62.3	19.0	16.8	71.0	12.2	16.1	63.8	20.1	23.2	57.9	18.9	22.8	60.5	16.7	20.4	63.5	16.1
Metal cutting machine tool	92.0	7.3	0.7	78.3	18.4	3.3	63.8	29.8	6.5	62.6	29.3	8.1	65.2	26.4	8.4	71.2	17.8	11.0	70.8	18.2	11.0
Large and medium tractors				15.0	84.4	0.6	49.1	45.7	5.2	50.8	43.3	5.9	64.5	34.2	1.3	59.9	40.1	0.0	72.0	28.0	0.0
Small tractors				87.7	12.3	0.0	43.4	43.1	13.5	53.0	35.8	11.2	50.8	39.4	9.7	54.4	35.6	10.1	57.4	32.6	1.0
Sulphuric acid	99.0	0.7	0.3	73.4	23.1	3.5	57.4	32.0	10.6	56.4	34.0	9.7	52.2	38.0	9.8	49.5	31.5	19.0	49.5	30.8	19.7
Soda ash	98.1	1.7	0.2	94.4	5.6	0.1	89.7	9.8	0.5	87.1	12.4	0.4	80.4	18.9	0.8	74.9	15.6	9.6	69.4	18.9	11.7
Chemical fertilizer	100.0	0.0	0.0	49.4	37.6	13.0	46.8	42.1	11.2	45.9	43.1	11.0	41.9	46.3	11.8	43.2	35.9	20.9	41.3	35.9	22.8
Cement	79.3	20.2	0.5	54.2	32.7	13.1	46.6	40.6	12.9	46.8	41.0	12.2	48.5	39.5	12.1	52.9	30.8	16.3	53.5	29.9	16.6
Plate glass	100.0	0.0	0.0	84.2	15.8	0.0	63.6	29.5	6.9	62.1	31.4	6.5	56.5	32.4	11.2	56.5	32.9	10.6	57.3	32.5	10.2
Steel	85.8	13.9	0.2	72.4	23.6	4.1	62.2	31.4	6.4	59.4	33.7	6.9	56.4	36.5	7.1	59.8	29.5	11.7	57.5	30.1	12.4
Pig iron	79.3	18.8	1.9	71.2	22.7	6.1	56.8	35.1	8.1	56.7	35.1	8.2	54.5	36.2	9.3	54.4	33.3	12.3	54.1	33.7	12.2
Rolled steel	86.2	13.6	0.2	78.6	20.0	1.5	63.4	31.5	5.1	62.2	32.8	5.0	59.0	34.7	6.3	58.1	31.0	10.8	58.0	30.7	11.3
Electricity	63.1	34.9	2.1	54.0	36.3	9.7	49.5	37.5	13.1	48.6	38.8	12.5	47.2	39.5	13.3	48.2	35.0	16.8	48.1	34.3	17.6
Coal	43.9	52.4	3.7	34.2	54.5	11.3	30.8	55.3	14.0	28.1	58.3	13.7	24.1	62.2	13.7	23.4	56.6	19.9	22.5	57.6	19.9
Crude Oil	53.7	1.6	44.7	12.3	74.6	13.1	42.3	53.0	4.7	40.7	53.6	5.6	39.1	55.1	5.8	42.3	51.3	6.5	42.6	50.5	6.9

Source: *Statistical Data of China's Industrial Economy 1949-84*, pp. 137-141; 1986, pp. 224-228. *Statistical Yearbook of China's Industry Economy 1988*, pp. 133-143; 1990, pp. 463-483.

Note: E: Eastern region: including Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Guangxi.
 C: Central region: including Shanxi, Inner Mongolia, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan.
 W: Western region: including Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.
 * 1957 data.
 † Referring to state-owned independent accounting industrial enterprises.

Table 17B. Spatial Allocation of Industrial Production between the Coastal and Interior Regions in China, 1952-89

Year	Gross Industrial Output†		Light Industry†		Heavy Industry†		Raw Coal‡		Crude Oil‡		Electricity‡		Fixed Assets**	
	Coastal	Interior	Coastal	Interior	Coastal	Interior	Coastal	Interior	Coastal	Interior	Coastal	Interior	Coastal	Interior
1952	69.4	30.6	71.5	28.5	65.5	34.5	43.9	56.1	53.7	46.3	63.6	36.4	72.0	28.0
1965	63.1	36.9	67.3	32.7	58.8	41.2	34.9	65.1	12.3	87.7	55.0	45.0		
1978	60.9	39.1	64.5	35.5	58.2	41.8	32.1	67.9	42.3	57.7	51.4	48.6	43.9	56.1
1980	61.5	38.5	65.2	34.8	58.2	41.8	29.0	71.0	40.7	59.3	50.4	49.6	44.9	55.1
	(60.6)	(39.4)												
1981	60.5	39.5	64.55	35.45	56.13	43.87	27.6	72.4	36.6	63.4	50.1	49.9		
1982	59.7	40.3	64.07	35.93	55.39	44.61	26.8	73.2	35.9	64.1	49.6	50.4		
1983	59.5	40.5	64.3	35.7	54.7	45.3	26.3	73.7			49.2	50.8	43.2	56.8
1984	59.8	40.2	64.9	35.1	54.8	45.2	25.0	75.0	39.1	60.9	49.1	50.9	43.4	56.6
1985	60.3	39.7	65.2	34.8	55.7	44.3	24.0	76.0	40.84	59.16	49.1	50.9	46.7	53.3
1986	60.64	39.36	65.25	34.75	56.09	43.91	23.77	76.27	41.90	51.86	48.53	51.47	47.9	52.1
			<63.82>	<36.18>	<55.64>	<44.36>								
1987	61.16	38.84	<64.20>	<35.80>	<55.84>	<44.16>	23.4	76.6	42.29	57.71	48.21	51.79	48.84	51.16
1988	61.99	38.01	67.23	32.77	56.99	43.01	23.26	76.74	42.46	57.54	48.63	51.37	49.71	50.29
1989	62.16	37.84	67.58	32.42	56.88	43.12	22.46	77.54	42.56	57.44	48.13	51.87	50.78	49.22

Source: *Statistical Data of China's Industrial Economy 1949-84*, pp. 137-141; 1986, pp. 224-228; 1987, pp. 92-93, 114-115; 1989, pp. 155-165. 1949-84 *China's Industrial Development: Statistical Data*, pp. 51-52.

Statistical Yearbook of China 1988, pp. 328, 356-357; 1989, p. 276; 1990, pp. 424, 440, 467.

Note: † Share of industrial output at constant prices. 1952: at 1952 prices; 1965: at 1957 prices; 1978 and 1980 without parenthesis: at 1970 prices; 1980 with parenthesis — 1988: at 1980 prices; < > : at current prices.

‡ Physical quantity share.

** Share of value of fixed assets (at original value) of independent accounting industrial enterprises.

Guangdong together contributed 47.5% of the (national) total. The rapid upsurge in the output value of these five provinces was mainly due to the dramatic expansion of output by collective-owned enterprises, especially the township-operated enterprises, which thus retarded the improvement of efficiency. A persistent outflow of resources and personnel from the less-favoured regions in search of higher income in the coastal areas would gradually affect resource supplies and boost inflation in the interior regions. If the interior regions cannot get a fair share of income generated within the coastal areas in return for their supports, income disparities between the coastal and interior regions will become larger. In fact, the practice of discriminatory policies makes it extremely difficult if not impossible to assess relative performance of different regions and industries; at least part of the profits earned by the privileged should be attributable to policy advantages rather than real productivity differentials, which is unfortunately most difficult to isolate. For instance, industrial growth accelerated in Guangdong in recent years although the efficiency of its industrial sector was still below average while Shanghai could only attain a relatively low growth rate although its efficiency was above average (by national standards) simply because Shanghai was still under stricter control while Guangdong enjoyed the greatest autonomy among all provinces. For example, in both 1987 and 1988, concerning labour productivity, the percentage change in unit production cost of comparable industrial products, and the ratios of profit + tax/industrial sales, and profit + tax/funds, Shanghai's performance was at least above average and better than Guangdong's. Guangdong's performance on the above last two items was, in fact, below the national average.³²

The underprivileged regions and industries would feel very discontented. They attributed the relatively better performance of the coastal areas simply to policy differentials or unequal treatment. There lacked a commonly acceptable justice criterion and regions had lost confidence in the capacity of the central government to redistribute income and to reallocate resources that respect their interests. This is consequent upon the central government's prior drastic devolution of decision making and management to local authorities;

those which had felt underprivileged tried to protect themselves by preserving and improving their relative position by “keeping up with the Jones” — struggling for an effective “most-favoured region (industry) clause.” As a result, any policy which appeared to be successful in one area was followed immediately by nearly all others, without regard to whether they (the “followers”) were capable of successful implementation, and without considering the external diseconomies generated by a simultaneous pursuit of the policy throughout the country. Thus, it appeared the over-extension of policies and inflation running rampant.

“Keeping up with the Jones” was perpetuated because the local authorities legally and illegally exercised some control over financial institutions. Thus, even if discriminatory policies were essential to rectifying sectoral disproportions and fostering allocation efficiency, the practice of “keeping up with the Jones” rendered them much less effective.

Some information concerning differences in economic efficiency of industrial enterprises in the cities of the eastern, central and western regions is shown in Table 18. Generally speaking, the larger the size of a city is, the more efficient should its industrial enterprises be. In 1987, corresponding to the size of population (in descending order, cities of more than 2 million, 1–2 million, 0.5–1 million, 0.2–0.5 million, and below 0.2 million), on average, the GOV per 100 yuan of gross fixed asset was ¥156.8, ¥128.9, ¥110.2, ¥109.7 and ¥118.0; the NOV per worker was ¥6,815, ¥5,933, ¥6,287, ¥5,287 and ¥3,258; the profit and tax per 100 yuan of gross output was ¥19.4, ¥18.7, ¥18.4, ¥16.2 and ¥14.9; and the profit and tax per 100 yuan of funds invested was ¥27.5, ¥24.0, ¥21.2, ¥17.5, and ¥16.9 respectively. It seems that a big city enjoyed not only the economy of scale, but most probably, possessed a stronger bargaining power when in need of state inputs. This is simply because the bureaucratic hierarchy played a predominant role in the decision-making of national planning. A big city governing a large jurisdiction has more chance to be placed at the top of the investment list.

Because of the small sample and the limited information shown in Table 18, it is difficult if not impossible to find out whether there is

a uniform pattern whereby the industrial enterprises in the eastern region are always more efficient than those in the central and western regions under certain common features and conditions.

Domestic Production and Foreign Trade³³

Before 1978, the objectives, policies and administration system of China's foreign trade basically followed the Soviet model. In brief, foreign trade was to remedy shortfalls in domestic production and to ensure the fulfilment of production plans. Imports were “growth-oriented” and exports were mainly regarded as the means to finance import payments. The consumption goal of imports as well as the autonomous growth-induced role of exports were relatively ignored. Accordingly, China selected to import only those commodities which she could not produce or could produce at intolerably high cost and with inferior quality: mainly sophisticated plants, technologically advanced equipment, machines, industrial raw materials, fertilizers and cereals. The export level was pegged to the import level, yielding on balance a slight trade surplus in the long run. The scope and level of commodity trade were thus severely constrained. In view of the relatively small size of import payment and in order to minimize import costs, China chose to export low-cost commodities, those in which she had absolute advantages — primary products including some agricultural produces and minerals as well as some labour- or resource-intensive simple manufactures. Consequently, before 1978, China's trade sector was small in relation to the size of the national economy. Even in 1977 her total trade volume only accounted for 5.47% of her gross output value of agriculture and industry. As for the composition of exports, according to SITC (Standard International Trade Classification) 1-digit grouping, during 1966–76, manufactured exports (SITC 5+6+7+8), contributed on average 46.7% to China's total exports. By China's own classification scheme, during 1950–76, farm and sideline products plus their processed products contributed 73.27% to total export, whereas industrial and mineral products accounted for the remaining 26.73%. Apart from com-

Table 18. Economic Efficiency of Independent Accounting Industrial Enterprises in the Cities, 1987

Population	Location	City	Province	GOV		NOV per worker	Profit & tax per ¥100 gross output	Profit & tax per ¥100 funds invested
				¥100 GFA	Yuan			
>2 million	E	Shanghai		191.1	9364	20.8	33.5	
		Guangzhou	Guangdong	208.5	8114	17.9	30.6	
	C	Harbin	Heilongjiang	127.9	4597	13.2	14.7	
		Wuhan	Hubei	123.5	6081	21.7	26.0	
	W	Chongqing	Sichuan	166.9	3382	12.2	17.6	
	Average			156.8	6815	19.4	27.5	
1-2 million	E	Dalian	Liaoning	145.4	7609	20.7	29.0	
		Qingdao	Shandong	185.7	6833	18.6	32.1	
	C	Changchun	Jilin	144.0	4874	15.3	20.7	
		Zhengzhou	Henan	124.8	5414	19.3	23.4	
	W	Xian	Shaanxi	109.6	4162	13.6	13.3	
	Lanzhou	Gansu	98.5	6607	21.2	23.6		
	Average			128.9	5933	18.7	24.0	
0.5-1 million	E	Fuzhou	Fujian	198.8	4458	13.3	20.3	
		Ningbo	Zhejiang	198.6	7389	18.7	30.9	
	C	Datong	Shanxi	58.0	4733	23.4	16.9	
		Hefei	Anhui	182.1	5627	18.8	27.3	
	W	Guiyang	Guizhou	101.8	6082	25.5	26.1	
		Huhot	Inner Mongolia	134.8	3875	24.3	28.6	
	Average			110.2	6287	18.4	21.2	
0.2-0.5 million	E	Wenzhou	Zhejiang	287.1	3373	10.5	18.8	
		Qinhuangdao	Liaoning	96.2	4190	18.7	16.7	
	C	Kaifeng	Henan	141.5	4892	17.9	23.0	
		Pingxiang	Jiangxi	97.6	2113	3.8	3.7	
	W	Geju	Yunnan	96.5	5404	17.5	19.1	
		Zunyi	Guizhou	119.6	8439	24.5	19.4	
		Average			109.7	5285	16.2	17.5
<0.2 million	E	Xingcheng	Liaoning	143.2	2766	1.6	2.1	
		Zhangzhou	Fujian	170.3	4627	17.6	25.2	
	C	Yiyang	Hunan	130.8	4478	13.9	15.7	
		Fuyang	Anhui	216.6	5812	20.6	35.6	
	W	Tulufan	Xinjiang	75.9	325	17.3	12.0	
		Wuzhong	Ningxia	77.4	5259	21.8	16.1	
	Average			118.0	3258	14.9	16.9	

Source: *Statistical Yearbook of China's City 1988*, pp. 185-193.

Note: GFA: Gross fixed assets.

E, C, W: See Table 17A.

modity trade, before 1978 other forms of external economic activities were insignificant.

As for administration, foreign trade was monopolized by the state and managed by a highly centralized machinery, mainly by directives formulated in the form of mandatory plans. The direct planning and administrative organ was the Ministry of Foreign Trade (which was, in turn, under the leadership of the State Council chaired by the Premier); it formulated trade plans and oversaw their implementation. Actual trade practice was, however, undertaken by the trade corporations specialized according to traded commodities. They acquired exportable goods from the production units according to the state procurement plan for sales in overseas markets and imported commodities for delivery to the recipient units according to the state import and delivery plans. So, producers of the exportables did not have direct contacts with their overseas customers. Moreover, foreign and domestic prices were kept separate.

Starting from 1979 onwards, however, consequent upon the abandonment of the Maoist line of socialist construction, "opening the economy to the outside world" has been advocated by the Chinese authority as one of the two basic principles to be pursued in fostering economic construction. Since then, the core objectives, the policies and the administration of China's foreign trade have undergone fundamental changes which have affected the industrial sector quite substantially. In short, compared with before, the consumption goal of imports as well as the autonomous growth-induced role of exports have been emphasized. Control over the import of consumption goods has been thus relaxed and the export level has no longer been pegged rigidly to the import level but encouraged to be as high as possible. Furthermore, the pattern of trade is governed relatively more by the law of comparative advantage making use of international division of labour to improve allocative efficiency rather than according to the capability to produce or absolute advantage as in the past. As a result, the scope and size of China's commodity trade (particularly trade of industrial products) have been enlarged substantially.

Finally, the Chinese authority disregards possible ideological implications and prefer to utilize whatever form of foreign economic

activity to its fullest extent. This has resulted in the gradual rise in the importance of non-commodity trade in China's total foreign economic transactions and some significant changes in the form of conducting commodity trade. The reforms of trade administration have been based on the principles of decentralization and the diversification of management and decision making; they are enhancing material incentives and linking profits and incomes to trade performance by pursuing various forms of profits and foreign exchange retention systems, by merging trading and production enterprises together, by enhancing the role of market forces and indirect economic levers, especially the foreign exchange rate. Reforms have reduced the role of administrative directives in regulating trade activities and enhanced trading enterprises' self responsibility for profits or losses.

These reforms did contribute to a more rapid growth of trade but at the same time gave rise to some serious problems. They intensified excess demand pressure, thus accelerating inflation, and created huge trade deficits. As a result, the reforms themselves have been trapped to some extent into a decentralization — recentralization (of management and decision making) circle. Nevertheless, they have affected the distribution of industrial production activities between the tradeable and non-tradeable sectors. Theoretically, trade expansion may improve industrial performance directly through providing a larger market (via export trade) and increasing the supplies of raw materials, intermediate inputs and technology (via import trade). Nevertheless, if the aggregate demand of the economy cannot be effectively controlled, in the face of intense inflation pressure, export promotion will drive up inflation further and weaken allocative efficiency. If the tradeable sectors are not competitive trade promotion will simply result in trade deficits, or the government will have to grant huge subsidies to preserve price competitiveness at the expense of the budget. It is not surprising that China's industrial sector was affected significantly in the above ways during the trade promotion drive and reform period of 1979–89.

It is due to the paucity of trade data from Chinese sources that we review mainly the manufactured exports in 1983–89. As shown in

Table 19, the percentage share of manufactured exports to total exports was in the range of 37.11% (1985) to 54.73% (1989). If one refers to SITC(9) which includes predominately industrial products, the share would be in the range of 49.5% (1985) to 71.3% (1989). Of them, manufactured goods classified chiefly by materials (SITC 6) took the largest portion with its percentage share of total exports ranging from 16.49% (1985) to 22.06% (1988). However, in general, the value of imports for the whole group (SITC 6) exceeded that of exports. The export-import ratio ranged from 37.9% (1985) to 100.8% (1988), except for the major items listed: SITC 65, textile yarn, fabrics, made-up articles, SITC 69, manufactures of metals, n.e.s. (not elsewhere specified) and SITC 66, non-metallic mineral manufactures in some individual years (1983, 1984 and 1987–89), for which China enjoyed trade surpluses.

Next followed miscellaneous manufactured articles (SITC 8), with a percentage share ranging from 12.81% (1985) to 20.49% (1989). China was able to make tremendous export surpluses in this category. The export-import ratio fell in the range of 182.4% (1985) to 518.8% (1989). For all the major items listed, SITC 84, SITC 85, SITC 89 all had significant export surpluses.

The third largest export category was chemicals and related products (SITC 5) the percentage share of which ranged from 5% (1985) to 6.1% (1989). The export-import ratio, which ranged from 30.8% (1985) to 46.1% (1986), shows that its trade balance situation was much worse than that of SITC 6. Nevertheless, the major item listed SITC 54, medicinal and pharmaceutical products, contributed an impressive export surplus, and its export-import ratio fell between 121.9 (1988) and 548.3% (1983).

Machinery and transport equipment (SITC 7) took the fourth place, with its percentage share ranging from 2.81% (1985) to 7.38% (1989). This export category recorded a huge import surplus. The export-import ratio ranged from 4.6% (1985) to 30.6% (1983). For all the major items listed, SITC 76, SITC 72, SITC 77, SITC 78 and 79, there were import surpluses, particularly SITC 72; the export-import ratio was a mere 2.3% in 1986. Even the peak ratio, which took place in 1983, was 15.9% only.

During the period under review (1983–89), the average growth rate of manufactured exports was as high as 32.3%, more than that of total export at 28.70% in RMB or 15.65% in US\$. Nevertheless, China relied mainly on the export of articles of apparel and clothing accessories, textile yarn, fabrics, made-up articles, miscellaneous manufactured articles, manufactures of metals n.e.s., medicinal and pharmaceutical products, and footwear, etc. to earn foreign exchange. On the other hand, huge trade deficits appeared in items such as machinery and transport equipment (SITC 7), and the majority of items in chemicals and related products (SITC 5), and manufactured goods classified chiefly by materials (SITC 6). In sum, being a labour-abundant developing country, China exported mainly goods manufactured by labour-intensive and mature technology and imported goods manufactured by capital-intensive and sophisticated technology as predicted by the law of comparative advantage. Since the import of the latter exceeded the export of the former, as a whole, China encountered a deficit in its trading of manufactured goods.

Concerning the relationship between domestic demand and exports level, although there has been a growing excess demand pressure on the domestic market since 1982, China's industrial exports rose rapidly (except in 1985); this intensified the demand pressure. As shown in Table 20, the percentage share of industrial exports (including the output of extractive industries) from China's total industrial output rose from 5.39% in 1981 to 8.71% in 1987. As for light industry, the share increased from 4.6% in 1982 to 9.88% in 1987, of which the exports of textiles and clothing accounted for 26.75% of China's domestic production in 1985, higher than that in 1980 (4.8%), crude oil increased from 12.56% to 20.3%, and coal from 1.02% to 1.46%. As a matter of fact, despite inadequate supplies to meet domestic production needs, mineral fuels and industrial raw materials together accounted for 33.9% of China's commodity export earnings in 1985. Afterwards, because of a sharp decrease in oil price, the share dropped substantially to 19.27% in 1987 (see Table 21). However, the decrease was compensated by the upsurge of light industrial and textile exports which relied heavily on industrial raw materials. The most notable increase came from electrical machinery which accounted

Table 19. Manufactured Exports by SITC Groups, 1983-89

SITC	1983		1984		1985	
	(1)	(2)	(1)	(2)	(1)	(2)
5 Chemicals and related products	5.63	39.3	5.23	32.0	5.00	30.8
51 Organic chemicals	1.36	61.5	1.12	47.6	1.14	44.9
52 Inorganic chemicals	1.18	98.6	1.10	99.2	1.05	90.5
54 Medicinal & pharmaceutical products	1.21	548.3	1.05	367.6	1.10	292.0
6 Manufactured goods classified chiefly by materials	19.64	69.4	19.30	68.1	16.49	37.9
64 Paper, paperboard, and articles of paper pulp	0.07	78.2	0.07	71.6	0.06	34.9
65 Textile yarn, fabrics, made-up articles	13.08	514.8	14.08	377.8	11.91	202.9
66 Non-metallic mineral manufactures	1.28	135.9	0.10	114.2	0.08	69.0
67 Iron & steel	0.09	5.8	0.05	2.9	0.04	1.7
68 Non-ferrous metals	0.07	9.5	0.06	14.2	0.08	12.6
69 Manufactures of metals, n.e.s.	2.32	637.8	1.82	290.8	1.56	121.6
7 Machinery and transport equipment	5.49	30.6	5.74	19.8	2.81	4.6
72 Machinery specialized for particular industries	0.10	15.9	0.08	9.1	0.06	2.9
76 Telecommunications and sound recording apparatus	0.09	58.4	1.31	28.3	0.03	3.6
77 Electrical machinery, apparatus and appliances	0.07	70.6	0.07	30.3	0.04	8.9
78, 79 Transport equipment	1.94	33.0	2.10	27.5	0.10	5.6
8 Miscellaneous manufactured articles	17.12	486.7	18.00	386.3	12.81	182.4
84 Articles of apparel and clothing accessories	9.27	71674.1	10.16	41373.9	7.55	13984.1
85 Footwear	1.00	38798.2	0.10	10942.6	0.09	3450.9
89 Miscellaneous manufactured articles	4.64	667.9	4.73	404.2	3.18	162.6
Manufactured exports (5+6+7+8)	47.88		48.27		37.11	
Growth rate of manufactured exports				133.53		107.17
Export/GNP (%)	7.5		8.3		9.5	
Total Exports				132.4		139.3
Growth rate (A) in RMB				117.6		104.6
(B) in US\$						

Source: *China's Customs Statistics No. 1 issues, 1984-90. Statistical Yearbook of China 1990, p. 33, 641.*

% unless otherwise indicated								
SITC	1986		1987		1988		1989	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
5 Chemicals and related products	5.60	46.1	5.66	44.6	6.09	31.7	6.10	42.4
51 Organic chemicals	1.33	49.4	1.27	50.1	1.21	33.8	1.31	49.1
52 Inorganic chemicals	1.23	108.0	1.40	130.9	1.60	170.0	1.51	169.4
54 Medicinal & pharmaceutical products	1.09	212.7	1.03	178.2	0.91	121.9	1.05	176.3
6 Manufactured goods classified chiefly by materials	19.08	52.8	21.70	88.0	22.06	100.8	20.76	88.3
64 Paper, paperboard, and articles of paper pulp	0.06	35.2	0.06	34.6	0.57	44.4	0.55	45.8
65 Textile yarn, fabrics, made-up articles	13.65	261.1	14.66	313.4	13.58	270.5	13.32	245.8
66 Non-metallic mineral manufactures	1.03	87.2	1.11	127.7	1.22	134.7	1.51	152.3
67 Iron & steel	0.05	2.4	1.07	8.8	2.12	21.8	1.35	12.2
68 Non-ferrous metals	0.08	24.4	1.49	79.9	1.72	92.9	0.86	40.7
69 Manufactures of metals, n.e.s.	1.80	113.9	2.02	154.8	2.12	171.4	2.30	192.7
7 Machinery and transport equipment	3.58	6.6	4.40	11.8	5.83	16.6	7.38	21.3
72 Machinery specialized for particular industries	0.05	2.3	0.04	3.4	0.50	5.2	0.69	6.4
76 Telecommunications and sound recording apparatus	0.08	17.9	1.27	34.3	1.66	43.3	2.17	63.6
77 Electrical machinery, apparatus and appliances	0.06	16.0	0.08	20.9	1.20	24.8	1.56	34.2
78, 79 Transport equipment	0.08	6.7	0.08	12.0	0.84	14.9	0.91	16.1
8 Miscellaneous manufactured articles	16.05	265.8	15.89	333.4	17.39	417.0	20.49	518.8
84 Articles of apparel and clothing accessories	9.47	21273.6	9.50	21540.2	10.25	17586.7	11.68	15980.7
85 Footwear	1.07	19461.8	1.23	63023.3	1.53	39318.9	2.09	32625.3
89 Miscellaneous manufactured articles	4.04	342.7	3.36	278.9	3.52	264.8	16.64	121.0
Manufactured exports (5+6+7+8)	44.31		47.65		51.37		54.73	
Growth rate of manufactured exports		159.63		146.28		129.79		117.61
Export/GNP (%)	11.2		13.0		12.6		12.4	
Total Exports	133.8		135.8		120.2		110.7	
Growth rate (A) in RMB	113.1		127.5		120.5		110.6	
(B) in US\$								

Note: (1) % share of exports.
(2) Exports/Imports.

Table 20. The Percentage Share of Industrial Exports* in Gross Industrial Output, 1980–89

Year	Total	Light industry	Energy	Crude oil	Coal
1980			4.80	12.56	1.02
1981	5.39		5.03	13.59	1.06
1982	5.80	4.60	5.22	14.89	0.97
1983	5.48	4.85	4.89	14.32	0.92
1984	6.17	5.80	6.39	19.45	0.88
1985	6.61	6.32	6.75	24.04	0.89
1986	7.64	8.77	6.52	21.81	1.10
1987	8.71	9.88	6.35	20.30	1.46
1988	8.11	—	6.02	19.01	1.60
1989	7.50	—	—	17.72	1.46

Source: *Statistical Yearbook of China 1988*, pp. 37, 46, 345; *1990*, pp. 56, 455, 488, 641, 648.

Statistical Yearbook of China's Energy 1986, pp. 12, 28.

China's Customs Statistics, various first quarter issue.

Note: * Industrial exports include mineral fuels and industrial raw materials.

Table 21. The Percentage Share of Industrial Products and Mineral Fuels in Commodity Export Earnings, 1981–89

Year	Mineral fuels (1)	Industrial raw materials (2)	(1) + (2)	Light industrial and textile (3)	(1)+(2)+(3)
1981	23.75				
1982	23.80	6.70	30.50	32.40	62.90
1983	21.00	7.30	28.30	34.72	63.02
1984	23.02	7.55	30.57	36.04	66.61
1985	25.88	8.10	33.98	36.02	70.00
1986	11.75	7.70	19.45	43.19	62.64
1987	11.51	7.76	19.27	44.69	63.96
1988	8.31	—		—	
1989	8.22	—		—	

Source: As for Table 20.

for 13% of total commodity export earnings in 1988, compared with 6.1% in 1985. In 1988, again, exports of some industrial raw materials surged up dramatically, which added to the prevailing inflation pressure. Pig iron exports increased by 2.7 folds; and aluminium by 43.6%.

On the other hand, in terms of value, total industrial imports exceeded exports from 1984, indicating a rapid rise in demand pressure. In fact, during 1979–81, total domestic production exceeded domestic absorption by RMB2.1 billion. However, during 1984–89, on average, domestic absorption exceeded domestic production by RMB42.12 billion every year. As a result, the price deflator of net industrial output rose by 34.5% during 1985–89 compared with -0.8% during 1953–78. The inflation rate stood high in 1988 and 1989. The average purchase price of major industrial raw materials rose by 20.2% and 26.4% respectively. As a result of the buoyant domestic demand in 1988 and the pursuit of retrenchment cum readjustment policies together with the impact of the June-Four incident in 1989, the share of industrial exports to China's gross industrial output declined from 8.71% in 1987 to 8.11% in 1988 and 7.5% in 1989. On the other hand, the imports of some industrial products have been substantial and have helped to stabilize domestic prices. During 1984–89, on average, 3.5% of the value of China's total supplies of industrial products and over 5% of heavy industrial products were from net imports (where total supply = domestic output + net imports, and net imports = imports – exports) reaching the peak of 6.75% and 12.2% respectively in 1985. In addition, net imports accounted for 24% of total supplies of steel products, 29.5% of soda ash, and 8.5% of caustic soda during the same period. Nevertheless, the import structure was not so appropriate (so to maximize the increase of supply elasticity of industrial outputs), and the availability of imports delayed the pursuit of retrenchment cum readjustment policies and the curbing of inflation at an early stage; indeed the rapid import growth in the eighties could not avoid the outburst of inflation after 1984. Worse still, in the face of an inadequate improvement in export competitiveness and the deterioration of barter terms of trade, it led to huge trade deficits for China. In 1982, China enjoyed a surplus of

US\$0.625 billion in her trade of manufactured products (SITC 5-9) Starting from 1983 onwards she suffered persistent trade deficits. During 1984–89, the total deficit in her trade of manufactured products amounted to US\$84.2 billion. Yet, the inflation rate during the same period was higher than before with the unprecedentedly high growth rate of 18.5% in social retail sales in 1988.

It is noted that the decrease in efficiency of (intermediate) input utilization in the industrial sector and the rapid rise of the unit cost of industrial exports (in RMB) should have been partly attributable to the change of industrial organization (by ownership and by scale of production) in favour of the small-sized, collective-owned and individual-owned enterprises; especially the village and township enterprises could enjoy much greater autonomy compared with large state enterprises, but they operated at lower efficiency. Furthermore, the uncontrollable excess demand pressure plus structural imbalance in production boosted prices upward and thus lowered the price competitiveness of exports. Attempts to preserve export's price competitiveness by extending export subsidies damaged the budget situation.

III Problems Before 1979 and Their Origin

Fluctuation: Evidence and Causes

Despite its dramatic growth and its enormous contribution to national economic development, China's industrial development has encountered some severe problems which have impaired its own performance as well as that of the national economy. China's industrial growth has experienced quite severe fluctuations, triggering economic cycles, and entailing huge adjustment costs. Furthermore, the productive efficiency of China's industrial sector has been low by international standard. The efficiency in utilizing material inputs has been particularly disappointing. A failure to enhance productive efficiency substantially while striving to maintain or even to surpass the output growth rate in the past (which was high by international standard) implies that the growth of the intake of material inputs must be accelerated. Resource constraints will then be felt easily. Competition for inputs will boost inflation with all its accompanying evils. A more rapid growth of the industrial sector should result in sectoral disproportions both within the industrial sector and the non-industrial sectors.

Before 1979, the growth rate of industrial output fluctuated widely within the range of -38.2% (in 1961) to 54.8% (in 1958). That of heavy industry ranged from -46.5% to 78.8%. In general, China's industrial fluctuations have been triggered by political cycles, and/or by intense sectoral disproportions arising from abrupt upsurge in the proportion of the industrial sector, especially heavy industry at the expense of agriculture and other non-industrial sectors, and/or by intensified inflation pressure, and by the interaction of all the three factors (especially the last two). Nevertheless, the ideo-political factors played a much lesser role after 1978.

Political Cycle

Indeed, the pattern of industrial growth was conditioned by ups and downs in mass political movements.³⁴ Normally, during the early stage of a political movement (which was customarily used as the means to overthrow existing administrative institutions for implementation of new ones), the economy usually experienced a higher growth rate; a more effective mobilization of inputs was due to greater spiritual incentive stimulated, as well as the rectification of defects of the old institutions. However, in view of good performance (and perhaps based on some falsified documents and distorted information), the initiators of the movements and reforms would become too optimistic and over-ambitious; they would accelerate reforms throughout the whole economy without giving due consideration to the existing constraints. The movements and reforms tended to get out of control and finally become destructive of productivity growth. The economy would thus fall into chaos resulting in a drastic decrease in productivity and living standard. The government would then be forced to abandon the movement and reforms for the resumption of original practice to a certain extent. With the dwindling of the overdone reforms and movement, production and productivity surged up again. Where the reforms failed to remedy the defects of the original administrative system, the defects again accumulated and reappeared later. The resurgence of defects tempted the government to pursue

reforms after the economy had recovered. Then the above sequential changes would be repeated triggering cyclical movements. Where the industrial sector was regarded as the major target of reforms, it would undergo a distinct cyclical movement pattern and according to the political cycle.

The experiences of the Great Leap Forward Movement and similarly, but to a lesser extent, the Cultural Revolution vividly demonstrate the "political cycle" theory. Actually, the greatest growth and the most severe contractions of industrial output ever recorded after 1949 occurred around the time of the Great Leap Forward Movement, in 1958 and 1961 respectively. The second most serious fluctuations took place during the late sixties, the early phase of the Cultural Revolution.

Sectoral Imbalance

Apart from the impact of political movements, industrial fluctuation was attributable to changes in the degree of sectoral imbalance triggered by the pursuit of industry-biased and speed-oriented extensive growth strategy. By sectoral imbalance we mean, the growth of various key sectors is out of proportion so that the overall economic growth rate attained cannot be sustained due to an inadequate support from the relatively stagnant sectors. Technically speaking, it implies that the prevailing (output) proportion is substantially different from the one at which the desired overall growth rate can be attained with minimal resource cost. It was particularly significant after 1978 when mass political movements practically disappeared. In brief, under severe resource constraint and the rigid factor supply system, the over-emphasis on the expansion of the industrial sector (especially the processing heavy industries) pressed the extensive methods into achieving maximum possible growth rate. This always led to disproportionately rapid industrial growth impairing growth of other sectors. The relatively stagnant sectors thus became bottlenecks inhibiting further a steady growth of the national economy. The results appeared to be the coexistence of shortages (in the supply of "bot-

tleneck" products) and idle capacities, and thus low productive efficiency. With intensified sectoral imbalance, productive efficiency decreased and, most probably, the rise of inflation pressure accelerated.

Owing to inefficient information and communication systems as well as cadres' attempt to falsify information, the decision makers could usually be aware of the seriousness of problems only after they had already developed into an economic crisis. In the face of a crisis, a "cut off at one stroke" policy would be implemented in order to cool down the over-heated economy and repress the over-expanded industrial sector, usually in precedence of measures to strengthen the bottleneck sectors. Industrial production (especially the over-expanded one) would thus suffer an abrupt downslide. With the lessening of demand and the subsequent reshuffle of the production and investment structure in favour of the bottleneck sectors, the general supply conditions of the economy would gradually improve. Industrial production would thus surge up again.

After full recovery, however, if the above development strategies, the deficiencies of the administrative system and resources limitation could not be altered substantially, structural disproportions would rise and intensify again. For instance, the severest downslide in industrial production occurred in 1961 at a time when the share of heavy industrial output within the gross output value of agriculture and industry had just reached a record high level in 1960 (54.99%). In contrast, agricultural production had already declined for two consecutive years (1959–60), so that the growth rate differential between industry and agriculture was unprecedentedly large (27.7% per year for industry compared with -13.2% per year for agriculture). Definitely, sectoral disproportions with agriculture lagging far behind industry became very acute in 1961. The Chinese government thus had to implement drastic retrenchment cum readjustment policies repressing industrial growth. After two years of drastic and comprehensive readjustment, industrial production surged up again in 1963. In fact, it could be shown that the rapid expansion of heavy industry did generate displacement effects hampering the growth of the agricultural sector.³⁵

Such cyclical movements also took place after 1978. For instance, the drastic decrease in the growth rate of industrial production in 1979–81, 1986, 1988–89 should have been the initial outcome of the government's attempts to rectify sectoral disproportions triggered by the over-expansion of the industrial sector. Apart from the agricultural sector, transports, education, services as well as mining, energy and raw-materials industries within the industrial sector had from time to time become bottlenecks dragging general industrial growth down.

Certainly, owing to the significant size and the linkage effects of the industrial sector, fluctuation in industrial growth rate should be the cause as well as the outcome of fluctuations in other sectors. Even without industry-biased policies, industrial growth will undergo fluctuations if there are serious fluctuations in the growth of agricultural output. Similarly, changes in per capita income and consumption level are correlated with the pattern of industrial fluctuations. In fact, when an over-emphasis on heavy industries, especially processing heavy industries, was the cause of over-expansion of the industrial sector, the growth of the per-capita consumption level correlated negatively with industrial growth.³⁶ The reverse was true when light industries, especially consumer goods industries, grew much faster than others.

As a result of abrupt changes of preference in economic administrative institutions and policies, we observe substantial changes in the cause of industrial fluctuations after 1978. The role of mass political movements subsided, which accounted for some decrease in the degree of industrial fluctuation after 1978. Sectoral disproportions still remained a very important cause, though. However, the major source of imbalance gradually shifted away from heavy industry as a whole to processing industries directly related with consumer goods production. This over-expansion was motivated not only by planners' preference, as before 1979, but also by profit motive as well. Besides this, external demand did play an increasing role. In the short run, however, such intra-industry structural changes contributed to more rapid growth in income and consumption, and helped absorb redundant rural labour. Thus, at present, the rectification of sectoral im-

balances to achieve long-run steady growth, entails some short-run costs — lower income and consumption growth as well as more severe undisguised unemployment. Moreover, in view of the relaxation of price control since 1978, output fluctuations have always given rise to price instability which in turn, has inflicted high social costs, something not tolerated.

Causes of Low Efficiency

We have discussed low efficiency in the industrial sector in Chapter I. Stagnant productivity improvement in China's industrial sector could be attributable to deficiencies in the enterprise management system, unduly low depreciation charges for fixed assets, external diseconomies of the general economic administration system, inadequate transports facilities, neglects of human capital, defects in the economic coordination mechanism as well as the need for fulfilment of other socio-political objectives in conflict with efficiency. Certainly, all these causes are interrelated.

Deficiencies in Enterprise Management System

Before 1979, China's enterprise management system had the typical features of the orthodox Soviet model; there were two exceptions when, during the periods of Great Leap Forward and Cultural Revolution, the local authorities had a much greater say. The micro-efficiency of the orthodox Soviet model is notoriously low. In short, under the mandatory plan on output, input supplies, delivery, distribution and investment, the enterprise does not have adequate autonomy and resources to make due responses to disturbances and problems unpredicted by planners. Thus, initial minor disturbances and imbalances may ultimately develop into a crisis. If the quality of the plan is low, the costs can become very high. The lack of autonomy and the alienation from direct participation in decision-making impair initiatives, creativity, and the sense of self-responsibility of enterprises and workers, which remain, however, vital to improving dynamic ef-

ficiency.

Before 1979 as there was no close relationship between workers' income, the survival and expansion of the enterprise and efficiency performance, enterprises did not feel any pressure nor have adequate incentive to be cost-conscious and to improve efficiency. As a matter of fact, since under China's planned economy, financial institutions were subordinated to the needs of the production sectors, it was difficult to identify financial responsibility. Enterprises had little decision-making power but (under the protection of the ministries) were subject to loose financial discipline. The budget they faced could be easily softened. The imposition and enforcement of planned targets led to the "success indicators" problems;³⁷ this resulted in the "ratchet effect" as well as the distortion of output and input mixes, and accordingly low efficiency. In particular, the predominant importance given to gross output (in value or in physical terms) and its growth rate under loose financial responsibility and rigid and unreliable material supplies gave rise to (output) expansion drives, investment hunger and accordingly unsatiated demand for inputs by enterprises.

Unduly Low Depreciation Charges for Fixed Assets

Before 1979, industrial enterprises in China did not have much autonomy in deciding and conducting capital constructions for enlargement of production capacity. Instead, capital construction projects were planned, executed and supervised by the planning bodies, the Construction Bank and superior administrative organs above the enterprises. They might not be fully aware of the real needs of the enterprises and might arrange investment activities to fulfill their own self-interest rather than the demand of the direct users. On the other hand, as enterprises did not have to bear the investment costs, they were not subject to pressure to economize on capital use. In addition, maintenance, repairing and renovation of existing capital equipment were relatively neglected by the state. The enterprises were required to undertake these responsibilities to be financed by funds drawn

from the enterprises' depreciation funds and major repair funds. The two funds were part of the enterprises' retained revenue receipts calculated by multiplying the depreciation rate and the major repair rate (as determined by the state) with the original value of fixed assets of the enterprises. However, the average depreciation rate of the industrial sector was very low and tended to decline during 1953-79. The average rate during 1953-79 was 3.92% which was even lower than that during 1953-57 (3.96%). See Table 22. Worse still, except for the petroleum industry, the depreciation rate of the capital-intensive industries such as metallurgy, coal and coke and machine-building declined after the First FYP period. With a low and declining depreciation rate but rising cost of intermediate input, the recorded net value of fixed assets overstated the productive capacity of the existing capital stock because the realized expenses on capital replacement were not sufficient to replace the worn-out capital so that the original production capacity could be preserved. As the state could not frequently conduct surveys and compiled the real value of capital stock of the enterprises, it relied primarily on the data of the original value of fixed assets of a base year. It worked out the size of net investment in basic assets and replacement capital (compiled according to the predetermined depreciation rate) over the period concerned to the original value of fixed assets of the base year. Thus, if the planned depreciation rate was lower than the actual rate of capital depreciation (measured by the rate of decrease in physical productivity) the above-computed original value of assets should be an under-estimate. The depreciation funds derived on such a downward-biased basis should be far from sufficient to preserve the productivity of the original capital stock. As a matter of fact, sometimes the superior organs of the enterprises even transferred part of such meagre amount of depreciation and major repair funds of the enterprises to other purposes, since the enterprises were only permitted to retain 30-40% of the depreciation funds at their disposal whereas the remaining portion was controlled by the ministry or other senior administrative organs.

In the face of insufficient supply of funds for repairing and

Table 22. Basic Rate of Depreciation for Various Industries, 1953-89†

	Industrial sector	Metal-lurgy	Power	Coal & coke‡	Petro-leum	Chemical	Machine building	Building materials	Forestry	Food	Textile	Paper making
	1953-57	3.96	3.26	4.50	5.14	4.36	3.98	3.56	—	—	—	—
	1960-62	4.03	3.43	4.90	6.77	4.47	3.80	4.00	—	—	—	—
	1963-65	3.77	3.27	4.33	6.77	3.83	3.43	3.40	—	—	—	—
	1966-70	3.72	3.40	3.10	9.32	4.04	3.58	3.92	—	—	—	—
	1971-75	3.92	3.20	3.06	8.66	4.34	3.80	4.00	—	—	—	—
	1976-80	4.12	3.16	2.96	9.86	4.52	3.76	3.98	—	—	—	—
	1953-79	3.92	3.28	3.68	7.90	4.28	3.74	3.83	—	—	—	—
	1985 (a)	4.45	3.10	5.42	5.72	4.59	4.59	5.04	4.29	4.30	4.50	4.29
	(b)	4.15	3.08	5.23	5.72	4.29	4.20	3.95	3.95	4.05	4.14	3.86
	1986 (a)	4.57	3.15	4.81	5.43	4.82	4.64	5.35	3.70	4.70	5.03	—
	(b)	4.20	3.10	4.62	5.45	4.64	4.24	4.29	3.30	4.44	4.48	—
	1987 (a)	4.57	3.43	4.47	4.90	5.04	4.61	5.19	3.75	4.55	4.96	—
	(b)	4.22	3.39	4.34	4.90	4.89	4.24	4.26	3.31	4.26	4.47	—
	1988 (a)	4.70	3.69	4.29	4.58	5.26	4.88	5.32	4.10	4.75	5.14	—
	(b)	4.31	3.65	4.15	4.57	5.10	4.45	4.33	3.72	4.45	4.61	—
	1989 (a)	4.68	3.80	4.44	4.05	5.31	4.89	5.24	4.01	4.67	5.09	—
	(b)	4.28	3.74	4.32	4.04	5.14	4.44	4.28	3.65	4.35	4.53	—

Source: 1953-80: Wang Xiangqin (1985), p. 5.

1985-89: *Statistical Yearbook of China 1986*, pp. 242-43; 1987 pp. 310, 314; 1988, pp. 373-74, 377; 1989, pp. 320-21, 324; 1990, pp. 421-22, 441.

Note: (a) All independent accounting industrial enterprises.

(b) State-owned independent accounting industrial enterprises.

† Rate of depreciation is defined as $\frac{\text{depreciation fund}}{\text{original value of fixed assets}}$ in 1985-89. And the coverages of the various industries in 1953-85 are slightly different from those of the industries in 1986-89.

‡ 1953-80 excluding coke.

replacement of worn-out capital as well as the lack of resources and autonomy with regard to new and more efficient production technique and management methods, the only way for the enterprises to preserve and enlarge their production capacity (so that the ever-rising planned output targets could be fulfilled) was to press for new capital constructions. In fact, for the sake of self-protection, they tended to inflate their investment needs. Thus, the policy of low depreciation rate intensified “investment hunger” in China. It worsened the return to investment since the additional resource cost for acquiring additional output by replacement of worn-out capital and renovation of the existing equipment should be much lower than that from the erection of a completely new plant. Nevertheless, it was easier to get approval for new capital construction rather than for increasing the supply of depreciation and repair funds. It was common to find an apparently peculiar phenomenon in China’s industrial enterprises in contrast to China’s general shortage in capital supply — the very rapid increase in capital construction and so the size of fixed assets (especially erection of new plants) coexisted with poor maintenance work and repair services for existing capitals and equipment leading to an abnormally high real depreciation rate of capital (measured in physical productivity) compared with other economies. Such a peculiar phenomenon has resulted in huge waste of investment funds and more intense inflation pressure.

The average depreciation rate for the industrial sector in the eighties went up a little bit, from 4.12% during 1976–80 to 4.28% in 1989. Notably, the rates of basic industries did not experience more significant increases, which was not in line with the state’s desire to enlarge the investment share of basic industries. Moreover, during the period under review (1985–89) the average depreciation rate for state-owned enterprises was lower than their non-state-owned counterparts, which was irrational as the state-owned enterprises were always required to produce more capital-intensive products with more capital-intensive production technique. The average rate of increase was, however, far below that of general prices and particularly that of industrial raw materials in the eighties, especially after 1984. Thus, the enterprises were simply unable to have complete replace-

ment of the worn-out capital with depreciation funds determined on the bases of the official depreciation rate and original (nominal) value of fixed assets. Such deficiency continues as long as the inflation rate of capital construction and raw materials exceeds that of the increase in (nominal) depreciation funds. If the deficiency is to be remedied by accelerating capital construction for expanding production scale, particularly via the erection of new plants, investment hunger and its accompanied problems become more serious.

The External Diseconomies of the General Economic Administration System

Apart from defects in administration within the enterprises, low efficiency of the enterprises could also be attributable to unfavourable factors arising from the general economic administration system under which they operated. The most important factors concerned the conditions of the supplies of productive factors and infrastructure, the general demand conditions as well as economic development strategies and policies.

In general, the most annoying problem faced by China’s industrial enterprises has been the unreliable and inadequate supplies of material inputs and frequent policy changes. The factor supplies problem arose mainly from general excessive demand pressure, sectoral disproportions as well as the rigid material supply administrative system. In view of decision makers’ preference for rapid output growth (even in the short run), the reliance on extensive growth has been the one and only way, owing to the difficulties of implementing intensive strategy under the prevailing rigid enterprise management system, the unreliable factor supplies due to defects of the administrative system and the transport problems and the lack of strict financial discipline (which induced and facilitated local authorities and enterprises to hoard resources at little cost). The demand for productive factors in China has always been very intense, far exceeding supply (except under periods of deliberate contraction). Perpetual excessive demand for factors led to “shortage economy” behaviour

which intensified hoarding and investment hunger, softened enterprises' budget constraint and thus raised uncertainty in factor supplies.³⁸ Local authorities and enterprises then tended to launch on more investment projects so as to control more factor supplies which would be hoarded or transferred for other purposes. In case local authorities did have some autonomy in allocation of productive factors, they might try to forbid the outflow of factors away from their regions thus lowering allocation efficiency. As the acquisition of productive factors was most crucial, the production sectors would try to push the financial institutions to loosen financial discipline binding on enterprises until they did so. With the softening of the budget constraint, price adjustments failed to control factor demand. Furthermore, under excessive demand and unreliable (factor) supply situation, enterprises would not be willing or (and) able to experiment with new production techniques and new products. They could not acquire needed resources in time for experimentation. In the face of great pressure for over-fulfilment of planned output target, with symptoms of growing shortage, the enterprises dared not bear the risk of conducting experiments which might impede output growth. As a matter of fact, shortages implied a sellers' market so even without the above problems, enterprises would not face enough pressure to improve efficiency. Thus, efficiency growth tended to be stagnant under persistent excessive demand pressure. Growth would then remain extensive. The economy would be trapped in a vicious circle: shortage would call for more investment which further intensified shortage. Finally, when shortage (due to excessive demand) became intolerable, the government would be forced to implement contractionary policies at one stroke to cut down investment and production scale so as to cool down the over-heated economy. The immediate consequence would be a sharp decrease in activity level. However, as the real causes of shortage were not removed, once contractionary policies were abandoned, the "shortage" cycle would reappear.

The practice of extensive growth strategy with gross output growth rate as the most important "success indicator" would intensify the problem of sectoral disproportions. Aiming at maximizing gross output growth rate, the price structure would affect the output mix if

the enterprises did have some autonomy and capacity to alter the output mix (while the penalty for non-fulfilment of the assortment plan was relatively light). However, subject to various constraints, the prevailing price structure was irrational in the sense that it could not rectify — it even intensified — the problem of sectoral disproportions. In China, processed industrial products especially light consumer goods were over-priced while industrial raw materials, intermediate inputs and energy were under-priced. Thus, for maximizing gross output value or its growth rate, enterprises tended to produce relatively more processed industrial products and neglect raw material output. Similarly, maintenance work was neglected and (for those which could not afford hoarding productive factors) reserve of inputs were kept below safety level. The perpetuation of such practice led to serious sectoral disproportions within the industrial sector — over-expansion of processing industries, stagnant growth of mining and raw materials industries resulting in low degree of capacity utilization of the former. In fact, even if there had been no price problems, due to differences in the growth rate of different productive factors as well as factor demand of different industries, as long as every industry aimed at maximizing short-run growth rate, sectoral disproportions would result in the absence of demand constraint.

Sectoral disproportions constituted an external diseconomy faced by industrial enterprises. It resulted in the coexistence of idle capacities and insufficient supply, triggered economic fluctuations and led to enormous waste of resources. In China, sectoral disproportions referred to large and over-expanded processing industries with low degree of capacity utilization, accompanied with bottleneck sectors — raw materials industries, energy, transports, agriculture and services. Products of the bottleneck sectors were in shortage. Their stagnant growth was the crux to under-utilization of the production capacities of the over-expanded sectors. Thus, the presence of sectoral disproportions implied low efficiency.

Concerning the assortment and quality of product, the disparity between supply and desired demand was quite substantial which (in addition to the habitual hoarding practice) resulted in an unduly high inventory level of materials while at the same time imports rose

rapidly. For example, during 1971–76, the average annual inventory level of rolled steel was 12 million ton equivalent to 70.8% of the consumption level, or 80.6% of the output level during the same period. However, during the period, China still imported 18.78 million tons, equal to 17% and 20.4% of domestic consumption and production level respectively. Concerning the light industries, as a result of unreliable and stagnant growth of agriculture, those which relied mainly on consuming agricultural raw materials as intermediate inputs had become too bulky, operating far below capacity. For example, during the Fourth FYP period (1971–75), the supply of leather, oilseed, sugar and fur could only meet 30%, 50%, 70% and 80% of the input requirement of the corresponding light industries. The supply of agricultural raw materials, in turn, depended on the due support from the industrial sector via the adequate supplying of pesticides, chemical fertilizers, energy, machines and means of transport. On the whole, the steady growth of both heavy and light industries was constrained by both the inadequate level and structure of supplies of raw materials and energy.

In addition to inadequate and unreliable factor supplies, industrial enterprises faced another unfavourable factor beyond their control — unstable policies and frequent interference from various levels of government and cadres. Owing to miscalculations in planning, the defects and undesirable outcome arising from the implementation of previous policies, external disturbances as well as political reasons, economic policies in China changed frequently. The plans imposed on the enterprises were thus always subject to changes which interrupted the production process and inflicted huge adjustment and risk aversion costs. In expectation of changes, some enterprises kept from energetically implementing the plan before they could make sure the plan would not change. Others would go to another extreme. If they found the new policies beneficial, they would try by all means to pursue them to the fullest extent as rapidly as possible. Either case would result in the plan being implemented at cracking pace with the former rushing at the end and the latter at the beginning of the planned period. The consequence was obviously low efficiency. Apart from uncertainty in policies, enterprise operation was always interfered

with by various authorities, especially the authorities of the localities within which the enterprises operated. As enterprises' smooth operation needed cooperation and supports from the local authorities they usually yielded to the requests of the authorities, which increased uncertainties and costs for the enterprises.

Inadequate Transports Facilities

Concerning inter-sector structural imbalance problems, apart from relatively stagnant growth of agriculture which inhibited the growth of light industries relying on agricultural raw materials, the inadequate and inappropriate spatial allocation of transports facilities has been a major insurmountable problem faced by industrial enterprises. Owing to resource endowment and historical reasons, processing industries were concentrated in East China, especially the coastal provinces where infrastructure, technical and management capacities are superior. However, mineral ores and raw materials are found mainly in the interior regions and the West. Thus, China is faced with a dilemma: either to practise regional specialization according to comparative advantage in pursuit of static allocation efficiency which implies transporting raw materials from the interior and the West regions to the coastal areas for processing and manufacturing and afterwards transporting part of the finished products back to the interior regions and the West; or to establish processing industries in the interior regions near the mineral ore deposit sites for processing, and manufacturing finished products for the regions. The pursuit of the first option requires a well-developed efficient transport network linking the coastal areas with the interior regions, which is, however, unsatisfactory even at present. Implementation of the latter results in lower factor productivity at least in the short-run. Moreover, in the absence of an efficient long-term capital market, it cannot be realized without government participation. Whether such practice could lessen long-distance transportation burden substantially, depends on the degree of self-sufficiency achieved within the interior regions. It appears that before 1979, especially during the Cultural Revolution, the

Chinese government placed greater emphasis on developing the interior regions and restructuring the spatial allocation of the transport networks.³⁹ However, as a result of much inferior productivity, the interior regions still relied heavily on the supplies of factors and products from the coastal areas. Nevertheless, there was a substantial strengthening of economic power in the interior regions. Yet starting from 1979, with much greater emphasis on short-run profits, the granting of preferential policies to the coastal cities as well as the encouragement of inter-regional transaction of goods and services, economic activities especially processing industries, trade and services expanded much faster in the coastal regions, accompanied with inflow of capital, labour and raw materials from the interior regions. At the same time, control on inter-regional migration and labour mobility was relaxed. Thus, the burden on transports between the coastal and interior regions has become much heavier. By international standards, the tonnage mile/national income ratio of China's transports was abnormally large.⁴⁰ It could be attributable to the mismatch between the sources of raw materials supply and processing industries as well as the deficiencies of the material supply administration system. In addition, owing to the over-emphasis on current production at the expense of infrastructure maintenance and construction, transport facilities of most cities cannot cope with the rapid growth of economic activities; new residents migrating from other areas (since 1979) make traffic very congested and transportation very inconvenient. Moreover, port and ocean transport facilities cannot meet the new needs arising from the extension of foreign trade. As a matter of fact, during 1966–78, the output elasticity of transports (percentage change in cargo transports volume/percentage change in gross output value of agriculture and industry) was 0.708, much smaller than that during 1953–65 (1.43). The elasticity during 1980–89 was only 0.639 although the scope of freight volume widened first starting in 1979 and then from 1985 onwards. Note that, in general, the output elasticity of transports should be larger than unity for sustaining steady economic growth at a reasonable level of efficiency.

Indeed, inadequate transports facilities have become an increas-

ingly severe bottleneck to steady economic growth. For instance, in 1976, the nationwide railway network was divided into 120 regions of which 1/3 already operated at full capacity while another 10 could only meet 45–70% of total transports demand. One of the most acute problems concerned the transport of coal from Shanxi to other regions. It's estimated that over 10 million tons of coal had to be kept in Shanxi waiting for rail transports. Similarly, plenty of phosphorous ore in the South-west and ferrous sulphide in the North-west could not be transported out on time. In 1979, the costs incurred by inadequate port facilities amounted to US\$100 million. China's ocean liners could only handle 73% of cargo transport demand. Similarly, the passenger train carriages are always overloaded, exceeding the full capacity by 1/3.⁴¹

Neglects of Human Capital

Apart from the inadequate supplies of material inputs, the industrial sector also faced the problem of inadequate supplies of competent administrative and technical personnel meeting the real needs of the enterprises. Owing to the emphasis on current material production, China's investment in education and training has been inadequate. Thus, the supply of properly trained technical and administrative personnel fell short of real needs. In fact, even by 1985, technical and engineering personnel only accounted for 4.1% of the total industrial work force in state-owned enterprises while administrative staff shared 10.7%. In addition, as a result of China's education and science and research system, there has always been a lack of coordination between education, research institutions and production sectors. The adaptation of invention, new ideas and new concepts to actual economic production and services is most unsatisfactory because the education, science and research institutions are detached from production enterprises. The personnel in education and science and research institutions are not assessed according to the (economic) efficiency implication of their work. In fact, they are not interested in and rarely know the real needs of the enterprises. Thus, the personnel

trained and recruited from these institutions may not be competent. Furthermore, the education and training offered by the universities and specialized institutions are too specialized and narrow. Usually, the scope of knowledge covered by the syllabi is very limited. Such training could not cope with ever-changing situations. However, under the original recruitment system, enterprises have little autonomy to select nor dismiss employees once they are employed. It thus intensifies the mismatch between demand and supply of manpower leading to low allocation efficiency.

Inefficient Coordination Mechanism

The low efficiency of China's industrial sector could be partly attributable to the inefficient mechanism for coordinating activities of various economic units, which impairs macro-economic efficiency. Before 1979, activities of various enterprises and industries were mainly coordinated by various types of mandatory plans — output plan, material supply plan, delivery plan, financial plan, etc. Theoretically, since the government via these plans was able directly to guide and control activities of micro units, there should be no need for her to make use of macro-economic levers for coordination purposes. As a matter of fact, the efficiency of such coordination mechanisms depended on the quality of the formulation and implementation of plans. In short, the plan imposed on the enterprise was only a component part of the macro (i.e. industry-wide or economy-wide) plan. The macro plan should be a set of well-coordinated enterprise plans. Thus, if the macro plans were well-constructed and each enterprise could fulfil its own plan to the fullest extent, there would be no severe problems in macro efficiency, such as sectoral disproportions. However, in reality, for pragmatic administrative reasons and incentive considerations, the plan could not cover all economic activities and all aspects of each activity; so as long as money be used, price should serve some allocation purposes even though quite more weakly than market economies. Hence, together with the planning problems, price rationality problems affected macro-economic efficiency. Unfor-

tunately, most prices in China were irrational, unsuited for allocating resources since they were not originally designed for such purpose. With the extension of much greater autonomy to enterprises to arrange their economic activities, the coordination mechanism should have changed from relying primarily on administrative directives via mandatory plans to greater dependence on indirect control via prices and other financial levers. The damaging impact of irrational prices and financial levers on resource allocation and income distribution became more serious. Deficiencies in planning and irrational prices have impaired economic efficiency as indicated by intensified sectoral disequilibrium with coexistence of inflation pressure (open and repressed) and widespread practice of hoarding; in addition, enterprises' practice of "keeping up with the Jones" to preserve their relative profit position aggravated the disequilibrium.

Fulfilment of Non-Economic Objectives in Conflict with Efficiency

Judging by the experience of the past forty years or so, changes in emphasis on preference for ideo-political goals have had substantial impact on administrative institutions, socio-economic development strategies and policies and accordingly on economic efficiency in China. In fact, the most serious fluctuations of industrial performance (on growth and efficiency) were triggered by mass political movements for achieving ideo-political objectives. War preparation campaigns against possible invasion in the coastal areas led to some inward shift of industrial activities and the construction of the "Third Line" region within which productive efficiency was much lower. As to more specific action, emphasis on the beneficial effects of enhancing initiatives of local authorities and enterprises while negating the role of the market, always resulted in drastic devolution of administration and decision-making to local authorities, which disrupted the original ministerial material supply system, but with no better substitute market. In order to reduce uncertainties about factor supplies, local authorities would try to be as self-contained as pos-

sible. They would make use of their autonomy to establish all lines of industries which were, however, destined to be small in size and inefficient, given the resource endowment within their jurisdiction. Regional division of labour would thus be severely impaired. The central government, in order to facilitate the establishment of these small industries, would grant much financial autonomy to local authorities via the practice of various forms of fiscal Cheng-bao contracts which, would further discourage inter-regional flow of commodities. Employment consideration as well as the desire to reduce economic disparities between the rural and urban areas all contributed to the rise of small industries, especially in the rural areas.

For serving distribution purposes, the prices of necessities were kept low or even ceased to function as a means of distribution because the necessities were simply distributed by rationing. Employment and stability considerations led to a low wage policy, the job assignment system as well as the lack of autonomy for enterprises to decide on their own employment level, structure and remuneration. As a result, labour mobility (inter-regional and inter-occupational) and wage differentials were small. Yet, before 1978, the most fundamental factor which rendered prices irrational for resource allocation was the ideological suspicion of the compatibility between socialism and the commodity economy. Emphasis on incompatibility deprived prices of allocation functions. Thus, whether prices were irrational (in allocative sense) did not matter. All the above considerations and reasons led to lower static allocation efficiency accompanied with problems hindering the improvement of people's living standards. When out of control, the problems might ultimately develop into economic crises requiring drastic and radical measures for their settlement, which, always implied some substantial decrease in production and living standards in the short run.

IV The Industrial Reforms Post 1978: Measures for Resolving the Pre-1979 Problems

Post-1978 Remedial Measures⁴²

The Basic Principles

As a result of the Third Plenary Session of the Eleventh Central Committee of the CCP, China under Deng Xiaoping shifted its emphasis from ideo-political pursuit to economic construction. Deng and his associates attributed the major causes of the unsatisfactory performance of the Chinese economy to an over-emphasis on ideo-political pursuit which had led to destructive mass political movements, severe sectoral disproportions as well as a very rigid and inefficient economic administration. Defiance of the ultra-idealist Maoist Line of socialist construction (with subsequent interpretation leading to the theory of the early stage of socialism) which was accepted by most people tired of persistent political struggles, removed the above first obstacle. As a result, achieving long-term, rapid and steady economic growth with sufficient improvement in living standards has thus become the central task of the government. The task could then be pursued with greater degree of freedom and leverage compared with

previous periods.

The Chinese government recognized that long-term steady growth could not be achieved without the prior rectification of sectoral disproportions (which had already been serious by 1978). However, these could not be removed without the sacrifice of short-run growth, particularly, growth of the preferential sectors so as to release resources for the weak sectors. Furthermore, given the resource constraint, the need to accelerate consumption and to attain steady long-term growth, an intensive growth strategy relying on productivity enhancement would have to replace the extensive one. Thus, since 1979, the Chinese government first introduced economic readjustment while redirecting resources to serve agriculture and light consumer goods industries. At the same time, core emphasis was placed on productivity growth. Since the decision makers attributed the low efficiency of the Chinese economy mainly to the rigid enterprise management system, they stressed the institutional reform of economic administration; it aimed at enlivening the enterprises by granting greater autonomy, offering more material incentives and imposing more financial pressure. Besides this, Deng decided to extend the utilization of foreign resources, not simply through commodity trade but through other non-commodity trade channels as well. Concerning commodity trade per se, the engine-of-growth effects of export trade have been emphasized.

Policies and Measures

Changes in industrial development strategy and production structure since 1979 followed the above directions. At first (1979–81), emphasis was placed on reshuffling of investment and output structure. Privileges (concerning the supply of raw materials, electricity; the measures to restructure, and the renovation of light industrial enterprises; basic construction investment; foreign exchanges, facilities for import of technology and transport services, etc.,) were granted to light industries. As a result, basic construction investment in state-owned heavy industrial enterprises dropped from ¥24.39 bil-

lion in 1978 to ¥17.26 billion in 1981 while that in state-owned light industrial enterprises rose from ¥2.93 billion to ¥5.09 billion in 1980. Furthermore, the investment structure in heavy industry, that is the percentage share of mining and timber industries, increased from 31.19% in 1978 to 33.9% in 1981; that of raw materials industries from 44.7% to 49.3% while that of processing industries decreased from 24.2% to 16.8% during the same period of time. The output structure changed accordingly. Thus, the structural changes (in broad categories of classification) during 1979–81 lessened the degree of sectoral disproportions. Moreover, in order to economize in the use of energy and raw materials, some small indigenous heavy industrial enterprises (especially those producing iron and steel, machine-tools, cement, coal, fertilizer) were closed, merged, or changed to produce other products. However, small light industries which were inefficient users of intermediate products flourished as a result of the privileges granted to them.

In addition to reshuffling industrial structure (mainly through administrative control) there were some experimental reforms in industrial enterprise management.⁴³ Nevertheless, during 1979–81, the government was very cautious. Industrial reforms were much less dramatic than agricultural reforms. Experiments first started in October 1978 in Sichuan focused on granting enterprises more administrative autonomy and linking reward to performance. They spread rapidly in 1980. The reforms included conferring some autonomy about planning, product sales, the distribution of retained profits, funds utilization and input supply upon fulfilment of the mandatory plan. In brief, after fulfilment of the output plan, the enterprise was allowed to arrange for extra production. It was permitted to sell products on its own initiative outside the procurement plan and independently of the commerce department, which included new products from experimental production and even a portion of the procured products. In addition, the enterprise was allowed to retain part of the profits (as enterprise funds) after fulfilment of eight economic and technical planned indicators and the delivery quotas. The enterprise funds were designed for renovating production, offering collective welfare services and distribution among workers as

bonus. As for reproduction, enterprises were granted the autonomy to expand production capacity with their own funds. The amount of funds available for self-investment increased as the percentage of enterprise amortization fund retained by the enterprises rose from 30–40% to 60%, and this could be merged with a large proportion of enterprise fund and repair fund for renovative investment purposes. Concerning employment and remuneration, enterprises were granted the autonomy to recruit and dismiss mid-level administrators. Some were allowed the right to conduct foreign trade, to participate in trade negotiation and to retain part of the foreign exchange earnings. Furthermore, the state also permitted and encouraged competition among different enterprises and economic organizations over inputs and sales after fulfilment of the plan. Enterprises were allowed some autonomy in fixing prices, at least within the limits set by the government, not only for finished products but also for inputs. No localities were allowed to keep their markets closed. Due compensation were to be paid for the transfer of technology and innovation. As a matter of fact, all subsequent enterprise management reforms followed the above spirit. As a whole, they (later) assumed the expression: industrial responsibility system, under which responsibility in terms of obligatory planned targets was set while autonomy and benefits attained by enterprises as well as workers depended on the extent to which the responsibility could be fulfilled or over-fulfilled.

After devolution of decision making and management to the local authorities and enterprises, the state had to face the problem of rationalizing industrial organization and coordinating activities among various enterprises and local authorities without impairing the autonomy granted to them. As early as 1980, the Chinese government tried to tackle the problem by encouraging the formation of industrial associations: they were intended to integrate, reallocate and coordinate tasks and activities among all member enterprises under one administration according to comparative advantages. Moreover, the administration of the associations was to be based on economic rationale.

Since 1982, encouraged by the apparent success of the agricultural production responsibility system, reforms of the enterprise management system centred on various forms of (Cheng-bao) con-

tract between the enterprises and various levels of administrative organizations and governments; as well, contracts within the enterprises were pursued throughout the whole country. Later, when local authorities and enterprises found that their expansion was constrained by the environment, they pushed for further (macro-economic) reforms of the coordination mechanism; the request centred on the spirit of extending the role of the market and economic levers but reducing the scope of the mandatory plan to guide economic activities.

Based on good economic performance during 1983–84 and the belief that China's agricultural problem had already been successfully resolved by 1984, China decided to shift emphasis to non-agricultural sectors. It started to pursue comprehensive institutional reforms covering all aspects of the urban areas since the fourth quarter of 1984.⁴⁴ The most significant aspect concerned the drastic diversification and devolution of financial control, the decision-making and management of investment, remuneration, and the conduct of domestic trade as well as foreign economic activities. State control of prices and other financial levers were thus drastically lessened. At the same time, (Cheng-bao) contracts between local authority, ministry and enterprise were strengthened. Indeed, as a result of institutional reforms, especially those during September 1984–85, the ability of the state to control national economic activities was substantially lowered. On the other hand, local authorities gained a lot. The same happened to industrial reforms. Two types of reform deserved special attention. One was the permission for the ministry or even enterprises to engage in different kinds of economic activities, industrial and non-industrial. Another was the practice of the dual-track price model. As a result of the first, many industrial enterprises and ministries ran non-industrial business on their own or formed various types of associations with non-industrial units. Thus, for profit maximization it was not rare that industrial production was no longer the major income source for many industrial enterprises. On the other hand, the dual-track price model was to serve two purposes. First, it was to ensure that the strategic industries (usually the bottleneck sectors) which had to be subject to strict price control could get adequate

supplies of inputs at fixed (low) prices (prearranged via the material supply plan) so that they could secure profits high enough to preserve their incentive to produce and to innovate; and secondly, it was to encourage the factor input producers to produce more, well-above the planned targets because above-quotas sales could be settled at negotiated or market prices which were much higher than the fixed prices. However, there would be serious enforcement problem if enterprises were rent-seeking and enjoyed some autonomy on sales. These two reforms had significant impact on the industrial production structure.

Unlike reforms during 1979–81, reforms during 1982–85 were much more comprehensive but were pursued in the absence of readjustment policies designed primarily for altering the industrial structure. Furthermore, the reforms mainly concerned the relaxation of control so that they could not check the drastic resurgence of demand pressure (which had been repressed in 1981) giving rise to all sorts of defects under an over-heated economy.

In view of the economic disaster in 1985, the Chinese government reverted to contractionary policies starting from the mid 1985. It called for a fundamental change in the relationship between micro management and macro control, from the model of “macro economic levers serving whatever needs of basic economic units” to that of “the state regulating the markets and the markets directing enterprises” which implies the activities of basic unit should be under the final control of the state. As a result of the contractionary policies there was some reduction in the growth rate of basic construction investment and thus of inflation rate in 1986. However, owing to the undesirable outcome of contractionary policies and insufficient recognition of the evils of inflation (generated by both excess demand and structural imbalance), contractionary policies only lasted for several months. Real industrial and national income growth rate surged up again to over 10% in 1987. Nevertheless, industrial institutional reforms during 1986–87 were directed mainly at the micro level, such as experiments on the issue of shares and stocks, consolidation of “cheng-bao”, granting greater decision-making power to enterprise managers, merging enterprises into corporate groups and dissolving

inefficient enterprises, open bidding and lease of small inefficient enterprises, etc. In fact, the state council still emphasized economic stability early in 1988. Then suddenly, the Chinese government called for comprehensive price reforms liberalizing control over a large range of prices. The results were rapid economic growth accompanied with an unprecedentedly high rate of inflation under which most urban residents suffered some decrease in real living standard; sectoral disproportions intensified; and productive efficiency dwindled. As the panic spread, the government once again proclaimed to practise retrenchment cum readjustment policies for stabilizing the economic environment and rectifying economic order with the immediate task of suppressing inflation and combating corruption. These policies started in September 1988 and were expected to continue at least until 1990.⁴⁵

The retrenchment cum readjustment policies, apart from cooling down the over-heated economy (via cutting basic construction investment of the over-expanded sectors, reducing institutional consumption level as well as imposing strict control on prices, credit, money supply, and wage increases) aimed at strengthening the central government’s control on resource allocation and income distribution as well as rectifying sectoral disproportions by accelerating the growth of agriculture, education, energy, raw materials supplies and transports at the expense of processing industries. As long as retrenchment is predominant, economic institutional reforms will be very much confined, generally only at the micro level, on the condition that they do not inhibit the realization of two objectives: stabilizing the economic environment and rectifying the economic order.

In conclusion, attempts to improve industrial performance during 1982–87 focused on reforming the enterprise management system and the coordination mechanism centred on liberalizing direct control, especially that of the central government; they put less emphasis on deliberate control of the economic environment, particularly that concerned with general demand pressure and sectoral disproportions. Perhaps, the decision makers believed that economic liberalization per se would be able to provide a favourable economic environment free of excess demand pressure and structural imbalance (within a

tolerable time span), or alternatively, given all these reforms, subject to various existing constraints, the central government was unable to take effective control over the general economic environment even if it had attempted it. Unfortunately, the reforms led to another era of retrenchment cum readjustment.

Unsatisfactory Performance of Post-1978 Reforms

Fundamental Causes

In general, reforms of the industrial development policies and administration system succeeded in achieving rapid growth in industrial output, in increasing the varieties of consumer goods available, and in better serving the needs of consumers (especially the relatively well-to-do). However, they gave rise to serious open inflation, intensified sectoral disproportions (from productive efficiency viewpoint), widened income disparities, paralyzed productivity growth, and boosted the practice of "keeping up with the Jones." Definitely, the most discouraging thing is that they failed to achieve the core objective: improving productivity adequately so as to facilitate the change from extensive to intensive growth.

The undesirable outcome of the reforms (especially during 1984–88) was mainly attributable to the state's misunderstanding of the very nature of the Chinese economy; it led to the relative neglect of the evils of persistent excessive demand, or (and) the over-estimate of the capacity of the reforms (based on uncoordinated liberalization) to improve the general supply conditions after 1981.

Indeed, the post-1978 reforms were characterized by frequent shifts of emphasis reflecting very strong trial-and-error flavour and the lack of system concept. In general, based on the "good performance" of experimental units, through propaganda, some specific institutional reforms would be pursued throughout the country. Nevertheless, owing to inadequate coordination, problems arose. The major bottlenecks were then identified by the state. The emphasis of

reforms would accordingly be focused on relaxing these bottlenecks. Experimental measures would be pursued subsequently. If successful, the above process would be repeated. However, during the past reforms since emphases were merely limited to a small number of areas only, the implemented reforms always became over-done, neglecting related spheres. The result was high instability of institutions, policy changes and accordingly low productivity.

Specifically, the most serious mistake committed by the Chinese government has been the drastic and over-hasty devolution of economic decision-making and administration to local authorities and enterprises without the prior setting-up of an effective nationwide macroeconomic regulatory mechanism. Even the management of some very important macroeconomic levers such as bank credit, taxes and prices were granted to local authorities (under the fiscal "chengbao" system). In view of the unreliable transports and material supply system, this tended to maximize income growth rate and the degree of (economic) self-sufficiency. On the other hand, owing to the lack of experience and the many extremely complex situations arising from the coexistence of various systems of administrative institutions, the central government did not possess adequate knowledge and techniques to rationalize the economic levers for due coordination and regulation of economic activities of various micro-units. In fact, for some time the central government did not even know the exact size of money supply and foreign debt. Thus, without resort to a certain degree of administrative control, the central government found it practically impossible to counteract the outcome of undesirable practice by local authorities. However, in view of their strategic nature, the central government still maintained relatively stricter control over some industries (and cities) and the bottleneck sectors such as energy, transports and raw materials. Thus, the central government's regulatory or readjustment policies were more effective in controlling the activities of the bottleneck sectors which required much more rapid growth, but not the relatively unimportant sectors. Consequently, either the government had to use the bottleneck sectors as buffer sectors to stabilize the macroeconomic situations, or it would fail to influence economic activities across the whole nation, left only with

the bottleneck sectors which had to bear all adjustment costs, thus diminishing their competitive power further. Both choices, however, would lead to further deterioration of sectoral disproportions. In fact, after 1984, the immediate impact of contractionary policies via restriction of credit was mainly felt by the state sector especially the bottleneck sectors leading to a significant downslide of their output growth. On the other hand, the local authorities and many “unimportant” industries could make use of their autonomy and policy loopholes to counteract the state contractionary policies via “reforms,” especially financial reforms. Evidently, in the face of huge profits, the input supply units violated the mandatory delivery plan, with under-fulfilment of the obligatory delivery target so as to release more supplies for sales at much higher negotiated or market prices.⁴⁶ The bottleneck industries with much tighter price and income control could not compete with those industries under less restrictions for resources.

Nevertheless, the Chinese government dared not abandon price control for all products especially those of the bottleneck sectors. Instead, it chose to liberalize prices of the relatively unimportant products or products in relatively adequate supply, and to pursue dual-track pricing for important products. The rationale was that price increases would induce supply increases which would finally become adequate and halt price increases. As those products which are not subject to price controls are unimportant, it does not matter even if their prices rise rapidly and drastically. For those bottleneck sectors which have to be under stricter price control, they can still acquire inputs at prices lower than market prices (under the dual-track price model) so that their “reasonable” profits and incentive can be ensured. On the other hand, input producers will have incentive to produce well above the planned delivery target level because above-target sales can be conducted at much higher prices. Thus, ideally, the prices of the bottleneck products can still be kept at a reasonably low level with production incentive to the bottleneck sectors still kept intact, while the inflation burden is borne mainly by the unimportant sectors or (and) their consumers which have to pay market prices. However, as discussed above, without strict control on aggregate demand, espe-

cially on demand from the “liberalized” sectors and without effective enforcement of the obligatory material supply plans, the resultant pattern of resource allocation intensifies sectoral disproportions. The relatively more important and perhaps more efficient strategic sectors and enterprises will face even more severe shortage problems because they are no match to the unimportant sectors which are subject to less control in competing for inputs. Price liberalization may lead to more rapid growth of industrial production in the short run because enterprises (especially those which are uncontrolled) have an incentive to increase production; they may be able to mobilize factors which have been hoarded for production purposes by offering much higher prices. However, as the hoarded resources have been exhausted while the above-discussed sectoral disproportions become more severe under the ever-rising excess demand pressure (due to much higher price and profit expectations), shortage will intensify. As a result, trade, particularly the trade of material inputs gradually becomes most profitable. In pursuit of profit, more resources will be diverted from real production to the circulation sphere. In view of the highly imperfect input market, cadres will make use of their position to make windfall profits via illegal transaction, thus reinforcing the inflation pressure. Under such distorted economic environment, it is impossible to assess performance based on relative profits. “Keeping up with the Jones” practice will thus be regarded reasonable and strengthened. The result is obvious, uncontrollable inflation and intensified sectoral disproportions.⁴⁷ In 1988, as a result of the dramatic price increases of (domestic) trade activities, the general purchase price index of industrial raw materials was higher than the factory price index by 7 percentage points. Thus, the activity structure underwent changes contrary to the need of productivity improvement — “circulation” activities expanded relatively faster than real production; processing industries faster than mining and raw material production; industries much faster than agriculture and transports; material production faster than social services, particularly education, science and technology.

In short, under severe sectoral disproportions and market distortions, failure to control aggregate demand and thus “keeping up with

the Jones" practice, partial liberalization of prices while keeping the bottleneck sectors under stricter control would lead to perpetual inflation. However, full-fledged price liberalization would certainly lead to immediate hyper-inflation and so was unfeasible.

V The 1988 Economic Crisis and Its Aftermath

The Background

China's economic reforms since 1979 have brought about some significant changes in the objectives, structure and organization of economic activities. Unfortunately, they have failed to solve the fundamental problems inhibiting steady, harmonious and efficient growth of the national economy, and the problems might even have been disguised and may have manifested themselves in new forms. In addition, they have tended to intensify structural imbalance in production and investment, to boost inflation pressure and to widen income disparities (especially inter-regional). The comprehensive urban economic institutional reforms pursued during the fourth quarter of 1984 were particularly disappointing. Although they were fully implemented for less than one year, they resulted in severe inflation, intensified structural imbalance and huge trade deficits. In fact, up to the present, the Chinese economy has been deeply affected by the outcome and the aftermath of the reforms pursued between the fourth quarter of 1984 and the first half of 1985.

In particular, the sudden withdrawal of the short-lived retrench-

ment cum readjustment policies for rectifying the defects of the reforms in mid 1986 worsened China's economic environment further. Attempts to liberalize price control in early and mid 1988 (to reduce budget deficits and rationalize the price structure) for enhancing resource allocation efficiency strained the supply conditions and intensified demand pressure beyond state control; this triggered unprecedentedly severe inflation in 1988. As a result, the Chinese economy fell in to crisis in 1988 epitomized by high inflation rate, decrease in living standard for a large number of urban families, a large trade deficit and deteriorating efficiency. The people were in panic and the credibility of the government was severely impaired. The economic crisis intensified socio-political problems which culminated into the students' movements and ultimately the outbreak of the "June-Four" incident in 1989. In order to curb the crisis, the Chinese authority pursued retrenchment cum readjustment policies starting from the fourth quarter of 1988. Learning from the mistake, since then China has changed the objectives and strategy of development. Accordingly, the growth rate, structure of production, administration and efficiency of China's industrial sector have undergone significant changes, which should certainly affect China's industrial performance in future.

It is unfair to charge the Chinese authority of remaining blind to the defects of the economy before the outbreak of the crisis in 1988. On the contrary, the central government was aware of the needs to improve productivity, to optimize the production and investment structure, and to control aggregate demand in accord with supply conditions (especially after the tragic reforms of 1984–85). In fact, some measures designed to fulfil the above needs had been pursued before 1988.

Concerning measures to enhance efficiency, the Chinese government conducted specific policies to foster productivity growth and to facilitate the change from extensive to intensive growth. It drastically raised the investment in technical innovation and transformation by state-owned enterprises so that it grew much faster than basic construction investment. During the Sixth FYP period this amounted to RMB147.7 billion, 75% higher than that during the Fifth FYP while

basic construction investment grew by 43% only. According to the Seventh FYP it would increase to RMB276 billion by 87% so that it would finally account for 55.2% of the planned basic construction investment level compared with (the realized) 44% during the Sixth FYP period.⁴⁸ In fact, during 1986–88, on average, realized investment in technical innovation and transformation by state-owned industrial enterprises accounted for 86.41% of total basic construction investment, higher than that in 1981 (66.19%) and 1985 (78.62%). Moreover, imports of technology were encouraged. During 1981–85, China imported in total, 1,397 items with a total transaction value of US\$4.95 billion, of which 48% of the total number of items and 59.8% of transaction value were conducted in 1985. Total value of technology imports in 1986 and 1987 amounted to US\$3.129 billion and US\$2.985 billion respectively. In addition, to encourage technical innovations and their application to production purposes, the state recognized and formalized patent rights registration, opened up technology markets, and encouraged the establishment of associations between research institutes, universities and industrial enterprises. For example, in 1988, a total of 11,500 items were patented, increasing by 68.8% over 1987; technological contracts signed amounted to 247,000, increasing by 87.7%; and the volume of business reached RMB7 billion, increasing by 109%. In order to ensure the quality of product and so to enhance competitiveness in overseas markets, the state proceeded to establish criteria for quality assessment. By 1988, it had established 132 measuring criteria, 261 first-level standards and 13,841 state-level standards for various products, of which 38.5% adopted international standards.⁴⁹ Furthermore, the education system was re-oriented to serving the needs of economic development. Particularly, the training of mid-level professionals was strengthened and the teaching materials changed so as to become more practical and vocational-oriented. Thus, by 1988, at least in number, the scientific and technological team in China had been strengthened. In 1988, professional technicians in state-owned units amounted to 9.6 million. There were 5,800 state-owned independent research and development institutions above the county level with 1.1 million workers and staff among whom 380,000 were scientists and engineers. About 85% of

the townships over the nation established associations for propagating science, and the members totalled 4.16 million.

However, with excessive demand pressure intensifying since the fourth quarter of 1984, the share of investment in technical innovation and transformation used simply for increasing current production rose from 34.5% in 1984 to 39.3% in 1988 whereas it had dropped from 47.7% in 1981 to 34.5% in 1984. Besides this, a lot of evidence shows that many imported technology items, equipment and plants which were advanced even by international standard lay idle in China because of the lack of adequate supplies of complementary factors (including technical personnel) or they were simply imported for snobbish appeal and so were not intended to be used.⁵⁰ In fact, under persistent excess demand pressure which gave rise to a seller's market, the enterprises did not feel enough pressure to apply new production techniques and new product designs even if the required inputs were readily available.

In response to the inflationary effects of the reforms pursued during 1984–85, the Chinese government did attempt to repress aggregate demand and to ameliorate the production and investment structure. As a matter of fact, the Seventh Five-Year Plan had been reformulated for tackling the “unexpected” disastrous outcome of the 1984–85 reforms. It is believed, had the Seventh FYP (especially that for the first two years) been strictly adhered to and the major objectives duly fulfilled, the 1988 crisis would not have happened. One of the very important objectives of the Seventh FYP was to rectify the damaging consequences of the 1984–85 reforms, which was expected to be basically completed within a minimum of two years' time. The plan called for maintaining the balance of aggregate demand and supply as well as maintaining the fiscal, credit, material supplies and foreign exchanges balances so as to create a stable and relatively lax economic environment for achieving steady growth. The planned economic growth rate was thus kept lower than the realized growth rate of 1981–85. In order to cool down the over-heated economy, investment in fixed assets for the first two years were to be kept basically at the level of 1985. The plan also emphasized the altering of the structure of investment which aimed at rectifying sectoral

disproportions as well as realizing the shift from extensive to intensive growth, and so enhancing efficiency growth. Besides, it emphasized the coordination between institutional reform and economic development so that desirable growth strategy could be pursued without being disrupted by premature institutional changes and that institutional reforms should not be pursued in a vacuum, ignoring the essential material basis. At least, during the first two years, “stability” outweighed other objectives. More rapid economic growth and institutional reforms would be pursued only after the successful fulfilment of the most important goals. Note that the rationale and nature of these planned policies were basically identical with those of the retrenchment policies pursued subsequent to the 1988 crisis. They were, however, implemented for several months only. Then the economy gradually ran out of control. Total realized fixed asset investment in 1986 and 1987 was 18.74% and 43.16% higher than that in 1985. Despite a decrease of 8.2% in 1989 consequent upon the pursuit of retrenchment policies, accumulated fixed asset investment of state-owned units realized during 1986–89 was 6.86% higher than the planned level for 1986–90. As a matter of fact, the gross output value (at constant prices) of the industrial sector, light and heavy industry, and many key industries as well as foreign trade volume in 1988 already exceeded the planned targets for 1990. However, problems of inflation, sectoral disproportions and inferior productivity, especially the lack of efficiency in intermediate input utilization (planned to be basically solved by 1988) remained unaffected and, in effect, became more serious. For instance, the general retail price index surged up again to 7.3% in 1987 and further to 18.5% in 1988 after a decrease of 2.8 percentage points in 1986, thanks to the short-lived retrenchment policies pursued in late 1985. The percentage share of the output value of bottleneck sectors — mining and timber industries as well as raw material industries — in heavy industrial output changed from 11.55% and 35.48% to 10.3% and 35.5% respectively in 1987. The unit production cost of comparable products of state-owned industrial enterprises continued to rise (by 14.8% during 1986–87) while economic efficiency of the enterprises as measured by profit per hundred yuan of funds, profit and tax per

hundred yuan of funds, profit and tax per hundred yuan of original value of fixed assets, and profit and tax per hundred yuan of output value all deteriorated during 1986–87. In this sense, the Seventh FYP was a failure.

Although the Chinese economy was hard hit by the tragic consequences of the 1984–85 reforms, the real causes underlying failure of the reforms remained controversial not only among the academics but also among decision makers. As a matter of fact, the ruling elite was divided over this issue. Many attributed the tragic outcome of the reform to over-hasty and ill-coordinated comprehensive economic liberalization which dramatically diminished the capability of the central government to regulate and coordinate economic activities and the failure to establish an effective economy-wide coordination mechanism to harmonize private and public interests in lieu of administrative directives. Thus, the appropriate policies to rectify the damaging effects of the reform were retrenchment cum readjustment policies with due recentralization of control as the precondition, until a new economy-wide indirect macroeconomic coordination mechanism could be established effectively. On the other hand, some Chinese academics and officials insisted that the failure of the reforms was not due to over-hasty, excessive economic liberalization but because liberalization did not proceed rapidly enough and its scope was too narrow so that there coexisted at the same time different types of economic administrative systems under which the conservatives could easily obstruct the smooth and efficient functioning of the liberalized new administrative system. Thus, the only effective way to rescue the reforms and eliminate their undesirable outcome was to accelerate and widen the scope of economic liberalization as much as possible so that the old administrative system could be swept away rapidly.

As indicated by the Seventh FYP, retrenchment cum readjustment policies appeared to be the official line for curing the defects of the 1984–85 reforms. Nevertheless, owing to the split of the ruling elite on diagnosis and treatment and to the evils of severe open inflation not fully exposed (whereas the immediate costs of retrenchment were obvious) the retrenchment policies were not pursued

whole-heartedly. They were again and again counteracted by expansionary policies pursued in the name of experiments with a new administrative system made by various local authorities and ministries. Violation of the retrenchment policies became more serious with the gradual emergence of the short-run costs of retrenchment while the merits of retrenchment still remained a theoretical possibility only. As a matter of fact, after several months of practice and under great pressure from the industries most hard hit by credit restriction, the central government had to halt retrenchment, although unofficially. Nevertheless, before 1988, in fear of the resurgence of severe inflation, the central government dared not proceed with reforms which might disrupt price stability. The above arrangement was, however, disastrous. Short-lived retrenchment impaired productivity and so material supply conditions. Industries which were under strict control of the state (because they were most vital) were most hard hit. Yet the strength and duration of retrenchment were not sufficient to curb aggregate demand, to repress people's inflation expectation, to eliminate the defects of the sellers' market, and to reshuffle the production and investment structure so as to restore sectoral balance. Definitely, the half-way abandonment of retrenchment intensified potential inflation as it lowered productivity without substantially lessening excess demand pressure; it diminished people's confidence in the stability of state policies and most seriously, in the state's capability and determination to curb inflation. On the other hand, some reforms which could enhance the efficiency of resource allocation, investment, and commodity circulation were halted. As a result, in 1987, inflation pressure remained high although repressed to a certain extent, and productivity remained low. Both budget and trade deficits widened. Discussions on reform were mainly concerned with enterprise management, especially the mechanism to harden budget constraints.

In early 1988, the focus of discussions on economic policies shifted to the so-called "Grand International Circulation" economic development strategy; this was, in fact, an early version of the export-oriented strategy centred on massive exports of labour-intensive manufactures. Support for the strategy presupposed the incapacity of

the state to rely on domestic policies (particularly price reform) to resolve the efficiency-employment trade-off. However, suddenly, unknown to most academics, the Chinese authorities declared their intentions to pursue comprehensive price reform and to liberalize price controls on a wide range of commodities. The rationale justifying the reform was an orthodox argument in favour of market forces as the coordination mechanism and of the advantage of income subsidy over price subsidy. Another major reason was the reduction of the size of price subsidies so as to control the budget deficit. Some defenders of the price reform argued that, in view of the ever-growing size of budget deficit, if price reform was postponed, it could never be successfully implemented later. Unfortunately, as argued above, the environment of the domestic economy in 1987 and early 1988 was very unfavourable in the face of accumulating inflation pressure, deteriorating structural problems, stagnating productivity growth, and most important, the people's lack of confidence in the state's capability and determination to control inflation. Worse still, the international market prices of some mineral and raw materials, especially the nonferrous metals, were exceptionally high in 1988.

The immediate result of price liberalization under such an economic environment was obvious — a run on the banks, panic purchases, hoarding of materials, corruption, intensified structural imbalance, deteriorating productivity and above all, severe inflation. In 1988, the general retail price index surged up by a record-high 18.5% despite the rapid growth of real light industrial output (22.1%) and heavy industrial output (19.4%). The ratio of the growth rate of energy production to that of national income remained low (0.44) compared with that of 1982–85. The percentage share of real output value of mining and timber and raw material industries (the bottleneck sectors) in total output value of the heavy industrial sector dropped further to 9.5% and 33.8% respectively. The unit cost of comparable products of state-owned industrial enterprises rose by 15.6%, a record level. Nevertheless, efficiency of the state-owned industrial enterprises measured by the traditional financial efficiency indicators (particularly those with profit and tax realized as the numerator) did show some improvement. The improvement was,

however, mainly attributable to the rapid rise of prices and accordingly sales and taxes affected by inflation. As taxes from industrial enterprises accounted for a substantial proportion of the state budget revenue, inflation in 1988 helped to increase state budget revenue and slightly reduce the budget deficit. Note that thanks to the rapid increase of industrial and commercial taxes in 1988, the state budget revenue grew faster than expenditure, the first time since 1986. Such phenomenon, however, indicated a dilemma faced by the Chinese authority, which constrains the strength and duration of retrenchment policies — the trade-off between price stability and budget balance. As expected, the foreign trade deficit was enlarged to US\$7.75 billion compared with US\$3.77 billion in 1987, due to the 27.91% upsurge in imports. Finally, as a result of the real income redistribution effect of inflation, the gap between people's income was enlarged. With a 20.7% increase in general living cost for workers and staff, the per capita income on living expenses rose by 1.2% only among urban residents. Over 1/3 of families in large cities suffered some decrease of real income. All in all, the inflation panic (set off by price liberalization) with all the accompanying evils indicated that in 1988 China was in economic crisis, the severest for the eighties. In response, the Chinese authority once again proclaimed and proceeded to pursue retrenchment cum readjustment policies starting with a package of crisis management measures with the immediate objective of curbing the open inflation rate as rapidly as possible. The retrenchment policies officially started in the fourth quarter of 1988. After that date the Seventh FYP was de-facto abandoned.

The Rationale and Problems in the Pursuit of the Planned Policies of Retrenchment cum Readjustment: Some Theoretical Explorations

The retrenchment policies announced by the Chinese authority in the last quarter of 1988 and early in 1989 were crisis management measures. Their ultimate objective was the rationalization and im-

provement of China's economic environment; they also intended to rectify the economic order so as to lay down a relatively firm and healthy foundation free of damaging distortions and imbalances for the further pursuit of institutional reforms and economic growth with much higher efficiency in the future. The immediate task was to cut inflation by suppressing and controlling basic construction investment as well as institutional consumption, to combat corruption by inspecting financial accounts and practice of enterprises and by enforcing rules and regulations, and to break illicit connections between enterprises and administrative organs. Another task was the elimination of the dual status of cadres who assumed posts both in government and in enterprises so that transaction cost (i.e. the difference between factories' supply price and consumers' purchase price) could be lowered. Furthermore, wage increases were to be strictly tied to productivity performance. The control on aggregate demand was to be exercised via credit control and administrative directives. In fact, the extension of bank credit for investment purposes was subject to mandatory planning. Financial control was to be centralized by the People's Bank and the Ministry of Finance which exercised vertical control or leadership over subordinate units.

Compared with the readjustment policies in 1985, the government showed much greater determination and resorted to administrative control quite substantially. Moreover, the control was more comprehensive. Not only was much stricter control directed at the state or planned sectors but also at the non-planned sectors. In addition, to centralize control in the hands of the People's Bank, many non-bank financial institutions were to be closed or not allowed to extend investment loans. Furthermore, in order to absorb cash hoarded by the people, the state raised bank interest rates ensuring that the real interest rate for long-term saving deposit would be positive; it opened up more investment outlets: for instance, to offer (commodity) accommodation units and even land for sales, and to experiment the issue of shares and stocks. Taxes were imposed on consumer durables and the prepay system for purchase of luxurious goods was practised as well. Finally, much stricter price controls were once again imposed and enforced by administrative directives.

Apart from controlling aggregate demand, the state aimed at restructuring production so as to increase the effective supply of commodities in urgent need in the short-run, and to rectify sectoral disproportions in the longer-run. First, industrial raw materials which were in urgent demand in the domestic market were not to be exported without prior approval. Similarly, more consumer goods were retained in the domestic market in order to stabilize price. Besides these, the state planned that more resources set free from the over-expanded sectors would be directed to the bottleneck sectors, especially agriculture, education, transports, energy, mining, and raw materials industries. In fact, the state prepared a priority list of various economic activities and based on it instructed the ministries and local authorities to cut basic construction investment. In short, apart from education, in terms of favour granted, material production was preferred to non-material production, of which the above bottleneck sectors were preferred.

In view of the huge (potential) inflation pressure, at first, the Chinese government prepared to implement the above policies at least up to the end of 1990. It was expected that inflation could only be substantially but not totally curbed by 1990. The arrangement of the Eighth FYP would then depend on the effectiveness and consequences of the readjustment policies during 1989-90.⁵¹

Because the people lacked confidence in the state's capability to control inflation and because of the huge amount of cash they had hoarded, the only way to control inflation was to cut the open inflation rate by a substantial margin within the shortest possible period so that inflation expectation could be neutralized, inducing people to deposit their money at the bank again. Raising interest rates most likely would help.

Drastic restriction of credit and cutting of basic construction investment with aggregate demand repressed, however, would result in the bankruptcy of many small rural enterprises which could only survive under inflation and very generous credit policy. Certainly, most of these enterprises were inefficient users of intermediate inputs and their operation had given rise to a lot of evils, such as polluting the environment and hampering agricultural production. Neverthe-

less, they served as a huge reservoir for absorbing labour released from the farm consequent upon the practice of the agricultural production responsibility system. In 1988, the village and township-run industrial enterprises employed about 60 million workers. The increase in employment in rural industrial enterprises during 1978–87 (35.31 million) accounted for 29.96% of total increase in employment for the whole country, or 42.33% of the increase in rural employment during the same period. As a matter of fact, the average labour-output and labour-capital ratios of rural industrial enterprises were much larger than those of state-owned enterprises; as capital shortage and unemployment problems were the most severe constraints, large scale shut-down of rural enterprises could not be tolerated. In 1987, the average labour-output ratio of rural industrial enterprises was 3.28 times that of state-owned industrial enterprises. In 1985, the average labour-capital ratio of township-run light industrial enterprises and heavy industrial enterprises was 3.54, and 5.47 times that of state-owned (independent accounting) light and heavy industrial enterprises respectively.

The massive close-down of rural enterprises in the absence of strict control on rural-urban labour mobility — given the relatively low income in farming — definitely led to huge exodus of peasants from the rural areas to the cities in search of jobs. A problem of premature urbanization could arise. Similarly, if the bankruptcy law was effectively enforced, many enterprises (including state-owned) would go bankrupt. Moreover, structural changes might generate structural unemployment as well. How could the state tackle such intensified unemployment given the absence of a comprehensive social security programme which protects all people?

Certainly, the contractionary policies must be accompanied by a restructure of economic activities so as to avoid serious open unemployment and to rectify sectoral disproportions. Nevertheless, in the short run, without due external aid, some increase in open unemployment was expected. Yet it were to be contained by fostering agricultural growth and increasing income from farming so as to reabsorb peasant labour who had left the farm to work for rural enterprises. Of course, the strengthening of control on rural-urban

migration could be of help. Reorientation of activities of rural industrial enterprises with due retraining of workers could reduce open unemployment in the rural areas in the longer run. Furthermore, through restructure of industrial organization and various forms of merging and integration, the more efficient enterprises were to absorb the less efficient as well as their workers. Such practice conducted on an involuntary basis was simply to transform open into disguised unemployment. In the short run it might hamper incentive of the absorbing enterprises. However, if through on-the-job and other types of training, the disguised unemployed become competent workers, then once demand recovered the enterprises would gain. Nevertheless, such practice relieved the central government's burden of tackling serious open unemployment. Obviously, the state tried first to convert open inflation to repressed inflation (through strengthening price control) and the resultant open unemployed to disguised unemployed so as to alleviate unfavourable psychological effect on the people.

Apart from aggravating the unemployment problem, retrenchment policies were also expected to worsen the budget situation of the state thus intensifying potential inflation pressure. Success in repressing excess demand resulted in a lower level of profits and tax payment of industrial enterprises, which constituted over 50% of the state budget revenue. Attempts to cut imports via administrative control and deflation reduced import duties. At the same time, the state had to maintain or even to increase price subsidies for necessities and subsidies for losses incurred by enterprises in order to stabilize the cost of living. Thus, the budget deficit became larger with the strengthening of retrenchment forces; this was to add fuel to the potential inflation pressure, or force the state to cut long-term investment in order to control the budget deficit within a tolerable limit. Both practices, however, would injure long-term steady growth of the economy.

Effectiveness of the readjustment policies required that the ministries and local authorities must adhere to the central government's policies although this might entail tremendous losses to them. As ministries and local authorities ranked self-interest higher than public interest, then in order to ensure that the policies could be imple-

mented, the state had to be able to exercise effective control on (nation-wide) allocation of resources both physically and financially. However, as much autonomy and power on resource allocation had been granted to the ministries and the local authorities, particularly in the coastal areas, how could the state “persuade” them to give up their autonomy under which they had gained a lot? It required a redistribution of both physical and financial resources between the central government and local authorities in favour of the former, which implied a certain degree of recentralization of decision making in contrast with the spirit of reform before 1988. Definitely, it raised discontent among the authorities of the coastal areas.

All in all, in view of the panic accompanying the many evils generated by inflation and because of its structural nature, the pursuit of retrenchment cum readjustment policies was essential to combating the economic crisis of 1988. Nevertheless, under the economic environment of that time, implementation of the above policies probably led to new problems, such as the immediate difficulties faced by the enterprises concerned, the higher unemployment rate, the larger budget deficit, and more intense relationship between the central and local governments which thus constrained the strength and duration of retrenchment policies. It should be stressed that the ultimate fate of readjustment policies depends on the effectiveness of the retrenchment policies to release resources for due reallocation so that sectoral disproportions can be removed; this would be leading to an improvement of the general supply conditions and, accordingly, economic efficiency.

Performance of the Retrenchment cum Readjustment Policies: 1989–90⁵²

In the face of the economic crisis triggered by the tragic failure of price reform in mid 1988, the Chinese authority started to pursue retrenchment cum readjustment policies in the fourth quarter of 1988. The rationale and general nature of the policies are similar to those discussed above. Obviously, China’s industrial performance during

1989–90 was substantially affected by them.

Expected consequences of the retrenchment cum readjustment policies became conspicuous only after June 1989. It may merely reflect the time lag between the initiation and realization of the goals of policies. It may also be attributable at least partially to the aftermath of the “June-Four” incident. General conditions and performance of the national economy and similarly the industrial sector in 1989 could thus be divided into two distinct phases with June as the demarcation line.

1989

In 1989, the average annual inflation rate measured by the rise of the general retail sales price index was 17.8%, only slightly lower than that in 1988, 18.5%. Nevertheless, it must be noted that during January–March, the average rate was 27%. In May it was still 24.3%. Then, starting from June it dropped rapidly and persistently from 21.5% in June to 6.4% in November. In addition to the resumption and strengthening of price control, the decrease in inflation rate was attributable to the decrease in aggregate demand, especially since June. Total retail sales of 1989 at current prices were up by 8.4% but down by 8% at comparable prices compared with the previous year. Such drastic decrease had never occurred since 1962. At the same time, the level of fixed asset investment was reduced by 11% at current prices or more than 20% at comparable prices. Constrained by a slackening demand and a liquidity shortage, the growth rate of industrial output declined significantly from August onwards hitting the trough of -2.1% in October. The overall average annual growth rate of gross industrial output (at comparable prices) was reduced from 17.7% (excluding output of enterprises below the Xiang level) or 20.8% (including output of enterprises at and below the Cun (village) level) in 1988 to 6.8% or 8.5% respectively in 1989 while it was 11.2% (excluding output of enterprises below the Xiang level) during January–May of 1989.

Concerning the structure of industrial output, investment and

organization, some changes were realized especially after March in line with state preference. With further tightening of credit while granting privileges to selected heavy industries, the growth rate of heavy industrial output surpassed that of light industry from July, 8.9% compared with 8.2% respectively for the whole year 1989, reversing the trend since 1985. Within heavy industry, the output shares of mining and timber and raw materials industries surged up quite remarkably from 9.5% and 33.8% in 1988 to 11.6% and 39.4% respectively. The share of manufacturing (processing) industry dropped to below half of total heavy industrial output (49%), the first time since 1984. Particularly, the growth rate of energy production was 6.6%, far exceeding that of national income (3.3%), which was unprecedented since 1980. In short, the output shares of energy industries and raw materials industries in GIVO increased from 9.9% and 19.9% in 1988 to 10.3% and 20.7% respectively in 1989 whereas during the same period of time the output share of basic industries rose from 25.9% to 26.8% while that of processing industries dropped from 41.1% to 40.3%. As for the structure of state investment, the share of non-productive investment dropped but that of energy industries and communication improved.

Concerning industrial organization, the discrepancy between the output growth rate of state-owned enterprises and that of nonstate-owned ones diminished. The differences between that of state-owned and collective-owned enterprises and that of state-owned and individual-owned enterprises in 1989 were -6.6 percentage points and -19.91 percentage points respectively, the smallest since 1984. The share of investment by state-owned enterprises also improved. Moreover, concerning the major proportion of the national economy, the discrepancy between the output growth rates of agriculture and industry became much narrower (-5.4 percentage points), the smallest since 1985. Thus, retrenchment cum readjustment policies in 1989 succeeded in cooling down aggregate demand pressure and in controlling open inflation as well as reducing to some extent structural imbalances of the national economy, although the degree of effectiveness was generally below the target rates which were, in fact, over-optimistic.⁵³

The pursuit of retrenchment policies, however, led to some problems which substantially affected the policies and performance of the industrial sector in 1989. As expected, the economy gradually suffered from the normal undesirable outcome of contractionary policies — deterioration of living standard and unemployment problems. In 1989, total wage income and average wage rate at constant prices decreased by 3.2% and 5.5% respectively, compared with that of the previous year; total industrial wages and the average wage rate dropped by 1.2% and 4% respectively. The average net income of peasants at constant prices decreased by 8.4%. Accordingly, in 1989, the growth rate of real consumption per capita was -1.2%, of which that of peasants' dropped from 6.4% in 1988 to -1.3% and that of non-rural inhabitants from 7.1% to -2%. The employment level in 1989 increased by 9.95 million only, unprecedentedly small in the eighties. Non-agricultural employment rose by 0.19 million, of which industrial employment was reduced by 0.93 million. The decrease of industrial employment was due to the reduction of rural industrial employment by 1.572 million as a result of the pursuit of retrenchment cum readjustment policies.

The severest problem, however, was that the policies failed to achieve their ultimate objective — a substantial improvement of efficiency measured in terms of financial efficiency indicators while the potential inflation pressure continued to grow. Labour productivity of the national economy improved by 1.3%, the least in the eighties, of which that of state industrial enterprises grew by 1.7% only, remarkably low since 1982. Worse still, the comparable production cost of state industrial enterprises surged upwards by 22.17%, of which light industry rose by 24.42%, and heavy industry by 22.66%, which were unprecedentedly high. Consequently, total profits realized per hundred yuan of sales value, profits and taxes realized per hundred yuan of gross output value as well as profits and taxes realized per hundred yuan of funds by the state-owned and all independent accounting unit of industrial enterprises declined to ¥6.69, ¥14.93 and ¥17.18 for light industry and ¥6.31, ¥13.02 and ¥16.79 for heavy industry respectively. As a matter of fact, the total value of profits and taxes realized by state industrial enterprises decreased by

0.1%. Total losses incurred by state industrial enterprises amounted to 18.02 billion yuan, much higher than that in 1988. Similarly, state subsidies for losses incurred by enterprises were 59.976 billion yuan, 34.34% higher than that in 1988.

It should be emphasized that all the above efficiency indicators show the financial aspect of enterprise operation. They are aggregate measures and are expressed in current prices. Changes in their value might not accurately reflect real productivity changes as they could be attributable to changes in the level and structure of prices and output. Indeed, under China's prevailing economic institutional framework and general economic conditions, a decrease in profit rates and tax receipts in the short run is an inevitable outcome of the retrenchment cum readjustment policies. A reduction in aggregate demand depresses output revenues and finally profits, especially when factor prices are rigid downward. Moreover, a reshuffle of the production structure under China's prevailing economic environment (particularly under the existing irrational price structure) unavoidably entails some decrease of profit rate. However, if the decrease in profit rate and particularly the tax receipts with subsequent deterioration of living standards continue for quite a long period of time, the government is put under both political and economical pressure.

Politically, people will feel discontented and suspect the capability of the state to govern. Definitely, after the "June-Four" incident, the government could not afford any outcome which irritated the people. In addition, deliberately suppressing the profits of selected industries would incite opposition from the affected sectors rendering it more difficult for the central government to preserve coherence within the ruling party. Economically, the decrease in profits and tax receipts affects the government budget situation giving rise to larger budget deficits. Given the prevailing budget revenue structure and the huge difficulties involved in its reshuffle, profits and taxes submitted by enterprises, especially industrial enterprises, account for a major share of the total budget revenue. Under the existing fiscal system, the central government's capability to control local authorities' expenditure is low. However, it cannot reduce its financial responsibilities correspondingly. In 1989, price subsidies plus

subsidies for losses incurred by enterprises accounted for 32.2% of state expenditure, higher than that in 1988 (28.2%). Such a huge financial burden will most likely continue to rise whereas almost insurmountable obstacles impede the substantial altering of the budget revenue structure. A significant decrease in the rate of profits and tax payments realized by enterprises (especially industrial enterprises) will certainly worsen the budget situation. For instance, in 1989, profits and taxes contributed by industrial enterprises accounted for over 53% of state budget revenues. If the rate of profits and taxes realized per hundred yuan of funds by all independent accounting industrial enterprises of 1988 could have been maintained in 1989, then under the same rate of profits and taxes contributed by them to the state budget (in 1989), government budget revenue would have increased by 41.66 billion yuan equivalent to 11.84% of total budget revenue; this is larger than the budget deficit 9.54 billion yuan in the same year. Thus, as the substantial decrease in the rate of profits and taxes realized and contributed to the state budget was mainly due to slack market demand, in 1989 the Chinese authority still had to face the afore-discussed dilemma — either the success in controlling immediate open inflation would lead to larger budget deficits which would intensify potential inflation pressure, or it would result in the stagnant growth of long-term productive investment. Obviously, the authority had to search for the optimal strength of retrenchment.

The retrenchment policies in 1989 did not achieve substantial result in elimination of the foreign trade deficit although the deficit was US\$1.15 billion smaller than that in 1988. As China was subject to economic sanctions imposed by developed market economies after the "June-Four" incident, so foreign loans, aids and direct foreign investment or even commodity exports to the West were expected to dwindle or at best remain unchanged in 1989. Worse still, owing to the large-scale pursuit of open door policies, China had already committed itself to US\$40 billion in outstanding foreign debt by the end of 1989. Debt repayment was to reach the peak level by early 1990s. Hence, in addition to the open inflation and budget deficit problems, on the eve of 1990, the Chinese authority faced another headache — foreign debt repayment which could only be tackled by attaining a

substantial trade surplus in face of the abandonment of loans and direct investment from the West. Theoretically, the continued pursuit of retrenchment policies would slacken domestic demand and so increase export capability, but at the same time, would enlarge the budget deficit generating subsequent undesirable outcomes. On the other hand, an attempt to boost exports without controlling domestic demand would intensify inflation pressure.

On the whole, starting from the latter half of 1989, open inflation came under control. People's inflation expectation was revised downwards tremendously. The output structure of the industrial sector underwent quite substantial changes reducing structural disproportions to a certain extent. Nevertheless, there were no meaningful improvements in productivity. Slack market demand worsened the budget situation and lowered people's living standards which constrained further the application of retrenchment policies. Furthermore, with domestic excess demand pressure under control the economy could devote more efforts to tackle the foreign debt repayment problem in 1990.

1990

In view of the top priority of maintaining economic stability, economic institutional reform in 1990 was confined to less far-reaching areas. Experimental reforms thus focused on reshuffle of industrial organization — merging of industrial enterprises into industrial complexes for better cooperation and more rational utilization of resources by promoting the economy of scale, and strengthening various types of integration. Concerning micro-management, in order to preserve incentives and avoid abruptly disrupting the original administrative system, the economic responsibility system based on "Cheng-bao" was continued but with some changes in the rules governing the distribution and disposal of income and profits, ensuring a larger share of income for the government and controlling short-term irrational behaviour. Furthermore, to ensure that enterprises would not operate against the party line, to strengthen

discipline and to avoid workers participating in illegal and anti-government activities, political control was tightened in enterprises by restrengthening the role of the party machinery in conducting spiritual education and overseeing enterprise operation.

All in all, the policies generally followed those practised in 1989. As a result, the planned annual growth rate of gross industrial output was only 6%, much lower than the average rate realized in the eighties. The undesirable outcome of retrenchment policies (although expected) became evident from the second half of 1989. In the face of discontent from some sectors and regions, accompanied with plenty of evidence that people's inflation expectation had been substantially revised downwards, the Chinese authority (especially after the first quarter of 1990) emphasized the need to adjust the severity of retrenchment so as to permit at least some improvement in living standards for the people and to avoid serious deterioration of the budget situation. In fact, as early as in the fourth quarter of 1989, the authority had already relaxed the intensity of retrenchment as indicated by the relatively more rapid expansion of bank credit.

Cries for abandoning retrenchment policies became much stronger after the first quarter of 1990. In response, since then, measures for activating market demand which have tended to weaken retrenchment have been implemented more frequently and intensely. To relax the liquidity constraint and activate the market, experimental reforms which have aimed at raising funds and stimulating market demand have also resumed.

In practice, although retrenchment was still officially proclaimed as the fundamental policy in 1990, we observed (especially since the second quarter) a relaxation of credit control giving rise to more rapid expansion of bank credit and a resumption and extension of experiments on the practice of joint stock system. Furthermore, to boost and accommodate foreign demand, outward-oriented policies of the coastal areas have been reaffirmed and even more areas have been opened for wholesale development by foreign investors. Nevertheless, compared with before, greater emphases were placed on internal funding, the merging of the regional and sectoral discriminatory policies and granting privileges in accordance with productivity as well as linkage

effects generated. Accordingly, the centre of attraction for conducting foreign-related economic activities shifted to the Yangtze River Delta Area, particularly Shanghai. Moreover, for the promotion of industrial exports, the devaluation policy and discriminatory policies affecting industry were practised on a sectoral rather than regional basis. The principle of self-responsibility for losses or profits under a more flexible exchange rate system was emphasized. Finally, for activating rural market demand which had declined even more severely than in urban markets, the Chinese authority relaxed control on rural industries, thus reactivating to some extent rural industrial production. Experiments with the formation of industrial conglomerates on a common activity basis was extended. Apart from rationalizing production and investment, the complexes should merge inefficient enterprises which are in danger of going bankrupt with more efficient and profitable ones. These new enterprises help check the deterioration of unemployment. Furthermore, as complexes are usually organized according to lines of production activities, independent of control by local authorities, they serve to break regional barriers against the flow of commodities and production factors. If the central authority is able to regulate the complexes effectively it could, in effect, restore to itself some power lost to the local authorities. In short, judging from the abrupt rise of emphasis on market activation with the accompanying drastic expansion of credit, it is not surprising that quite a lot of commentators assert that the Chinese authority has, in effect, abandoned the retrenchment program since the second quarter (especially June) of 1990.

In 1990, the growth path of China's industrial production largely followed the policy changes after a short time lag. As shown in Table 23, the overall annual growth rate of gross industrial output was 6% when excluding output of enterprises below the Xiang level, or 7.6% including the output of these enterprises at and below the Cun (village) level; this surpassed the planned target. Such above-target growth was, however, achieved during the second half of 1990 (especially during the last quarter) after the government had proceeded to relax control on credit supply and institutional consumption. The growth rate of gross industrial output during the first, second, third

and fourth quarter was respectively 0%, 4.1%, 5% and 14.2%. The growth pattern followed closely that of the expansion of outstanding bank loans. Note that the growth of retail sales started to recover in June and accelerated afterwards following the upsurge of industrial growth. In fact, the proportionate increase in growth rate of market retail sales even exceeded that of industrial output during July-December, especially in the last quarter (see Tables 23 and 24).

The lion's share of increase in outstanding loan was extended to support industrial production (41.04% between January and November). Note that as mentioned above, substantial outstanding bank loan expansion preceded industrial output growth which, in turn, preceded retail market sales expansion. Furthermore, because more rapid industrial output growth gave rise to larger wage increases, retail sales in urban areas recovered faster than in rural areas. The peasants' per capita real cash money surged up also after the recovery of market sales. Therefore, we believe industrial output growth in 1990, especially before June, was constrained both by liquidity shortage and relatively low market demand intensity. The former was certainly reinforced by the latter. On the other hand, after the relatively more rapid growth of raw materials and energy output in 1989 and the first half of 1990 as well as the release of hoarded raw materials by speculators for liquidity, insufficient material supplies was not the severest hindrance to industrial production. As a matter of fact, market sales of the means of production recovered late, after August 1990. At the same time, anticipated inflation rate and real income growth remained low. It seems that buyers increased their consumption demand only after they had enjoyed quite substantial increase in real income; or they gradually used up the commodities they had hoarded during the inflation period. Under such circumstances, extension of bank loans to industries (especially to those whose products were in great demand but whose supply capabilities were severely constrained by liquidity shortage or debt repayment problem) was to ease the liquidity problem, resolve the so-called triangular debt issue (among various enterprises due to liquidity shortage under slack market demand), and so boost industrial output growth. Through the linkage effects industrial workers' income would rise. As long as

Table 23. Monthly Growth Rate of Industrial Outputs** in 1990

Period	Gross Industrial Output	Heavy Industry	Light Industry	Energy	State-Owned	Collective-Owned
Jan-Feb	-0.9					
Jan-Mar	0.0					
Jan-Apr	0.5	0.6	0.4	6.6(6.9)*		
Jan-May	1.4			6.0(6.8)*		
Jan-Jun	2.2			5.1(6.3)*		
Jan-Jul	2.3	2.1	2.4	4.5(6.4)*	0.4	1.0
Jan-Aug	2.6			3.6(6.3)*		
Jan-Sep	3.1			2.9(6.1)*		
Jan-Oct	4.1	3.2	4.9	2.8(6.0)*	1.4	3.8< 8.5>
Jan-Nov	5.2	4.0	6.4	2.6(6.0)*	2.2	5.5
Jan-Dec	6.0(6.8)	4.6(7.4)	7.4(6.1)	2.4(6.0)* (6.6) (7.5)†	2.9	6.9<12.5>
Jan-Mar	0.0					
Apr-Jun	4.1	3.9	4.2			
Jul-Sep	5.0	3.3	6.9			
Oct-Dec	14.2					
Jan	-6.1(8.2)					
Feb	5.6(7.5)					
Mar	1.4(14.8)					
Apr	2.0(13.7)					
May	4.2(11.1)					
Jun	5.9(8.8)				2.7	5.6
Jul	2.9(9.6)					
Aug	4.6(6.1)					
Sep	7.5(0.9)					
Oct	12.7(-2.1)	9.1	16.2			
Nov	15.0(0.9)					
Dec	14.8(3.4)					

Source: Zhongguo Tongji Xinxibao (ed.) *China's Latest Economic Statistics*, Confidential Monthly Report, various monthly issues in 1990, CERD Consultants Ltd. Hong Kong, Statistical Report No. 1, State Statistical Bureau, *Review and Prospect of National Economic Situation in 1990*.

Note: ** Industrial output of enterprises above the village level; growth rate is percentage growth (at comparable prices) in value over the same period of the previous year.

() Growth rate in the pertinent period of 1989.

(*) Growth rate of electricity generated in the pertinent period of 1990.

()† Growth rate of electricity generated in the pertinent period of 1989.

<> Growth rate of rural industry.

Table 24. Growth of Outstanding Bank Loans, Wage Bills, Fixed Assets Investment, Retail Sales and Efficiency of Industrial Enterprises, 1989-90

Period	Ln	W	FAI	RS*	Q/L	C	π
1990				1.3			
Jan-Feb	6.95	9.2	-6.1<-6.9>	-5.6	-2.3	7.1	14.16
Jan-Mar	16.13	8.0	0.0	-4.9	-2.2	6.5	14.39
Jan-Apr	28.79	8.6	-0.5	-3.3	-1.8	6.9	13.93
Jan-May	38.18	9.1	1.7	-0.5	-1.2	6.4	13.79
Jan-Jun	61.26	9.5	4.2< 4.2>	1.4	-0.8	5.8	14.31
Jan-Jul	74.19	9.7	5.4	1.2	-0.8	7.0	13.89
Jan-Aug	95.83	10.6	6.1	1.9	-0.8	5.8	13.79
Jan-Sep	142.96	10.6	7.7< 7.3>	3.6	-0.8	6.3	13.66
Jan-Oct	176.75	11.1	8.4	7.4	-0.3	6.0	13.73
Jan-Nov	212.50	11.5	8.2	10.3	0.5	6.5	13.73
Jan-Dec	273.11	13.0	10.1<17.6>	10.3(1.9)*	0.8	7.0	13.45(2.61)**
1989				21.7			
Jan-Feb	-9.69	25.3	-3.8	20.0	0.6	12.2	17.46
Jan-Mar	-2.17	24.6	-3.3	26.0	2.2	15.8	17.85
Jan-Apr	6.38	24.5	-3.6	20.2	3.1	17.1	17.44
Jan-May	9.85	24.6	-7.1	17.2	3.4	18.0	17.53
Jan-Jun	21.26	22.1	-6.4	9.1	3.1	18.6	17.47
Jan-Jul	28.68	20.6	-7.9	7.0	3.4	18.7	17.50
Jan-Aug	36.59	19.1	-8.0	-0.7	3.1	20.2	17.46
Jan-Sep	60.12	18.2	-9.2	-1.1	2.7	20.1	17.63
Jan-Oct	86.02	16.6	-10.6	-0.3	2.1	21.1	17.62
Jan-Nov	127.30	16.3	-10.8	-0.9	1.5	20.0	17.63
Jan-Dec	185.15	14.0	-9.1	0.3(8.9)*	1.6	22.4	17.27(6.42)**

Source: As for Table 2.

Note: Ln: Increase in outstanding bank loans during the pertinent period over the beginning of the year, in billion yuan.

W: % growth rate of wage bill in current value over the pertinent period of the previous year.

FAI: % growth rate of fixed asset investment in current value over the pertinent period of the previous year.

<> : % growth rate of fixed asset investment by state-owned enterprises.

RS*: % growth rate of retail sales value in current prices for each month of the year starting from January at the top.

()*: % growth rate of retail sales in city areas during January-December 1990.

Q/L: % growth rate of average labour productivity at constant prices.

C: % growth in average production cost of state-owned industrial enterprises.

π : Profits and taxes per 100 yuan of total funds of state-owned industrial enterprises.

()**: Profits per 100 yuan of sales value of state-owned industrial enterprises.

workers' marginal propensity to consume was positive (which tended to rise with the decrease in the amount of hoarded consumer goods), market sales of consumer goods would surge up again. Increase in market sales would relax producers' liquidity constraint and raise wage income, thus activating market sales further. Yet, there would still be no inflation-inclined excess demand pressure. In the absence of severe material supply problems, the economy could be expected to enter a virtuous circle, enjoying growth without inflation. It appears that the Chinese economy, especially the industrial sector has gradually managed to cling to such a track since October 1990 (see also Table 23). However, it is doubtful whether the virtuous circle can be sustained for long.

Concerning structural changes in 1990, China's industrial sector became more export-oriented. In fact, exports served as the engine of industrial growth, so indicated by its spectacular growth rate — over 18% compared with the 7.6% gross industrial output growth. Such brilliant export performance should have been attributable to a snail-paced domestic market demand and the government's special policies for export promotion (such as the devaluation of the Renminbi). It helped lessen China's foreign debt repayment problem. As the major industrial export bases are situated in the coastal provinces and have intimate connection with foreign investors, the coastal provinces can better overcome financial difficulties and shield themselves from control; so in general, the coastal provinces, especially those in the South-East and East such as Guangdong, serve as the centre of growth for industrial output. Nevertheless, with the revival of trade with Vietnam and the USSR, the industrial output growth rates of Yunnan, Guangxi, Guizhou and Xinjiang were above the national average.

However, concerning the changes in composition of industrial output, the favourable changes realized in 1989 (from the viewpoint of the Chinese authority) seem to have been checked to some extent in 1990, especially since the second quarter. Light industrial output growth rate once again surpassed that of heavy industry, 7.4% compared with 4.6% (excluding output of enterprises below the Xiang level). In particular, the growth rate of energy production dropped to 2.4%, lower than that of GNP, 5%. Nevertheless, the growth rate of

electricity generated still remained at 6%. The decrease in growth rate of energy and raw materials industries took place after the first quarter. It should have been due to the oversupply condition after the second quarter in 1989 which was the result of the slackening of consumer goods market accompanied with relatively more rapid growth of energy and raw materials output, thanks to the pursuit of retrenchment cum readjustment policies.

As stock of raw materials and producer goods piled up while consumer goods market remained slack, following the tightening of credit control over the financing of working capital, the growth rate of productive means industries dropped naturally. Evidently, without deliberate government support, it is only after the consumer goods markets became highly active and led to substantial decrease in the involuntary inventory level of consumer goods, that raw materials industries could after a time lag resume more rapid growth. Thus, in 1990, the relatively stagnant growth of energy and raw materials output did not necessarily imply deterioration of material supply conditions (relative to demand).

Despite a revival of market sales, the output of consumer durables such as household washing machines and refrigerators declined due to excess purchase in 1988. Yet some such as colour television sets, radio sets and video recorders registered remarkable growth. The growth of light consumer goods was even more spectacular after June.

As mentioned above, from the demand side, revival of industrial growth in 1990 was incited substantially by export expansion. Indeed, the greatest short-run success of retrenchment policies was its achievement in improving the trade-balance situation. In 1990, the net balance of China's commodity trade (excluding transactions which did not involve foreign exchange payments) was a surplus of US\$13.1 billion reversing the trend of trade deficits suffered since 1984. Of total commodity exports (US\$62.6 billion), over 70% were industrial products, of which light industrial output accounted for a major proportion.

The reemergence of light industries as the leader of growth benefited rural industries. In 1990, the annual output growth rate of

state-owned industrial enterprises was 2.9%, lower than that of the collective-owned by 4 percentage points, or three percentage points smaller than the discrepancy (between the output growth rates of state-owned and collective-owned industrial enterprises) in 1989. Nevertheless, the growth rate of rural industrial output was 12.5%, higher than that of the state-owned by 9.6 percentage points, or 0.6 percentage point larger than the discrepancy (between the output growth rates of rural and state-owned industrial enterprises) in 1989. Thus, in contrast with what many commentators predicted, rural industries were not crushed and swallowed by the state industries. The continually relatively more rapid expansion of rural industries might not be optimal from a strict productive efficiency viewpoint. Yet it helped to ease the unemployment problem and check further income decreases in the rural areas so that market sales could be activated more effectively. As for industrial investment, structural changes in accord with state preference took place, especially in the composition of fixed asset investment realized by state enterprises. Total fixed asset investment completed by state-owned enterprises increased 7.6%, faster than that of the national total (4.2%). Of total state investment completed, the energy industry grew by 21.6% with its share rising from 24.4% in 1989 to 28%. Similarly, that of another bottleneck sector, transports and telecommunications, rose by 9.2% with its share expanding from 15.3% to 15.8%. On the other hand, the share of general processing industries (the relatively over-expanded sector), dropped from 18.1% to 15%.

The weakening of retrenchment strength contained China's unemployment problem. By the end of 1990, total employment of non-rural workers and staff reached 139.89 million, 2.47 million more than that of the previous year. The increase was 1.15 million, larger than that in 1989. The unemployment rate in towns and cities was 2.6%. Nevertheless, the Chinese authority in 1990 was still not very successful in enhancing the efficiency of industrial production measured in terms of profits and taxes realized per hundred yuan of sales value or funds, and accordingly in reducing the budget deficit. Average labour productivity improved by 0.8% only, even lower than that in 1989, 1.6%. The average comparable production cost of in-

dustrial output by state-owned enterprises rose 7% which was, nevertheless, less than that in 1989 (22.4%).

About 30% of state-owned industrial enterprises under the state budget suffered losses amounting to 42 billion yuan, more than in 1989 by over 50%. Realized profits and tax payments equalled 127.1 billion yuan, 18.5% less than in 1989. As a result, the rate of profits and tax payments realized per hundred yuan of funds declined from 19.39% in 1989 to 13.76%. Similarly, the rate of profits realized per hundred yuan of sales value decreased from 6.42% to 2.61%. A drastic decrease in contribution from the industrial sector together with huge amount of subsidies led to over 10 billion yuan of budget deficit, larger than that in 1989. However, it should be noted that the sharp decrease in profits realized was mainly attributable to slack market demand as indicated by the much lower rate of increase in comparable production costs relative to the rate of decrease in profit rates. The increase in production costs was largely due to a relatively more rapid rise of wage rates, which was itself a measure to activate the markets. Therefore, the real decrease of industrial productivity (after isolating the price effects) in 1990 should have been at most moderate. As a matter of fact, with a resurgence of market sales the decrease of efficiency measured in terms of the above indicators has been retarded since the fourth quarter. The average labour productivity growth rate during the first three quarters was -0.8% but rose to 0.8% after inclusion of the fourth quarter's (see Table 24). Similarly, the rate of profits and tax payment realized per hundred yuan of sales value started to rise after September when gross industrial output growth rate surpassed 10%. Thus, the efficiency of China's industrial sector as defined above was still somewhat growth-determined, so was her budget situation, which was, in fact, the underlying reason for the authority to diminish the severity of retrenchment. Finally, apart from a resurgence of industrial growth, thanks to good weather conditions, more favourable price policies for agricultural products, an increase in agricultural investment, more appropriate support from the industrial sectors and thus a more adequate supply of industrial inputs, the gross agricultural output registered a growth rate of 6.9%, remarkably high since 1985. More abundant supplies of agricultural

products, especially agricultural raw materials, contributed to the resurgence of industrial growth without intensifying the inflation pressure. In particular, it boosted export growth since a large proportion of China's exports was industrial products manufactured from agricultural raw materials.

In sum, in 1990, the Chinese authorities (through the diminution of the severity of retrenchment) succeeded in stimulating the revival of industrial output growth without triggering severe inflation; they so induced some increase in real income and thus improved the living standard of the people, especially of industrial workers. They remarkably boosted industrial exports making an unprecedentedly huge trade surplus, thus lessening the foreign debt repayment pressure. They reshuffled the investment composition basically in line with the desired industrial structure. However, industrial output composition changed adversely to the desire of the state wiping away some of the achievements attained in 1989. The efficiency of the industrial sector deteriorated further. Although at constant prices the decrease is likely moderate, yet, the decrease worsened China's budget situation, which could be checked (in the short run) by accelerating industrial growth.

Problems

The most acute symptoms of the 1988 economic crisis — high open inflation rate and huge trade deficits which signified imbalances in both the internal and external sectors were successfully under control in 1990, thanks to the pursuit of retrenchment cum readjustment policies since late 1988. In addition, through relaxation of credit control together with other market activation policies, the economic growth rate has gradually rebounded, raising real income for the people and containing the unemployment problem. The rebound of industrial growth (after a time lag) has contributed significantly to the upturn of the national economy. Nevertheless, all the above achievements are expected to be a short-run outcome of the strong retrenchment policies which had resulted in the general over-supply

conditions in the market. Severe deflationary policies were able to depress people's inflation expectation; they cooled down aggregate demand, and the devaluation of RMB boosted exports. The diminution of retrenchment strength in face of huge stock of raw materials and other productive factors were expected to boost economic growth without triggering inflation, especially as the effective supply of many popular goods was constrained by the liquidity shortage. The Chinese economy has been under such an environment since the third quarter of 1990.

However, it is very dubious whether such a growth-price stability mix can be maintained for long. All depends on whether China has succeeded, for one thing, in optimizing her industrial structure, thus removing growth bottlenecks and enhancing productivity as well as establishing a built-in mechanism for sustaining such progress; and for another, whether China has been effectively controlling aggregate demand via the manipulation of economic levers, so that a further diminution or even abandonment of retrenchment policies will not result in an abrupt upsurge in demand. Otherwise, price will surge up again, thus revising upward people's inflation expectation which sustains and intensifies inflation further.

As a matter of fact, despite the retrenchment policies the people's purchasing power has been accumulating as a result of the abrupt rise in savings rates, anticipating lower inflation rate and income growth. In the year 1990, personal savings rose by 188.7 billion yuan giving rise to a total of 703.4 billion yuan of outstanding savings, which amounts to 85% of total market retail sales in 1990. In addition, outstanding bank loans in 1990 increased by 273.1 billion yuan, and currency issued amounted to 30 billion yuan, 22% and 42.86% more than that in 1989 respectively, which are much higher than the growth rate of national output. Thus, China's commodity market is and will be facing a huge potential demand pressure which, if realized within a short period of time, will trigger disastrous inflation.

Unfortunately, even the Chinese authority has to admit that until now, achievements in improving the industrial structure and productivity have been far from enough to eliminate the inner causes of China's economic crisis. In particular, the simultaneous existence of

an accelerating industrial output growth and market sales and an increase in stock of industrial products in response to market activation measures indicates that the mismatch between supply and demand is still noticeable. At the end of November, the stock of industrial products held by enterprises above the Xiang level increased by 45.1 billion yuan compared with the beginning of 1990. This expresses that the resource reallocation mechanism could not function efficiently in order to channel resources from those sectors whose products are not in demand to the bottleneck sectors. If resource allocation efficiency cannot be improved substantially, it is feared that the economy may once again face market depression; this is, however, not due to a general slackening of demand but owing to structural rigidity whereby the output structure cannot conform with the demand structure.

As a matter of fact, a diminution of the output growth rate of raw materials and energy has followed upon the government's relaxation of administrative control and retrenchment policies. Such a consequence of market activation shows (among other reasons) that without the central authority's implementing deliberate policies (especially via strengthening administrative control) to reshuffle the industrial structure, structural imbalances tend to revive and persist. Under such circumstances, if liberalization of state control is a must for market activation and so is the revival of industrial growth rate, China's industrial sector will be trapped into a vicious circle.

Similarly, either the government must alter the structure of budget revenue, diminishing the importance of profits and tax payments contributed by industrial enterprises; or alternately it must enhance the productivity of industrial sector so that profits will no longer be determined predominantly by output growth. Otherwise, the government has to face the dilemma of whether achieving more rapid output growth and thus improving the budget situation at the expense of price stability or holding to greater price stability and a more rational output structure with a growing budget deficit at least in the short run.

Finally, with further activation of the domestic market, in the absence of substantial improvement in supply condition the dilemma

between internal and external balances will become more difficult to handle. Competitive and more intense demand for resources from the domestic market will drive up the cost of exports. Without government subsidies, further devaluation of the yuan and due improvement in productivity, export performance will deteriorate. All in all, the favourable phenomenon of rapid growth without severe inflation since October of 1990 could not be regarded as the passing away of China's fundamental economic problems. China still faces the three dilemmas — price stability and income growth; price stability and budget strength; and internal and external balance.

Summary and Conclusion

Over the past forty years, China has achieved very rapid growth in her industrial sector. The large share of its output value in the national income complements a high degree of self-sufficiency in the supply of equipment and technology; by international standards, China is relatively more industrialized than other developing countries. However, the rapid growth was accompanied with instability and low efficiency, and sometimes even achieved at the expense of the growth of other production sectors, particularly, agriculture, services and transports as well as the consumers' welfare. In addition, there have been quite severe sectoral disproportions within the industrial sector, which have inhibited the steady growth of the sector its own and influenced other sectors. In general, mining and timber as well as raw materials industries have grown too slowly to "feed" the manufacturing industries.

Before 1979, instability and low efficiency of the industrial sector could be attributable to mass political movements, the pursuit of speed-oriented extensive growth strategy, the unduly low depreciation allowances, rigid and inefficient enterprise management and coordination system as well as the external diseconomies arising from

the socialist administration system which was beyond the control of the productive units, all of which interacted and reinforced one another. The post-1978 industrial reforms attempted to improve industrial performance by liberalizing administrative control over local authorities and enterprises, and pursuing the open door policy. The reforms first focused on enterprise management and then spread to other spheres concerned with the mechanism for coordinating activities of basic economic units. They appeared able to reduce the degree of fluctuation in industrial growth, primarily because the downgrading of ideo-political pursuit ruled out destructive mass political movements. Furthermore, they succeeded in inducing the production of larger varieties of consumer goods which suited consumers' preference better. They accelerated the industrialization of the rural areas and so helped to diminish the dual nature of the economy while avoiding huge influx of rural labour into urban cities.

However, the reforms failed to achieve the utmost important objective — to substantially improve efficiency. The crucial reason is that, after devolving autonomy to the local authorities and enterprises, the state failed to reestablish effective mechanisms for coordinating the activities of the various economic units, to regulate the macro level and structure of economic activities, and to redistribute income at the national level. The presence of a large and growing proportion of economic activities beyond the control of the central government rendered the state policies, especially the contractionary ones, ineffective and yet with the adjustment burden borne by the sectors under strict state control. Discriminatory policies for rectifying sectoral disproportions failed because of the widespread practice of “keeping up with the Jones” by the underprivileged sectors. At the same time, comprehensive unrestrained price liberalization was unfeasible due to the presence of a huge inflation pressure. Yet, partial liberalization and dual-track pricing under uncontrollable aggregate demand intensified inflation and sectoral disproportions.

In fact, China's economic environment has deteriorated tremendously since the fourth quarter of 1984. Under such a highly distorted and deteriorating economic environment, all attempts at enhancing efficiency through microeconomic reforms failed. Similarly, other

policies specifically designed for improving the efficiency of the industrial sector, such as science and technology policies, became ineffective.

Attempts to liberalize price control and reduce the budget deficit and enhance resource allocation efficiency during the first half of 1988 proved to be disastrous. In order to manage the crisis, retrenchment cum readjustment policies were started in the fourth quarter of the same year. The policies were to contain the general demand pressure so as to curb the inflation rate and to follow by a reshuffle of the production and investment structure with resources transferred from the overexpanded sectors to the bottleneck sectors. Retrenchment was, in fact, the means for pressing the inefficient overexpanded industries to release resources (due to huge losses incurred and a liquidity shortage) for reallocation purposes. The policies incorporated quite a lot of administrative control and intended to cover both the state and non-state sectors. We believe that, under the crisis situation, these policies were most essential (and, in fact, the only feasible option in the absence of a possible huge inflow of foreign capital) for repressing open inflation within the shortest possible period of time. Nevertheless, the intensity and duration of the policies were constrained by the undesirable side effects they generated — more serious open unemployment problem, a larger budget deficit and a more intense relationship between the central and local governments.

The expected outcome of the retrenchment cum readjustment policies became conspicuous starting in June 1989. Since then, throughout 1989–90, the policies succeeded in repressing the open inflation rate below 10%. They succeeded in bringing about quite a substantial improvement in the output structure of the industrial sector uplifting the output share of the bottleneck sectors for the first time since 1985. The investment structure did experience some favourable changes during 1989–90 as well. Nevertheless, as in accord with theoretical expectation, budget deficits were enlarged, fuelling a potential inflation pressure. The efficiency of industrial production remained stagnant, it even declined. People's living standards deteriorated in 1989. Yet, the general supply conditions relative to

demand improved. People's inflation expectation dropped tremendously after June 1989 and remained stable up to the end of 1990.

In order to tackle unemployment, solve the triangular debt problem and reduce the size of budget deficit, the Chinese authority relaxed credit control and implemented various measures to activate the market starting in the first quarter of 1990. Market retail sales recovered in the second half of 1990 stimulating the growth of industrial output. The upward trend continued in the first quarter of 1991. The most remarkable growth in 1990 was achieved by industrial exports giving rise to an unprecedentedly large trade surplus. However, the favourable changes in output structure which had happened in 1989 were halted and even reversed. The budget deficit kept growing. Productivity remained low and more importantly, starting in the fourth quarter of 1990 the inflation rate in large cities surged up again. Furthermore, with the recovery of the domestic market, material supply conditions in some cities deteriorated rapidly. During the first quarter of 1991, China's import growth rate accelerated while that of exports declined, resulting in a sharp decrease in trade surplus. All these phenomena are alarming. They indicate that, at present, China still faces the three dilemmas — price stability and income growth; price stability and budget strength and internal and external balance. Thus, without the capability to regulate aggregate demand effectively by the use of economic levers and without a prior substantial improvement in productivity or (and) reliable adequate supplies of cheap foreign capital, the pursuit of high economic growth rate particularly following a full-fledged price liberalization would result in severe problems and chaos.

Nevertheless, in the very short run (1991), the domestic market has been activated after material supply conditions have been improved to some extent; so foreign investment will recover subsequent to the abandonment of economic sanctions imposed by western developed countries; as a result, China's industrial sector will experience more rapid growth. Efficiency measured in terms of profit and tax realized per hundred yuan of sales or funds will improve somewhat. The growth rate of industrial exports, however, may slow down due to the more rapid expansion of domestic market demand

and the uncertainties arising from the new trade administration system which is claimed at least on the surface to eliminate export subsidies. Whether the resurgence of industrial output growth will lead to inflation and severe sectoral disproportions depends on how cautious and effective the state is in controlling credit expansion and how successful in enhancing the capability to reallocate resources and redistribute income according to the needs to improve the industrial structure.

As for institutional reforms, we expect several measures: absorbing resident savings by the creation of more investment outlets, reshuffling the industrial organization centred on the formation of various types of industrial conglomerates, adjusting relative prices in favour of energy and raw materials. In addition, policies will be pursued to enhance the central authority's control of financial resources relative to local authorities and enterprises, and to reshuffle the budget revenue structure to compensate for the diminishing share of profit and taxes submitted by industrial enterprises. Nevertheless, in the short run we do not expect dramatic fundamental institutional reforms, especially those which tend to render aggregate demand and prices relatively more uncontrollable, as they may disrupt economic stability which the Chinese authority cherishes most at present.⁵⁶

Most recently, there were three events which deserve serious consideration. The first is the implication of the collapse of the "Soviet Empire" and of the Gulf War as interpreted by the Chinese authority. The Chinese authority might read the war as the USA's attempt to establish itself as the supreme power in the new international order and to rely more frequently on military campaign to settle disputes. In response, the Chinese authority may once again speed up the growth of armament and other related industries. This will have a significant implication for resource allocation by industries and by regions. The second is the state's emphasis on the development of large state-owned enterprises. This trend is natural because the large enterprises are usually better equipped and more efficient, especially in the utilization of intermediate inputs. If they have no incentive or pressure to improve productivity, while the property system is not substantially altered (due to ideological considerations), no develop-

ment and reform program will succeed. As a matter of fact, in the eighties, especially before 1989, the large enterprises of the bottleneck sectors were unfairly treated compared with non state-owned small industries, which impaired their development. Reemphasis on the growth of large enterprises will definitely have significant implication on resource allocation and organizational structure of industries. Last but not least, the Chinese authority has reemphasized and uplifted the role of science and technology in fostering economic growth. If the advocacy is really implemented we expect to find some substantial changes of the investment structure, the output structure, the administrative hierarchy and income distribution in favour of research and development, human investment, high-tech industries and the upsurge in influence of technocrats. The most ideal outcome is, of course, substantial improvement in productivity so that the development of the Chinese economy is of an intensive rather than an extensive type. Nevertheless, as the gestation period of human investment and research and development activities is usually longer than that of material production activities, emphasis on science and technology may sacrifice short-run economic growth.

All in all, as the necessary economic condition is concerned, effective implementation of China's industrial development strategy and policies with successful fulfillment of their underlying objectives (particularly, the substantial improvement in efficiency) requires not only due policies and institutional reforms within the industrial sector per se but the compatible well-coordinated and timely supportive policies and reforms from related economic sectors as well. Indeed, a system engineering approach must be adopted. And yet there remains some essential non-economic conditions to be fulfilled. For instance, a timely and appropriate reform of China's political system is needed to relax the constraints, and to remove the barriers and interventions aforementioned from the political sphere which inhibit the efficient operation of enterprises. Until then, substantial promotion of economic efficiency of China's industrial sector cannot be realized and perpetuated in the long run.

Notes

1. *Statistical Yearbook of China* 1988, p. 417.
 2. Output value of electrical machinery and equipment manufacturing:

	1986	1987
Light industry	31.9%	34.6%
Heavy industry	68.1%	65.4%
<hr/>		
Total (RMB0.1 billion)	412.40	488.12
- Source: *Statistical Yearbook of China* 1988, pp. 316–317.
3. See Sun Shanqing and Chen Shengchang (1982), pp. 11–12; Lin Senmu, Zhou Shulian and Qi Mingchen (1982), p. 60; and Ma Hong (ed.) (1983), p. 96.
 4. About Chinese socialism, see also Tien-tung Hsueh (1989).
 5. See also *Light Industries of Contemporary China*, (1985), pp. 195–197.
 6. *Ibid.*
 7. Wang Haibo (ed.) (1986), p. 269.
 8. Steel production actually reached 15.3 million ton in 1966, and then declined to 10.29 million ton and 9.04 million ton in 1967 and 1968. Actual output of steel was restored to 23.9 million ton in 1975. See *Statistical Yearbook of China* 1984, p. 224.
 9. *Ibid.*, p. 225.
 10. See Xie Minggan (1982) p.V-41; Qin Zhongda, *Renmin Ribao*, 1983.9.23.
 11. As a matter of fact, the labour force includes employment by enterprises at the village level and above in the industrial sector since 1978, and embraces all employment in light and heavy industries since 1985. The comparable prices for industrial output value in different periods are in terms of 1952, 1957, 1970 and 1980 prices in *Statistical Data of China's Industrial Economy*, which are not consistent with the comparable prices throughout the period of 1953–87 indicated in *Statistical Yearbook of China*.
 12. These figures, however, include some mistakes, particularly those collected during the the Great Leap Forward and the Second Five-year Plan period (see Table 4) when the exaggeration and falsification of statistical data were rampant in the whole nation. Note that the growth rate of labour productivity either in light industry or heavy industry indicated

in Table (Series (B)) is higher than that of the whole industrial sector which is statistically impossible. Nevertheless, Series (B) in Table 4 are the only available complete series of labour productivity growth rates in light industry and heavy industry covering the period 1953–89.

13. The impact of a change in the share of light industrial output in gross industrial output value on the rate of change of average industrial labour productivity may be estimated as the following: $\frac{Y_I}{L}$ can be expressed as $Y_{LI} [\alpha + (1 - \alpha) \beta]$ where Y_{LI} is the output-labour ratio of light industry, α is the proportion of industrial employment in light industry, β is the ratio of output-labour ratio of heavy industry to that of light industry = $\frac{Y_{HI}}{Y_{LI}}$; thus other things being equal, a change in α will lead to a change in $\frac{Y_I}{L}$ by $Y_{LI} (1 - \beta)$, and accordingly, the induced $\Delta \left(\frac{Y_I}{L} \right) / \frac{Y_I}{L} = \frac{1 - \beta}{\alpha + (1 - \alpha) \beta}$. In 1978, $\beta = 0.759$, $\alpha = 0.365$, so, induced by change in α alone, after 1978, $\left(\frac{Y_I}{L} \right) \cong 0.2845$. Furthermore, the expansion of the share of light industrial output should have led to slower growth of capital stock in the industrial sector because its capital-output ratio is smaller than that of heavy industry. In 1978, the former was 0.283 of the latter. Applying the above method: $K/K = \frac{1 - r}{r + (1 - r) \Omega}$ where $r = \frac{Y_{HI}}{Y} = 0.569$ in 1978; $\Omega = (K_{LI}/Y_I) / \frac{K_{HI}}{Y_{HI}} = 0.283$ in 1978; Y = gross industrial output value; K_{LI}/Y_I = average capital-output ratio of light industry; K_{HI}/Y_{HI} = average capital-output ratio of heavy industry; we find that a decrease of heavy industrial output share by one percentage point would have reduced capital stock of the industrial sector by 1.038% after 1978. Following the same reasoning, during 1953–78 there had been substantial contraction of the output share of light industry which should have led to a more rapid growth of the capital stock, but a lower growth rate of average labour productivity of the industrial sector.

14. The World Bank (1985), pp. 31–40.
 15. Pan Zhenmin and Luo Shouchu (1988), pp. 189–194.
 16. The average annual rate of decrease of the unit cost of comparable product deflated by the price index of productive means and the wage index during 1985–89 (\bar{C}_{r85-89}) is estimated as follows:

$\bar{C}_{r85-89} = \left(\sqrt[5]{\frac{C_{N89}}{C_{H89}}} - 1 \right) \times 100\%$ where C_{N89} is the realized unit cost index in 1989 with 1984 = 100. C_{H89} is the hypothetical unit cost index in 1989 on the assumption that there was no change in factor productivity and that the change in unit cost was only due to changes in the price of

productive means and wage rate

$$C_{N89} = \pi \prod_{t=1}^5 (1 + \dot{C}_{Ni}), t = 1985=1, 1986=2, 1987=3, 1988=4, 1989=5,$$

$$\dot{C}_{Ni} = \frac{\Delta C_{Ni}}{C_{Ni-1}},$$

$$C_{H89} = \pi \prod_{t=1}^5 (1 + \dot{C}_{Hi}), t = 1985=1, 1986=2, 1987=3, 1988=4, 1989=5,$$

$$\dot{C}_{Hi} = \frac{\Delta C_{Hi}}{C_{Hi-1}},$$

$C_{Hi} = a P_{mi} + b W_i$, where P_m is the proportional change in the index of the purchase price of productive means in year t , W_i is the proportionate change in the index of average wage rate of workers in state-owned industrial enterprises, a is expenses on input of productive means as a proportion of total production cost of state-owned industrial enterprises in 1985, b is wage cost as a proportion of total production cost of state-owned industrial enterprises. We employ three different combinations for a and b :

- (i) $a = 0.74$, $b = 0.045$
 (ii) $a = 0.74$, $b = 0.101$
 (iii) $a = 0.7$, $b = 0.096$

(i) is compiled from data on the cost composition of state-owned industrial enterprises (*Statistical Yearbook of China's Industrial Economy 1989*, p. 66. (ii) adopts the same share for productive means but employ total wages for state-owned industrial enterprises recorded by *Statistical Yearbook of China 1990*, p. 139 (45.97 billion yuan) to estimate the share of wage cost, assuming that total production cost remains unchanged as in (i) despite the change which implies the wage cost (20.391 billion yuan) as recorded in (i) understates the actual wage cost because part of the total wage cost is included in other cost items but not counted as wages any more. (iii) incorporates the change in wage cost (due to (ii) instead of (i)) in total production cost for compiling a and b . The results are presented in the following table:

%

	P_{mt}	W_t	C_{Ht}			C_{Nt}	C_{rt}		
			(i)	(ii)	(iii)		(i)	(ii)	(iii)
1985	18.1	15.79	14.10	14.99	14.19	7.7	-5.61	-6.44	-5.68
1986	9.5	16.87	7.79	8.73	8.27	7.3	-0.455	-1.32	-0.9
1987	11.0	10.57	8.62	9.21	8.715	7.0	-1.5	-2.02	-1.58
1988	20.2	20.61	15.88	17.03	16.12	15.6	-0.242	-1.22	-0.45
1989	26.4	12.74	20.11	20.82	19.70	22.17	1.715	1.12	2.06
			(1.8594)	(1.9307)	(1.8682)	(1.7463)*	(-1.25)**	(-1.99)**	(-1.34)**
							(<-0.124)	(<-0.87>	(<-0.223>

Source: P_{mt} is from China's Price Publishing House, *China's Price Yearbook 1990*, Beijing 1990, pp. 49, 436; W_t compiled from *Statistical Yearbook of China 1990*, pp. 136, 144, data on cost structure and C_{Nt} from *Statistical Yearbook of China's Industrial Economy 1989* ppp. 52, 66 and *Statistical Yearbook of China 1990*, p.448.

Note: $C_{Ht} = aP_{mt} + bW_t$; (i) $a = 0.74$, $b = 0.045$, (ii) $a = 0.74$, $b = 0.101$, (iii) $a = 0.7$, $b = 0.096$

$$C_{rt} = [(1 + C_{Nt}) / (1 + C_{Ht}) - 1] \times 100\%$$

(\cdot): C_{H89} ; (\cdot^*): C_{N89} ; (\cdot^{**}): C_{r85-89}

$$\langle \rangle : C_{r86-89} = \left(\sqrt[4]{\frac{C_{N86-89}}{C_{H86-89}}} - 1 \right) \times 100\%$$

The proportion of additional cost (due to higher P_m and W) absorbed by state-owned industrial enterprises is estimated as $C_{E85-89} = [1 - (C_{N89} - 1) / (C_{H89} - 1)] \times 100\% = 13.16\%$ or 19.81% or 14.04% corresponding to $C_{H89(i)}$, $C_{H89(ii)}$ and $C_{H89(iii)}$. Finally, the average annual rate of decrease in unit cost of comparable products of state-owned industrial enterprises during 1952-79 was -3.7%, which is at current prices. During the period concerned, the average wage bill of state-owned industrial enterprises rose by 1.38% annually while that of P_m practically remained unchanged, so -3.7% could be regarded as the lower limit of the rate of decrease in constant price of productive means and wage rate during 1952-79, which is definitely much higher than that during 1985-89 as estimated above (-1.25% to -1.99%).

17. Some researchers attempted to isolate the price effects on (nominal) factor productivity changes in China. For instance, Jefferson, Rawski and Zheng compiled the capital goods price deflator during 1980-87. They found that, on average, the price of capital goods in 1987 was 50.8% and 45.1% higher than that in 1980 for state-owned and collective-owned enterprises respectively. Thus, during the period concerned, the efficiency of capital utilization measured at constant prices should have been significantly greater than that measured at current prices. Nevertheless, their estimate did not take into due consideration the shifts in output structure, production scale and organization. As demonstrated by themselves, the higher efficiency of capital utilization was achieved at the expense of a declining utilization efficiency of

intermediate input. The decrease of the latter was more serious in collective-owned enterprises. This phenomenon indirectly justified the 'favourable' impact on capital utilization efficiency due to the reshuffle of output structure and production scale, which tended to substitute intermediate inputs for fixed asset capital goods. They concluded that within both the state and collective sectors the growth of material inputs accounted for most of the output growth, and that the total factor productivity growth including material input was very low compared with that computed with only capital and labour as the factors. The growth rate of the former during 1980-87 was only 0.44% and 1.15% for the state and collective sector respectively. Furthermore, the growth rate after 1983 was especially disappointing. See Jefferson Gary H., T.G. Rawski and Y. Zheng (1989).

18. Wang Jiacheng (1981), p. 5.
19. *Ibid.*
20. See Ma Hong (ed) (1983), p. 119.
21. Shi Jingxing (ed) (1986), p. 503.
22. Li Yue (1983), pp. 30, 34.
23. See for instance, *World Economic Herald*, 6, Feb. 1989, p. 6, according to which most recently 1/3 of China's industrial production capacity could not be utilized due to shortage of coal and electricity.
24. Liu Fengchang (1981).
25. Liu Fengchang (1985), Li Hao, *et al.* (eds) (1986), p. 60.
26. See Liu Fengchang (1981); Liu Fengchang, Gong Jinglong (1983); and *Ming Pao Daily News* (1988 May 13).
27. See also Kornai, Janos (1990).
28. Computed from information supplied by an official of the Ministry of Metallurgical Industry of the PRC.
29. Computed from Lin Senmu *et al.* (1982), p. 68.
30. Lin Senmu *et al.* (1982), p. 68.
31. For an in-depth study of preferential treatments for Special Economic Zones, coastal areas and other foreign-involved enterprises as well as their impacts on the national economy, see for instance, Hsueh Tien-tung & Tun-oy Woo (1989a), and also Hsueh and Woo (1988).
32. In 1988, the average labour productivity of Shanghai was RMB34,091, higher than that of Guangdong (RMB25,363). Similarly, Shanghai's profit + tax/industrial sales ratio was 19.56%, higher than Guangdong's

- 14.82%. Its unit production cost of industrial products rose by 6% compared with that in 1987, but was still much lower than Guangdong's 19.7%. The national average for profit + tax/industrial sales and the rate of change in unit production cost of industrial products in 1988 was 19.51% and 12.3% respectively. See, *Zhongguo Tongji Xinxibao* (1989), p. 42.
33. For a comprehensive study of the development of China's foreign trade and China's dilemma between maintenance of internal and external balances during 1979–89, see Hsueh Tien-tung and Tun-oy Woo, (1991b).
34. For a more detailed analysis of the relationship between mass political movements and industrial fluctuations in China, see Hsueh Tien-tung & Tun-oy Woo (1986).
35. By regression analysis, it is found that during 1953–83 the growth rate of gross output value of agriculture in China was negatively correlated with the growth rate of the share of heavy industrial output in gross output value of agriculture and industry. The regression equation is
- $$\ln Ag = 1.959 + 0.803 \ln NI - 0.364 \ln \frac{HI}{A+I} - 0.052D_1 + 0.054D_2$$
- (14.614) (22.345) (-5.936) (-1.195) (1.307)
- $R^2 = 0.975$, $DW = 0.884$ where Ag is the index of gross output value of agriculture at constant prices; NI is the index of national income at constant prices; $\frac{HI}{A+I}$ is the proportion of heavy industrial output in gross output value of agriculture and industry; D_1 is a dummy variable, 1 for 1960, 1961, 1962, otherwise = 0; D_2 is a dummy variable, 1 for 1967, 1968, otherwise = 0; \ln = natural log; R^2 = adjusted coefficient of determination; (): figures within brackets are t — statistics; DW = Durbin-Watson Statistics.
36. See Hsueh, T.T. & T.O. Woo (1986), pp. 60, 71 especially figures 1(A) and 1(B) on p. 60 which depict graphically a negative correlation between the rate of growth of real heavy industrial output and that of real per capita consumption level in China.
37. For an in-depth analysis of the "success indicators" problem see, Nove Alec (1964) pp. 83–98.
38. For an in-depth study of the problems arising from 'soft-budget' constraint and the behaviour of enterprises under an economy of shortage, see Kornai, Janos (1980).
39. See Hsueh & Woo (1986), pp. 71–72.
40. For instance, according to the World Bank (1985), p. 31, China's

consumption of freight transport in 1980/81 was 3.10 ton-kilometers per US\$ of GNP which was almost twice that of India, almost twice that of the US, more than twice that of Brazil, and more than seven times that of Japan.

41. Lin Senmu, Zhou Shulian and Qi Mingchen (1982), p. 62.
42. For a general description and assessment of China's post-1978 economic reform, see Hsueh Tien-tung & Tun-oy Woo (1989b).
43. See Lin Senmu, Zhou Shulian and Qi Mingchen (1982), pp. 46–58, and Byrd, W. (1983), pp. 329–332.
44. See "Resolution of The Central Committee of The Chinese Communist Party on Economic Institutional Reform," at the third Plenary Session of the twelfth central committee of the Chinese Communist Party, Oct., 1984.
45. Li Pang (1989).
46. According to the State Statistical Bureau, in 1988, the obligatory delivery planned target levels of 17 out of 18 centrally allocated products could not be fulfilled, of which the rate of plan fulfillment for 15 products declined. On the other hand, the ratio of self-sales rose rapidly. The self-sales volume of rolled steel and coal rose by 50.6%, and 53.6% respectively in 1988. See *Economic Reference*, 3 March 1989, p. 1.
47. For an in-depth analysis of the mechanism and impact of inflation in China after 1978, see Woo Tun-oy (1988).
48. *The Seventh Five-Year Plan for National Economic and Social Development of the People's Republic of China, 1986–90*, People's Publishing House, Beijing, 1986.
49. The State Statistical Bureau of the People's Republic of China, "Statistics for 1988 Socio-Economic Development" in *Beijing Review*, Vol. 31, No. 10, March 1989, pp. I–VIII.
50. A report assessing China's ten years of reform since 1979 for the US Congress criticized China's policies for import of technology as very inefficient due to the lack of clear, unified and consistent goals (for import of technology) for various authorities to follow so that the imported technology could serve China's most urgent needs; the undesirable outcome of undue devolution of power to various ministries and local authorities which tend to serve local rather than national interests; and inadequate supply of complementary inputs including personnel (especially competent administrators) for absorption of imported technology. The results have been a repetitive import of produc-

tion lines and plants, particularly those for consumer durables with neglect of the production of component parts, as well as the over-emphasis on serving current production needs without enough efforts in enhancing the capacity to absorb, and to utilize imported technology for upgrading China's technological level. Thus the import level far exceeded China's absorption capacity. See *Ta Kung Pao*, 23 April 1989, p. 3.

51. By the end of 1988 the Chinese government expected that inflation pressure would continue to exist (although most probably more moderately) in the 1990s and in view of the high growth rate which had already been attained, the state planned for quite a low growth rate throughout the 1990s — an average annual compound growth rate of 6% for gross output value of agriculture and industry and thus around 7–7.5% for gross output value of industry. For instance, the Ministry of Energy formulated a medium-term energy development plan based on a planned growth rate of 6% for gross output value of agriculture and industry during 1990–2000; see *Financial Times*, 9 Feb. 1989, p. 3. Such intense alert to inflation and the corresponding relatively low planned economic growth rate were adopted by the Eighth Five-year Plan particularly for the first two years 1991–92.
52. For a more detailed analysis of the dilemma between rectification of sectoral disproportions and employment problem, see, for instance, Woo T.O., T.T. Hsueh, R.H. Shi and Y. Zhang (1989).
53. Materials in this chapter are drawn extensively from Hsueh Tien-tung & Woo Tun-oy (1991a).
54. For instance, in the early stage, the state planned to depress the inflation rate substantially lower than that in 1988 — below 10% — which according to many economists, was practically impossible. In fact, realized reduction of fixed asset investment in 1989 was 22 billion yuan, lower than the planned target of 70 billion yuan. The rate of increase in money income was 12.6%, still higher than that of GNP, 11.9% at current prices.
55. As a matter of fact, during the first quarter of 1991, industrial output registered an increase of 13.7% at comparable prices to the same period of 1990. The corresponding growth rate for light industry, heavy industry, state-owned industry and collective-owned industry was 15.9%, 11.6%, 9.6% and 19.5% respectively. See *Zhongguo Tongji Xinxibao* (ed.) *China's Latest Economic Statistics Confidential Monthly Report April 1991 (Part 1)* p. 1 published by China's Statistics Information Consultancy Service Centre, distributed by CERD Consultants Ltd., Hong Kong 1991.

56. According to the proposal on China's Eighth Five-year Plan and Ten-year Economic Program, to attain a steady harmonized growth with no severe fluctuation is still the central authority's core goal. Economic institutional reforms proposed are cautious. In particular, during the Eighth Five-Year Plan, the *chengbao* system will remain as the basic management system governing the relationship between enterprises and administrative authorities. Price reform should be pursued under a favourable social and economic environment with aggregate demand under the state's tight control. Concerning the guiding principle for economic work in 1991 (which emphasized rationalizing the economic structure and enhancing enterprise efficiency), see "The Central Committee of Chinese Communist Party on the Proposals for the Ten-year China's Economic Program and the Eighth Five-Year Plan," *Ta Kung Pao*, 29 January, 1991; and "Energetically Adjust the Economic Structure, Strive to Enhance Enterprise Efficiency — A Talk Delivered at the End of the National Planning Meeting" (Li Pang, 1 December 1990), *Economic Daily*, 2 January 1991. Whether the above spirit and policy guidelines will be persistently adhered to, it depends on the cost of realizing them. The large and growing state budget deficit problem as discussed in the text is potentially most dangerous. It constrains the duration and strength of the retrenchment policies so severely that the Chinese authority may be obliged to free prices again before the general supply and market conditions have been adequately improved.

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