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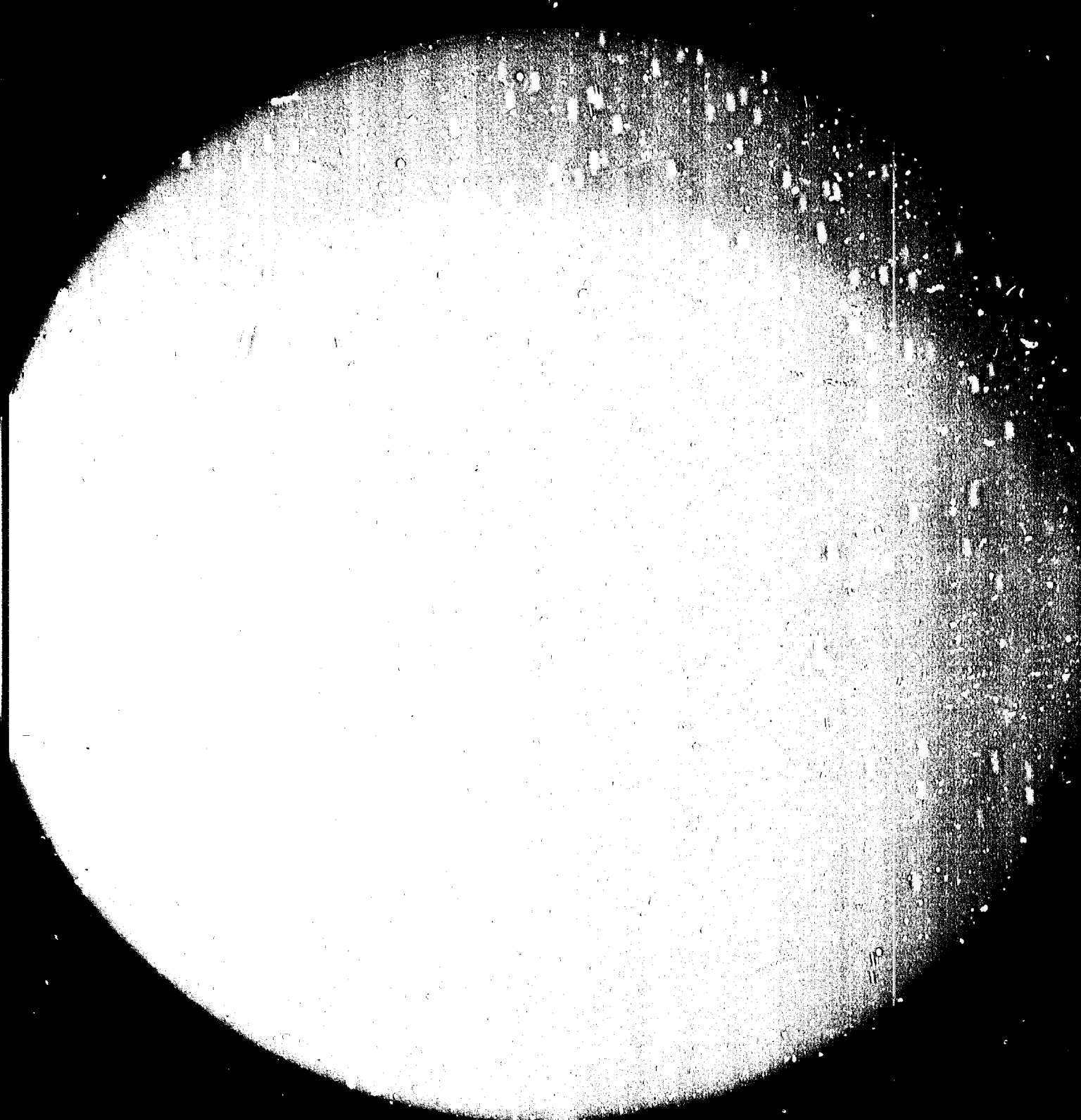

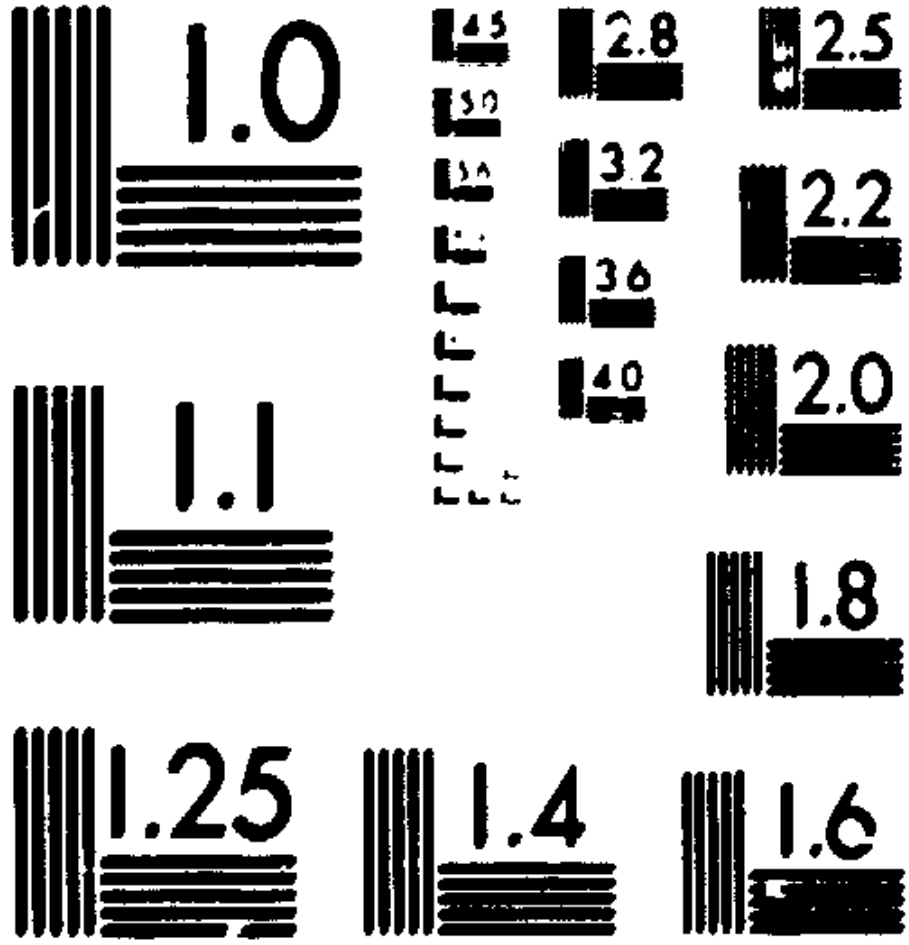

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INDUSTRIALIZATION IN CHINA:

AN OVERVIEW OF PAST PERFORMANCES AND CURRENT PROSPECTS *

prepared by

Global and Conceptual Studies Branch
Division for Industrial Studies

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FOREWORD

This report on China's industrial progress since the 1949 Revolution was prompted by the need for re-examining policy implications of including China's share in the world manufacturing value added (MVA) in achieving the Lima target. The report draws extensively upon many existing studies on China's economy and particularly a massive study recently completed by the World Bank.

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I. A Macroeconomic Perspective

In recent years, considerable attention has been focused on China's economic development and industrial progress since the 1949 Revolution. As China emerges suddenly from a long period of self-imposed isolation, like a sleeping giant abruptly awakened, its impacts are bound to reverberate forcefully throughout the global landscape of politics and economic relations among nations. Quantative data on China's economy are still too fragmentary and perhaps inadequate (and data gap is particularly acute between the late 1950s and the mid-1970s) to permit meaningful inferences about past and present patterns of development in China, let alone China's future prospects. Yet enough studies and information, although some of them are highly speculative, have been accumulated that can be pieced together with some ingenuity to delineate a rough configuration of the hitherto unknown entity.1/

This short note draws extensively upon many existing studies on China's economy,2/ most notably a massive study recently completed by the World Bank, to offer a bird's-eye view of economic development and industrial progress of a country dominated by its sheer geographic size, bewildering internal diversity, immensely rich cultural heritage, and innumerable historical legacies. The report is narrowly focused on industrialization, neglecting other important areas such as agriculture, transport, social development, population and human resources. Even with this modest aim, the task is found to be daunting, since no cursory review of this nature, however painstakingly prepared, will do justice to a better understanding of China's industrial progress and potentials. Given the very limited time and resources allocated for this study, the report should, therefore, be regarded as tentative in its findings and incomplete in the treatment of the subject-matter.

As stated earlier, although the focus of the report is on the assessment of industrial progress, industrialization issues cannot be meaningfully discussed outside the context of a macroeconomic framework because of the high degree of interdependence between industries and the rest of the sectors of the economy. Therefore, the report follows a logical sequence beginning with an appraisal of the macroeconomic perspective, then concentrating on distinguishing features of China's past and current industrial developments, and concluding with a preliminary assessment of China's prospects, options, and anticipated constraints.

1/ Until recently China's economy was kept in the dark because no economic statistics had been published since the late 1950s. In the early 1970s, however, partial information began to trickle in from various scattered sources such as newspapers, journals, broadcasts and overseas reports. It was not until June 1979 that China disclosed for the first time since 1958 a comprehensive range of economic and social statistics for 1978 perhaps as part of China's overall efforts to establish economic and trade links with the Western World.

2/ For information available in English, see Beijing Review (weekly), Far Eastern Economic Review (quarterly), China Business Review (bimonthly), China News Analysis (weekly), China Reconstructs (monthly), Eastern Horizon (monthly), Economic Indicators of China by U.S. National Foreign Assessment Center and Quarterly Economic Review of China and its Annual Supplements by the Economist Intelligence Unit.

The People's Republic of China is "a socialist state", proclaimed on October 1, 1949, with a land area of about 9.6 million square kilometers (km), the third largest country in the world, and an estimated population of 971 million (1979 official data). China's immense geographical diversity with a complex topography accounts for considerable climatic variability which contributes to a wide range of agricultural potentials among different regions of the country. Despite the vastness of land area, population and economic activity are preponderantly concentrated in the eastern half of the country, namely in the fertile plains and valleys of the three separate river systems - the Yellow River, the Yantze River and the Pearl River.

By contrast, Western China is dominated by the mountains and plateaus of the Tibetan Highlands and the desert basins and mountains of Xinjiang-Mongolia and occupies half the country's land area with only 5 per cent of its population. As a result, the average population density in Western China is less than 20 per square km, while that of Eastern China is over 150 per sqare km.3/

Furthermore, the total cultivated land area of about 100 million hectares constitutes only 11 per cent of the total land area with a consequent high density of 0.12 hectare per capita of the agricultural population. But this high density is more than offset by high yields per hectare, producing 97 per cent of the country's food supply.

The organizational structure of China's economy is characterized by the co-existence of a largely urban state economy and predominantly rural commune economy. On the one hand, similar to the economic system of the Eastern European countries, the distinguishing characteristics of the state economy are public ownerships, highly centralized decision-making processes, strictly hierarchical control, and the virtual non-existence of free-market resource allocations. On the other hand, in the commune economy, production teams of 30-40 households, which own and use collectively land and capital, form a brigade, which in turn constitutes a building block of a commune. In general, production and investment decisions are more decentralized at the commune economy than in the state economy, and a more prominent role is given to markets and prices at the commune level.

The major thrust of China's economic development, for the past two or three decades, have persistently been directed toward two main objectives: industrialization biased in favor of heavy industry and the satisfaction of basic needs of the majority of people. This two-pronged assault has been planned and implemented within two major constraints: an acute shortage of cultivable land, and self-imposed isolation from the rest of the world. Despite intermittent disruptions caused by such upheavals as the Cultural Revolution (1966-76), and the Great Leap Forward (1958-60), China has made substantial progress toward the attainment of both of these twin objectives.

It is particularly noteworthy that, being isolated from the rest of the world, this remarkable progress has been made, primarily based on a self-reliant scheme of domestic resource mobilization and initiatives. Industrialization has been moving along at a rapid pace as a result of an unusually high level of investment, virtually all of which is financed by domestic savings. For instance, the GDP share of industrial output in China (about 43.6 per cent in 1979)4/ is roughly comparable to the average for the middle-income developing countries. However, the most remarkable achievement of China's development efforts for the last three decades has been the eradiction of the worst

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3/ Given by the Institute of Industrial Economics, Academy of Social Science, China.
4/ World Bank Report on China (1981), Annex D, P. 11.

aspects of poverty. The basic needs of low-income groups - employment, education, basic health care, nutrition, housing, etc., are today far better satisfied in China than in other poor countries, as evidenced by an exceptionally high life expectancy (at 64 years in 1979, Statistical Appendix, Table A.1) which is generally taken to be the best single indicator of individual welfare.

Over the last three decades, China's economy has undergone substantial structural transformation. At 1970 prices, the share of agriculture in net material product (NMP)[5/], has fallen by about 33 percentage points during the period of 1952-1979, while that of industry has surged upward by a phenomenal 36 points for the same period (Statistical Appendix, Table A.1). Yet, this dramatic change in the relative share of agricultural and industrial output in NMP has not been matched by a corresponding change in the employment share. The agricultural share in total employment has declined slowly from 84 per cent in 1952 to 74 per cent in 1979, while the industry employment share has moved up, with equal sluggishness, from 6 per cent to 13 per cent for the last three decades (Statistical Appendix, Table A.1). Some important implications can be drawn from the above comparison. Despite a massive infusion of investment in industry during the same period, industry's capacity to create employment has been rather limited, providing a net gain of 39 million new jobs for the period 1957-79. In stark contrast, agriculture has not only been the most important source of employment, claiming the lion's share of 74 per cent of total employment in 1979, but has also borne the brunt of employment creation, by expanding its employment by 106 million new jobs, almost three times the employment expansion by industry during the same period. This employment share comparison over time between industry and agriculture coupled with the obverse of the situation shown by the corresponding output share comparison leads us to believe that the gap in output per worker between industry and agriculture has widened.[6/]

Furthermore, given the fact that prospective returns to investment in agriculture have been limited by the scarcity of arable land and the easiest exploitation in intensive cultivation has already been made, future employment absorptive capacity of agriculture appears to be very limited. Industry and services have to bear increasingly heavier burdens of job creation for expanding population.

5/ NMP is the official measure of aggregate domestic production. It differs from Gross Domestic Product (GDP) in excluding depreciation and non-material services, both private and public. For further reference, see Shigeru Ishikawa, National Income and Capital Formation in Mainland China, (Tokyo, 1965).

6/ Some of possible reasons for the unusually high relative (value) productivity of industrial labor in China may be exceptionally high relative physical productivity coupled with the terms of trade considerably favorable to industrial products.

This imbalance between agriculture and industry is further accentuated by the sectoral composition of total fixed investment. Table 1 presents the

Table 1 Sectoral Composition of Total Fixed Investment (%)

	1965	1977-79
Agriculture	20	21
Industry	55	57
Industry heavy	(45)	(47)
Industry light	(10)	(10)
Other	25	23
Total:	100	100

Source: World Bank Study on China, 1981, Annex A, Table A.24

percentage allocation of total fixed investment to different sectors of the economy: 20 per cent to agriculture, about 55 per cent to industry, of which four fifth has been for heavy industry, and the remaining quarter to transport, commerce, housing and social services.

It is obvious that the employment impact of industry is not commensurate with its high investment share which is in sharp contrast to the much lower investment share of agriculture. The latter sector, as mentioned earlier, employs over 70 per cent of total labor force. Furthermore, it appears that the overall efficiency of investment in China might have improved further if too large a share had not been allocated to industry and too small a share to agriculture.

The growth of aggregate output in China has been marked by considerable fluctuations since the Revolution (Table 2). The first three years of recovery from the civil war produced a phenomenal expansion of output, which was immediately followed by the high growth period of the First Five-Year Plan. However, around the Great Leap Forward period (1958-60), China's economy suffered a drastic reduction in aggregate output. The first half of the Cultural Revolution (1966-1976) registered a remarkably fast growth rate but, in the second half, the growth rate decelerated considerably. In the subsequent period of adjustment, especially in 1977-79 (10.8 per cent) growth was rapid. It is, however, worthwile to note that behind these economic gyrations emerges a very impressive long-term trend growth rate, e.g., 5.63 per cent for 1952-79 and 5.06 per cent for 1957-79.7/

7/ Perhaps, China's economic fluctuations can be better understood by examining the evolution of its economic system since the 1949 Revolution, which has been marked by the shifting dominance of political and economic criteria in economic decisions and varying degrees of centralization in the economic management prevailed for different periods.

Table 2 Aggregate Output and population Growth, 1949-80

	Population	Net Material Product in 1970 prices	Net Material Product per capita
	(average annual growth, %)		
1949-52, Rehabilitation period	2.00	19.3	17.0
1953-57, First Five-Year Plan	2.38	8.18	5.8
1958-62, Second Five-Year Plan (including the Great Leap Forward, 1958-60)	0.62	-3.1	-3.7
1963-65, Adjustment period	2.85	14.7	11.5
1966-70, Third Five-Year Plan	2.63	8.3	5.5
1971-75, Fourth Five-Year Plan	2.17	5.6	3.4
1976-80, Adjustment period	1.33	6.2	4.8
1952-79	1.96	5.63	3.67
1957-79	1.87	5.06	3.19
1977-79	1.35	10.8	9.45

Source: State Statistical Bureau, China.

The assessment of real output per capita is subject to greater inaccuracy because of widely divergent estimates of China's population available (Table 3). Based on the World Bank estimates of China's population, output growth per capita appears to be remarkably high for the period of 1952-79 (3.67 per cent) and particularly spectacular in 1977-79 with a grwoth rate of 9.45 per cent (Table 2). Recent World Bank Study on China (1981) suggests that the conversion of the Chinese data on NMP to the concept of Gross National Product makes a negligible difference to the growth rate for 1957-79 and the converted GNP per capita income ($256 in 1979) appears to show a much higher growth rate than the average for other low-income countries (1.6 per cent) over roughly the same period and also compares favourably with the average of 3.7 per cent for middle-income and industrialized countries.

7/ (cont.) The first period (1949-52) was characterized by institutional reforms and particularly land reform. During the period of the First Five-Year Plan (1953-57), the basic organizational restructuring of the system comprised of cooperatives, communes and urban collectives was completed and central control began to get hold of the economic management. However, the Great Leap Forward movement launched in 1958 played havoc with the implementation of the Second Five-Year Plan (1958-62), which was followed by a period of adjustment and rehabilitation (1963-65) aimed at reimposing central control and using economic considerations in resource allocation. But the Third Five-Year Plan (1966-70) became again a victim of the decade-long Cultural Revolution, during which political considerations dominated economic management. It was not until 1976 that the rational economic management programme began to reassert itself, the process that gave rise to the modernization programme currently underway.

Table 3 China's Population (millions)

	1949	1951	1952	1957	1961	1965	1966	1970	1971	1972
World Bank Series	542		575	647		725		826	848	867
UN Series		542			647		706		773	
US Dept. of Commerce		555			695		763		857	

	1973	1974	1975	1976	1977	1978	1979	1980	Growth Rate (%) 71-78
World Bank Series	888	904	920	933	945	958	971	982	1.76
UN Series				842		872			1.74
US Dept. of Commerce				964		1,005			2.30

Sources: 1981 World Bank Report on China, Annex A, Table 1.1; UN medium variant estimates; US Department of Commerce; State Statistical Bureau. World Bank estimates are based on Chinese official figures.

II. Industrial Progress in China

A. Past Growth and Recent Output

Although agriculture continues to be a bread-and-butter source of livelihood for the vast majority of people in China, the major thrust of China's development efforts has been consistently directed towards industrialization. The industrial sector, which includes mining, logging and electric power as well as manufacturing, produced a net output of 161 billion Yuan in current prices in 1979, which is nearly 1.5 times as high as that of agriculture. Furthermore, China's manufacturing value added (MVA) in 1978 in current prices is estimated to be roughly around US$ 68 billion.[8/]

8/ Since Chinese industrial statistics are not broken down into manufacturing and other components, it is difficult to estimate the share of China in world manufacturing value added (MVA). However, a crude estimate of China's 1978 MVA in current market prices can be obtained as follows. Summing 1978 industry and construction net output (138.51 + 12.04 = 150.55 Y billion; IBRD Report on China, 1981, Annex A, Table A.1) in current prices and dividing the sum by 1978 Chinese official exchange rate of Y 1.66 per dollar yields $90.66 billion net output. Now using a ratio of manufacturing share to industry plus construction share of GDP, which was estimated to be around .75 (IBRD Study on China, 1981, Annex D, Table 1.5), we can readily obtain an estimate of China's MVA in 1978, approximately equal to $ 68 billion.

Therefore, given an UNIDO estimate of 1978 world MVA excluding China in current prices put at around $2516 billion, China's share stands roughly in the neighborhood of 2.6 per cent. China's share of world MVA is undoubtedly an important additional factor that must be explicitly taken into account in discussing the Lima target. In making an international comparison of China's MVA, extreme caution must, however, be exercised since the China's estimates of MVA are likely to be subject to a wide margin of error because of possible distortions associated with the use of the official Chinese exchange rates and prices.

On the per capita basis, China's industrial output is about three times the average for the low-income group, but only barely over a quarter of the average for the middle-income countries, and less than 5 per cent of the average for industrialized market economies. In terms of total output, however, China's industrial output is much more pronounced. The net value of manufacturing (estimated using Chinese prices and official exchange rates) is close to one seventh that of the USA. In 1979, China ranked first in the world in quantity output of cotton yarn and fabric. It emerged as a third largest producer of cement, coal and sulphuric acid, fifth largest producer of steel and seventh in electric power generation.[9/]

The growth rates of industrial output in China have been equally remarkable. Whether measured in gross or net output, the value of industrial production in China in 1952-79 (Table A.2) rose an annual rate of over 10 per cent, which compares very favorably with the average for other low-income countries (5.4 per cent) and even that for the middle-income group (7.5 per cent). Moreover, hidden behind these impressive growth statistics and easily overlooked, are extensive industrial diversifications and new technical capabilities achieved during this period. Today a broad industrial base for producing a wide range of capital goods is firmly established in China with a fairly balanced geographic distribution. It is particularly noteworthy that this industrial transformation has been achieved primarily with domestic resources, a classic example of self-reliance. Undoubtedly, this progress has been made possible by a massive mobilization of domestic resources for investment. The proportion of NMP allocated to investment exceeded 30 per cent in 1970-79 (Table A.1) and more than half went to industry - of which more than four fifths was for heavy industry.[10/]

9/ World Bank Report on China, 1981, Annex D, P.13.

10/ World Bank Report on China, 1981, Main Report, Table 3.11; the industrial capital stock was almost 11 times larger in 1979 than in 1957.

Productivity growth in Chinese industry during the period of 1957-79 as measured by real net output per worker, has fallen behind the growth of aggregate output. According to the World Bank Study,[11] real net output per worker in 1957-79 increased at about 3.7 per cent per year, which is higher than the average for the low income group (2.9 per cent) and close to that for the middle income group (3.9 per cent) for the same period. Yet in view of faster accumulation of capital per worker, the per capita output increase appears to have resulted from increasing the quantity of factor inputs rather than improving the efficiency of factor input use.

One of the distinguishing features of China's industrial development is a major emphasis placed on the development of heavy industry, and particularly capital goods industries, and the neglect of consumer goods industries over long periods. For instance, with respect to machinery and metal products (Table A.3), China's share (27 per cent) is substantially large by low-income country standards, well above that in India (19 per cent) and not too far behind that in industrialized market economies (31-36 per cent). As mentioned earlier, China ranks as the world's fifth largest producer of steel.[12] This phenomenon is not quite consonant with the relatively low level of production of consumer durables, for example, its output of motor vehicles in 1979 being only 0.4 per cent of the world total. In addition, China's share in food processing (11 per cent, Table A.3) appears to be well below the range for the developing countries.

The preponderance of heavy industry over light industry[13] in China is dramatically revealed in Table 4. Heavy industry, claiming about 83 per cent of the net fixed assets, accounts for nearly 62 per cent of the net output in 1979. The industrial employment share was slightly over 58 per cent.

The state enterprises are the hard core of the industry. They include most important factories, let alone amny small ones. The state sector in 1979 claims a lion's share in each important statistic, 88 per cent of the capital stock, 58 per cent of the labor force and over 80 per cent of the net output. Another 12 per cent of the net output comes from urban collectives and 6 per cent from communes.

11/ World Bank Stud on China, 1981, Main Report, Table 4.9

12/ But the steel industry in China faces considerable problems. There are ample supply of iron and coking coal but they are of low quality and there is the urgent need for introducing efficient beneficiation facilities in view of a considerable wastage of coal in the beneficiation process. Compared with the developed market economies, the Chinese steel industry is still backward. For instance, two-thirds of steel capacity is still open-hearth furnaces and the remainder being basic oxygene furnaces, electric furnaces and side blown converters.

13/ Light industry includes all consumer goods, food products, processed agricultural products, and textiles, plus many intermediate goods such as pulp, paper, synthetic fibers, and simple farm equipments. Heavy industries are comprised of other manufacturing industries such as steel, cement, machine building electric power, timber extraction, and all mining other than salt mining.

Table 4 Output and Assets for Light and Heavy Industry, 1979

	Light Industry	Heavy Industry	Total	% Shares Light Industry	% Shares Heavy Industry
All Industrial Enterprises					
Number	207.853	147.160	355.013	58.5	41.5
Gross Output (bln 1970 Yuan)	197.96	261.11	459.07	43.1	56.9
Net Output (bln current Yuan)	59.13	95.41	154.54	38.3	61.7
Gross fixed Assets (Y billion)*	66.55	313.83	380.38	17.5	82.5
Employment (millions)	22	31	53	41.5	58.5

* Independent Accounting Units Only.

Source: World Bank Report on China (1981), Annex D.

At present, China's manufactured exports constitute around 3 per cent of gross manufacturing output. But the high growth rate of 15 per cent in the 1980s is expected to raise this share to only 7 per cent in 1990. Furthermore, China's manufactured exports account for less than 6 per cent of total developing countries manufactured exports. But three fifths of current China's manufactured exports are products other than machinery or equipment sold to developing countries or European socialist countries.[14/]

It is clear that China's potential for rapid growth in the manufactured exports consists in tapping the richer markets, especially in the OECD countries. If the export drive in the developed market economies proves to be successful, it would not be unreasonable to expect a growth rate of 10 per cent p.a. and quite possibly 15 per cent, which would raise the value of manufactured exports in 1990 in current prices to over $60 billion.[15/] This would undoubtedly expand China's import capacity, but such rapid export growth hinges upon many critical factors: healthy economic growth in the OECD countries with no substantial increase in protectionism, product design improvements for both capital and consumer goods, and the updating of industrial technology.

14/ For further detailed analysis of China's foreign trade, see the World Bank Study on China (1981), Annex H: External Trade and Finance.

15/ ibid

Currently, there appears to be no serious balance of payments problems in China. The People's Bank of China recently released for the first time China's gold and foreign exchange reserves. According to the Bank's report, China's gold reserves are 12.8 million oz (around 400 tons), valued $5.3 billion at current prices, which confirms that China is one of the biggest holders of gold bullion outside the major industrialized countries. Foreign exchange reserves were around $2.2 billion.[16/] Yet, China's foreign reserves may be hardly sufficient to import modern technology and physical capital needed for sustaining the ambitious modernization programme launched a few years ago.

B. Major problems in Industrialization

It appears that many of the industrial issues facing China today are part of the legacy of the economic system evolved since the 1949 Revolution. As mentioned earlier, frequently in the past, China has been engaged in political doctrinairism and ideological puritanism, as in the case of the Great Leap Forward movement and the Cultural Revolution, and overlooked economic rationality in shaping industrial policies. These political movements disrupted the implementation of many development plans based on economic rationality and their lingering effects are still aggravating many of the industrial problems confronting China today, which are briefly discussed below.

Industrial Energy Conservation

Given the deteriorating outlook for domestic energy production,[17/] industrial energy conservation looms critically important. Since agriculture, commerce, households and transport, all combined together, represent a small share of total commercial energy uses, and given a relatively limited scope for conservation and interfuel substitution, the outcome of energy conservation plan will largely depend on efficient energy use and substitution of coal for oil within industrial subsectors. Moreover, because of relatively low unit energy consumption in light industry, the burden of energy conservation falls on heavy industry, which consumes about 60 per cent of national commercial energy. Minor technology and equipment improvements (including the replacement of many industrial boilers) coupled with major changes in some processes, most notably in metallurgy, are expected to result in substantial reduction in the energy use per unit of industrial output, at a capital cost of less than that of achieving an equivalent increase in energy supply. These corrective measures may go a long way toward energy conservation, since many of the industrial establishments in China have been built with little regard to the efficiency consideration of resource use including energy.

Low Productivity

With some exceptions, the industrial enterprises in China are generally plagued by inefficiency in the use of factors of production - labour, capital, and raw materials including energy. Many plants have unbalanced capacities

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16/ Quarterly Economic Review of China, 3rd Quarter 1981, The Economist Intelligence Unit, London.

17/ Oil output peaked in 1979 at 106 million tons and is expected to drop to 100 million tons in 1985. Coal output, accounting for about 70 per cent of total commercial energy, also has fallen to 620 million tons in 1980 and its output is unlikely to exceed 730 million tons in 1985 and about 900 million tons in 1990 even with the highest priority assigned to this sector. Therefore total primary energy production in the 1980s may be around 2.8 per cent per year, with the growth in 1980-85 not exceeding 2.2 per cent - less than one quarter of the 1952-80 growth rate. For further details, see the World Bank Study on China (1981), Annex E: The Energy Sector.

and operate far below the optimal level. The designs of many Chinese engineering products tend to be obsolete and inferior to Western products. Redundant labor is fairly common and some highly trained people are not fully used. Part of this inefficiency is caused by lack of co-ordination in the flows of supplies among separate production units, which tend to be preoccupied with their own interests to the neglect of their outside customers.

Imperfect Price Signals

Although managers at all levels appear to be competent and dedicated, the investment allocation procedure lacks rational decision-making criteria, and this problem is further aggravated by distorted signals created by the systems of prices, taxes, and charges for the use of resources, which have no bearing on true scarcity values. Needless to say, the absence of correct price signals results in the misallocation of resources, creating an oversupply of some commodities and acute shortages of others. Until this price mechanism can be adjusted properly, whether centralized or decentralized, industrial enterprises in China are liable to errors for lack of proper information and signals to guide their decisions, as well as for lack of experience.

III. Recent Policy Changes and Their Impact on Industrialization

A. Economic Reforms

China's economic policies have been markedly shifted in the past few years, with launching of the programme of "four modernizations." Most specifically, the modernization programme enunciated at the fifth National People's Congress in February 1978 is, in fact, a comprehensive ten year economic development plan (1976-85), aiming at the achievement of "the comprehensive modernization of agriculture, industry, national defence and science and technology before the end of the century so that China's national economy will be advancing in the front ranks of the world."[18/] Under this original plan, the growth of agricultural and industrial output were targeted at 4-5 per cent and 10 per cent per annum, respectively. By 1985, grain production was expected to have reached 400 million tons a year and steel 60 million tons, and had hoped to embark on numerous large scale industrial projects. However, subsequently, the ambitious targets for steel and other industrial output have considerably been scaled down in view of mounting macroeconomic adjustment problems and followed by a clear-cut shift from overemphasis on heavy industry to light industry and those industries fostering the improvement of living standards such as housing and transport. Most important among major elements of this modernization programme are overhauling the system of economic management, including greater exposure to the rigors of the marketplace and a shift in priorities from investment to consumption. In the past, rapid economic progress has been made possible by domestic resource mobilization at an unprecedented scale and fundamental institutional

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18/ Originally the plan was announced in the speech made by the late Premier Zhou Enlai at the fourth National People's Congress in 1975.

change. But further progress will have to come from the efficiency of resource use and the updating of industrial technology, since the benefits of home-grown indigenous technology appear to be overtaken by its costs in terms of obsolescence and bottlenecks. Equally important, despite the phenomenal progress made toward industrialization and the satisfaction of the basic needs for the vast majority of people in China for the last three decades, general living standards have failed to rise steadily during the same period, partly because of China's emphasis on heavy industry and its consequent neglect of the production of consumer goods.

B. Economic Reforms and Readjustment Plan

Paradoxically, mainly as a result of changes in economic policies, China has begun to face many of the troubling macroeconomic woes, which have been plaguing the western economies for the last decade, but until a few years ago have been non-existent in China. Namely they are budget deficits, inflation and unemployment. For instance, China's budget deficit reached about 12. billion Yuan (about $7.4 billion) in 1980. Inflation, which until a few years ago was said to be unknown in China, has become a serious major problem with consequent grave political implications, mainly as a result of recent budget deficits and the rapid increase in money supply. Prices in general increased by 6 per cent and food prices by 14 per cent during 1980, although an unofficial estimate of the inflation rate may go considerably higher. Also until a few years ago, unemployment was totally an unfamiliar phenomenon. Of the estimated 100 million urban work force, some 20 million were estimated to be unemployed in 1980, a large proportion being youths.[19/]

Given these serious macroeconomic problems, the new policy framework for reforms with readjustment was announced in 1979 with a view to counteracting and overcoming them and at the same time permitting continued progress of the modernization programme. Pressures on aggregate demand were to be relieved by sharply reducing capital expenditures and slowing down the growth of heavy industry. Furthermore, the thrust of industrial policy was redirected at the accelerated development of light industry and agriculture at the expense of heavy industry. This shift in industrial priority may reduce energy demand and help to grapple with fiscal problems. Priority in production was also given to serving the needs of consumers rather then "production for the production sake." Export promotion and efficient use of resources were also actively supported.

The effects of these policies of "readjustment, restructuring, consolidation, and improvement" inaugurated in 1979 are quite visible in various fronts. The growth of industrial output has decelerated to 8-9 per cent in 1979 and 1980 as compared with 13-15 per cent growth rates in 1976-1978 period. The effects of these policy changes are more dramatically reflected in a change in the relative contributions of heavy and light industry. Until the middle of 1979, heavy industry outpaced light industry in the growth rate of production. But this situation is reversed in 1979 with a final tally of 9.6 per cent growth rate in light industry and 7.7 per cent in heavy industry. This gap was further widened in 1980 with 18.4 per cent in light industry and only 1.4 per cent in

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19/ Quarterly Economic Review of China, 3rd Quarter 1981, The Economist Intelligence Unit, London.

heavy industry. As a result, the share of light industry in gross output rose from 43.1 per cent in 1979 to 46.9 per cent in 1980. In addition, in line with the shift in priority, progress in expanding manufactured exports has been notable. The dollar value of China's exports of manufactures and nonferrous metals grew by over 40 per cent in 1979 as compared with 20 per cent per annum in the preceeding two years and the dollar value of China's exports of total merchandise continued to climb by 28 per cent in 1980.[20]

However, China is currently torn between the need for continuing economic reforms on the one hand and that for making macroeconomic readjustment on the other, since these two policies often conflict with each other. For reform policies are basically formulated to decentralize and liberalize China's rigid economic structure, while the readjustment plan was designed to cure macroeconomic problems, which demand greater central control.

A conflict between reforms and adjustments poses a dilemma in various industrial policies. For instance, an unexpectedly large budget deficit of 17 billion Yuan in 1979 (Table A.1) was registered and the deficit in 1980 was believed to be slightly reduced to 12 billion Yuan. This budgetary disequilibrium was partly caused by insufficient reductions in capital construction. But the central government found itself somewhat powerless to curb capital expenditures despite increasing deficits and accelerating inflation, as economic reforms have granted enterprises and local authorities greater control over financial resources which were invested in industrial and infrastructure projects. In 1980, capital investments at the local and enterprise levels, which drew heavily from their surplus funds, jumped by a whopping 148 per cent over 1979 as compared with a decrease of 37 per cent at the central level.[21]

Another example of conflict is the undesirable side-effects of the bonus system introduced in 1978 to boost workers' incentives. The widespread practice and abuse of the bonus system, without commensurate increase in productivity, appeared to have contributed to enlarged budget deficits and rising price levels.

Unfortunately, the macroeconomic readjustment and fiscal retrenchment may exacerbate the current unemployment problems, particularly in urban areas. However, light industry with a major share of industrial investment, along with the expansion of service sector, is expected to relieve some of the unemployment pressure in the next few years.

In general, the readjustment program has been considered to be less successful in scaling down industrial construction than in changing output composition. As mentioned earlier, in 1980, the central authorities reimposed central control over investments at the local levels, enforcing strict rules to bar new investments in some industries and requiring central approval of investments in others. This reassertion of central authorities is necessitated not only by their inability to control aggregate expenditures in face of swelling deficits and politically damaging inflation, but also caused by the effects of decentralized

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20/ World Bank Study on China (1981), Annex D, Table 3.1, and Annex H.

21/ Quarterly Economic Review of China, 2nd Quarter, 1981, the Economist Intelligence Unit, London.

investment on the supply of raw materials for light industry. A rapid and uncoordinated expansion of inefficient light industries in many regions pre-empted the use of local raw materials, which were formerly shipped to more efficient distant industrial centers, thus causing a shortage of raw materials such as hides and leather, fibers and tobacco in China's leading industrial centers, and negating the regional comparative advantages.

IV. Concluding Remarks

Notwithstanding frequent economic disruptions and dislocations caused by political turmoils, industrialization in China since the 1949 Revolution has been remarkably rapid and it is truly an outstanding achievement in the modern history. Despite some weaknesses, China's industrial capabilities are very impressive. Almost the entire range of modern industries has been built up with particular emphasis on capital goods industry. China's accomplishments assume an added significance when one realizes that China's mammoth industrial bases have been built mainly with a massive mobilization of domestic resources in the spirit of self-reliance, although Russian assistance was significant at an early formative stage of development immediately after the Revolution. Today, the share of industry in GDP (about 43.6 per cent in 1979) is roughly equal to the average for middle-income developing countries. Furthermore, unlike many other developing countries, China's accomplishments are even more remarkable when we consider that rapid industrialization has progressed with comparatively little income inequality and, most important of all, the basic needs of low-income groups have not been neglected during the period of industrialization, if not, in fact, they have fared far better than their counterparts in most other developing countries.

Having forged a rather solid industrial base, China has pursued for the last few years the course guided by the policies of "readjustment, restructuring, consolidation and improvement", which were launched in 1979 to correct some of the present structural imbalances and weaknesses. It appears that China's economy is now going through a difficult transition period. Many of the complex problems inherited from the past linger on and it may take considerably longer than anticipated to accomplish this goal of reforms with readjustments.

In sum, it seems reasonable to conclude that the thrust of China's economic and industrial policies is unmistakably directed toward the economic reform. It is highly unlikely to see a complete reversal of new economic policies and a consequent U-turn to the rigid centralized systems observed in the past. Instead, we will see more of the stop-go methods currently being applied.[22/] Such short-term adjustments should not derail China's progress toward its long-term goals, but it may prolong China's journey toward its intended destination.

22/ At the time of writing, Time, 26 October 1981 issue, reported that China restored some of the $2.5 billion worth of industrial development projects with Japanese and German firms cancelled abruptly last winter by finalizing a $1.3 billion financing deal with Japan. This new deal will undoubtedly inject a "shot in the arm" to two of the most important of the earlier victims of the budget chopping: Phase 1 of a $5 billion iron- and steelworks at Baoshan, near Shanghai, and a huge petrochemical complex at the Daging Oilfield in Heilongjiang province.

STATISTICAL APPENDIX

TABLE A.1: Selected Indicators

	1952	1957	1965	1970
1. Net Material Product[a/] (NMP) at current prices	58.90	90.80	138.70	192.6
2. Net Material Product (NMP) (billions of 1970 prices)	73.0	108.15		192.6
Components[b/]				
Agriculture*[c/]	49.60 (67.95)	63.05 (58.29)		78.91 (41.0)
Industry*[d/]	8.99 (12.32)	21.83 (20.18)		77.04 (40.0)
Construction*	1.80 (2.47)	3.90 (3.6)		7.70 (4.0)
Transport*	2.33 (3.19)	3.63 (3.36)		7.70 (4.0)
Commerce*	10.29 (14.10)	15.75 (14.56)		21.19 (11.0)
3. Population (Year-end, millions)	574.82	646.53	725.38	825.93
4. Real NMP per capita (1970 Yuan)	127	167.28		233.19
5. Investment at 1979 prices (Yuan billion)	9.29	18.43		61.80
6. Fixed investment as % NMP	12.73	17.04		32.09
7. Cost of living index (1950 = 100)	115.5	126.6	139.0	137.8

of Chinese Economic Development, 1952-1979.

				Annual average growth (%)		
1975	1977	1978	1979	52-57	57-79	52-79
250.5	265.90	301.10	337.00	9.04	6.14	6.72
	261.1	294.81	320.42	8.18	5.06	5.63
	91.75 (35.14)	99.21 (33.65)	110.88 (34.60)	4.91	2.60	3.03
	121.97 (46.71)	141.18 (47.89)	156.04 (48.7)	19.41	9.35	11.15
	10.85 (4.16)	12.27 (4.16)	13.57 (4.24)	16.76	5.83	7.78
	10.64 (4.08)	12.04 (4.08)	13.48 (4.21)	9.21	6.15	6.72
	25.90 (9.92)	30.11 (10.21)	26.46 (8.26)	8.89	2.39	3.56
919.70	945.24	958.09	970.92	2.38	1.87	1.96
	276.23	307.71	330.02	5.80	3.19	3.67
	84.80	110.75	111.98	14.7	8.55	9.66
	32.48	37.57	34.95	6.01	3.32	3.81
139.5	143.7	139.6	142	1.85	0.52	0.77

.../.

TABLE A.1 (Continued)

	1952	1957	1965	1970	1975	1977	1978	1979	Annual average growth (%) 52-57	57-79	52-79
8. Labor force and employment (millions)											
Total Labor Force	207.29	237.71	286.70	344.32	381.68	393.77	398.56	405.80	2.78	2.46	2.52
Agriculture	173.17 (83.54)	193.10 (81.23)	233.98 (81.61)	278.14 (80.78)		293.45 (74.52)	294.26 (73.83)	299.34 (73.77)	2.20	2.01	2.05
Industry	12.46 (6.01)	14.01 (5.89)	18.28 (6.38)	28.09 (8.16)		48.09 (12.21)	50.09 (12.56)	53.40 (13.16)	2.37	6.27	5.54
Others	21.66 (10.45)	30.60 (12.87)	34.44 (12.01)	38.09 (11.06)		52.23 (13.26)	54.21 (13.60)	53.06 (13.08)	9.16	2.53	3.37
9. Life expectancy at birth (years)	36 (Year 1950)	57 (Year 1960)						64			
10. Government Finance (Billion Yuan)											
Total Revenue	6.519 (Year 1950)	31.019	47.332		81.56[h/]	87.446	112.112	110.327	24.96[e/]	5.94	10.25[f/]
Total Expenditure	6.808 (Year 1950)	30.421	46.633		82.09[h/]	84.353	111.095	127.394	23.85[e/]	6.73	10.63[f/]
Balance	-0.289	0.598	0.699		-0.53	3.093	1.017	-17.067			
11. Merchandise Trade (U.S. millions)											
Exports	1.022 (Year 1953)	1.597	2.366 (Year 1966)	2.260	7.264	7.590	9.745	13.685	11.81[g/]	10.26	10.49[i/]
Imports	1.346 (Year 1953)	1.506	2.248 (Year 1966)	2.326	7.486	7.214	10.893	15.694	2.85[g/]	11.24	9.91[i/]
Balance	-324	91	118	-66	-222	376	-1.148	-2.036			

a/ NMP is the official measure of aggregate domestic production. It differs from Gross Domestic Product in excluding depreciation and non-material services, both private and public.

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TABLE A.1 (Continued)

b/ Percentage share of each component is shown in parentheses, unless specified otherwise.

c/ Agriculture includes brigade industry.

d/ Industry excludes brigade industry and it is comprised of mining, manufacturing, gas, electricity and water.

e/ Average, 1950-57.

f/ Average, 1950-79.

g/ Average, 1953-57., i/ Average, 1953-79.

h/ Given by Institute of Industrial Economics, Academy of Social Science, China

* The World Bank Report on China: Socialist Economic Development Annex A, Table A.8, 1981.

Sources: World Bank Report on China: 1981; Various issues of Quarterly Economic Review of the Economist Intelligence Unit; State Economic Commission, China; UN Statistical Year Books.
Exchange Rates (Yuan/Dollar): 1.83 (1977), 1.66 (1978), 1.54 (1979), 1.50 (1980).

TABLE A.2 : AGGREGATE INDICATORS OF INDUSTRIAL OUTPUT GROWTH, 1952-79.

	Index number of gross output in constant prices (1949=100)			Net output in current prices (Y billion)	
	Heavy industry	Light industry	Total	Excluding brigade industry	Including brigade industry
Year					
1952	329.7	214.6	245.0	11.7	12.2
1957	1,024.3	393.2	560.0	25.4	26.0
1965	2,144.9	739.2	1,108.8	50.4	n.a.
1970	4,252.9	1,104.9	1,925.8	77.0	78.3
1975	6,896.6	1,602.0	2,980.3	112.7	n.a.
1977	7,922.2	1,875.0	3,450.7	119.7	n.a.
1978	9,158.1	2,077.5	3,916.5	138.5	143.5
1979	9,863.3	2,276.9	4,249.4	155.0	160.9
Average Growth Rates (% p.a.)					
1952-79	13.4	9.1	11.1	10.0	10.0
1952-57	25.4	12.9	18.0	16.8	16.3
1957-79	10.8	8.3	9.6	8.6	8.6
1957-65	9.7	8.2	8.9	8.9	n.a.
1965-75	12.4	8.0	10.4	8.4	n.a.
1975-79	9.4	9.2	9.3	8.3	n.a.
1957-70	11.6	8.3	10.0	8.9	8.9
1970-79	9.8	8.4	9.2	8.1	8.3

Sources: World Bank Report on China, 1981, Annex D

TABLE A.3 : VALUE AND GROWTH OF OUTPUT, 1979, BY BRANCH OF INDUSTRY.

Branch of industry	Number of enterprises (end of 1979)	Gross value of output (Y million 1979 prices)	Growth rate (%) 1978/79	Percentage share of gross output
Food, beverages and tobacco (incl. salt mining)	44,682	51.872	10.0	11.3
Textiles (incl. synthetic fibers)	13,036	59,306	12.1	12.9
Wearing apparel, footwear and leather products	23,551	13,880[a/]	11.1[b/]	3.0
Sawmills, wood products and furniture	12,683	5,499	11.4	1.2
Paper, pulp and paperboard	4,105	6,030	12.0	1.3
Paper products, printing, cultural, educational and sport goods	11,256	9,650[a/]	16.1[b/]	2.1
Chemicals, (including mining), rubber and plastic products	22,384	56,184	7.0	12.2
Petroleum and coal products	653	16,348[a/]	8.9[b/]	3.6
Nonmetallic mineral building materials	43,495	15,400	9.1	3.3
Basic metallurgy and metal mining	5,138	41,027	11.1	8.9
Machinery, equipment and metal products (including repair)	104,021	124,484	7.7	27.1
Other manufacturing (and piped water)	48,421	16,993[a/]	-3.3[b/]	3.7
Logging and transport of timber	1,569	2,976	6.1	0.6
Coal Mining	8,305	11,624	1.1	2.5
Petroleum and natural gas extraction	21	9,803	3.4	2.1
Nonmetallic mining for bldg. materials	2,527	1,332	4.4	0.3
Electric power	8,923	17,672	9.5	3.8
Total	355,013	459,070	8.5	100.0

a/ Approximately within Y 5 million.

b/ Approximate.

Source: World Bank Report on China, 1981, Annex D