ECONOMIC DEVELOPMENT IN CHINA AFTER THE CULTURAL REVOLUTION

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In the past of a century the economic development in the People's Republic of China (PRC) has suffered from two severe setbacks. The first one was the economic crisis in 1959-61, which was triggered by the Great Leap Forward and the Commune Movement but was aggravated by the withdrawal of the Soviet technical assistance. The second disruption, known as the Great Proletarian Cultural Revolution, erupted in the latter part of 1966 and lasted for at least three years. While events in the two turmoil periods are well known, their impacts on the economy cannot be assessed in quantitative terms even today due to the lack of data.

Unlike the Great Leap Forward, the Cultural Revolution was not launched as an economic campaign. But, it nevertheless exerted serious disruptive effects on production, so much so that even Premier Chou En-lai had to admit[1]. The two upheavals also differed in their incidences. The crisis in 1959-61 occured first in agriculture but subsequently engulfed industry and other sectors, whereas impacts of the Cultural Revolution were primarily on the industrial production and transportation systems, leaving agriculture more or less intact.

As Chou En-lai conceded[2], the decline in industrial production in 1967 and 1968 stemmed from the interruption of traffic and the lost labor hours due to infights in factories. The interruption of transportation systems came first and was severe in scale. A substantial portion of the railway carrying capacity and other means of trans-

portation had been diverted to move the Red Guards back and forth between various localities and the capital. Consequently, a great deal of freight space had to be preempted; large quantities of industrial raw materials, fuels, equipment, and spare parts could not be shipped to the users on time, compelling many factories to curtail their level of operations and many new projects to halt their construction work.

At the very beginning of the Cultural Revolution Chinese leaders were concerned about the direct interference of the Red Guards on industrial production and made efforts to keep them out of factories and mines. However, it was not long before those young, fanatic students got out of control. They entered into factories and mines to propagandize the Revolution and to "exchange experiences" with industrial workers. Moreover, workers in many enterprises were encouraged by the Maoists to "takeover the power" from their managers and party cadres, who were accused of being "capitalist-roaders". Very often factional infights among workers broke out in factories, which sometimes led to armed struggles. Or, workers came to Peking in groups for appealing grievances to the central authorities. Work stoppages took place in numerous plants, sometimes lasting for weeks, and civil disorders were frequently reported in major industrial centers during the period. Normalcy was not restored until the whole industrial sector was put under the military control.

As a contrast, the disruptive effects of the Cultural Revolution on agricultural production were minimal, as far as we can tell. Interestingly, although the new agricultural policy adopted in 1961-1964 was one of the main reasons that caused the split of the Chinese Communist leaders in-

to opposing factions, the Maoists did not introduce any drastic changes in the farm institutions during the Cultural Revolution period. Most of the incentive measures used by the Liu Shao-chi government to stimulate agricultural production were preserved despite their undesirable features according to the maoist ideology. Equally important is that the Red Guards activities seldom penetrated into the rural areas. The uninterrupted production in agriculture is clearly evidenced by the fact that the grain output of the country jumped by a significant step from the probable level of 2oo million metric tons in 1965[3] to 23o million tons in 1967[4].

Apparently the adverse effects of the Cultural Revolution on the economy were only short-run in nature. Industrial production returned to normal in 197o and impressive growth have been achieved in most branches of the sector in the subsequent years. Ironically, however, the performance of agriculture, a sector which was least hindered by the Cultural Revolution, has turned out to be highly unsatisfactory in the last few years. Peking has recently become more liberal in releasing economic statistics; the new data though still far from adequate for making detailed analyses, enable us to see the tempo of economic development in the country and the general nature of problems faced by her after the Cultural Revolution.

In his "Report on the Work of the Government" delivered on January 13, 1975 at the First Session of the Fourth National People's Congress of the People's Republic of China (PRC), Premier Chou En-lai discloses the rates of growth in various industrial branches and economic construction activities[5]. It is said that in the ten years between 1964 and 1974 the PRC completed 1,1oo large and

medium-sized projects. Assuming that the norms used by the Chinese planners in the 195o's for classifying the sizes of new construction projects have been maintained throughout, we may make a very rough comparison of the average investment scale in the past decade with that in the 195o's.

Before the economic crisis, Peking occasionally reported their basic construction activities; from the known data it is possible to make an account for the large and medium-sized projects carried out in 1953-62[6]:

(1) 198 large projects were finished using complete sets of equipment furnished by the Soviet Union.
(2) 1,4oo large projects were completed on the basis of design materials supplied by the Soviet Union.
(3) 68 projects were built with technical assistance from the Eastern European Communist countries.
(4) 1,426 large and medium projects were designed by the Chinese themselves.

The total number of large and medium-sized projects carried out in that period came to 3,o92. Out of this number 2,57o were large projects; the rest were the so-called medium-sized ones. Even in the period of 1953-58, the total number of wholly or partially completed large projects, not counting the medium-sized plants, exceeded 1,1oo[7].

The relatively small number of major projects completed in the last ten years is attributable to a couple of factors. First, in view of the difficulties in obtaining foreign technical assistance and equipment the PRC chose to place a greater emphasis on small plants. Namely, there has been a policy shift with regard to the production technology and operation scale. Secondly, the planners appear to be more prudent now than they were before. The

experience of the Great Leap Forward has probably taught them a bitter but extremely useful lesson. Even taking into consideration the large number of small plants erected in the country, the average annual investment in basic construction in 1964-74 could hardly exceed the average scale of investment in 1953-58[8].

It should be noted that the new policy of self-sufficiency and the stress on small plants during this period are not solely the outcome of the constraints of imported equipment and the absence of foreign technical assistance. They have been chosen also for their positive advantages. The small plants scattered all over the country now can make better use of local resources of materials and labor which would have been otherwise underutilized. Since local industries produce things primarily for the households and producers within the same general areas a great deal of transport costs can be saved annually. This benefit is more substantial in the cases of bulky goods; that is why the production share of small plants in total output is especially high in the industries of fertilizers, cement, and coal.

Closely related to the shift in technological policy is the decentralization of industrial administration after the Cultural Revolution. The recent years have witnessed a trend of diminution in the role of the industrial ministries in the central government and ascension of the regional economic power[9]. The widespread small-scale enterprises entail a close supervision by local authorities rather than the remote control by central ministries. In addition there have been some political factors involved. In other words, the organizational decentralization was partly a planned reform and partly an unplanned outcome of

the weakened central authorities, the unstable relations between the central and local governments, and the frequently interrupted freight traffic during the chaotic days of the Cultural Revolution[1o].

After 197o the decentralization of industrial administration has been ascaladed to such a high degree that even many giant heavy-industry enterprises like the Anshan Iron and Steel Corporation, Shenyang Heavy Machinery Factory, and Shenyang No.1 Machine Tool Factory have been put under the dual control of the central ministries to which they originally belonged and the local or provincial governments of the districts where they are located[11]. However, the Chinese government has never made it clear to outsiders how such highly decentralized enterprises are operated and coordinated. While some observers have serious doubts as to the efficiency, or even the feasibility, of economic planning for the so-called cellular production structure in China, there are no obvious signs that the industrial development has been hindered by such a system.

In Chou-En-lai's report cited above growth rates are revealed for a few key industrial items over the decade of 1964-74. Those rates may be compared with the corresponding growth rates in the 195o's. As can be seen in Table 1, the annual growth rates in 1964-74 are lower than the rates in 1952-57, except for petroleum and cotton yarn. Of course, the period of 1964-74 includes the few chaotic years when industrial production declined instead of growing.

Table 1: Comparison of Annual Growth Rates for Selected Commodities (percent)

	1964-1974	1952-1957
Steel	8.2	31.7
Coal	6.6	14.4
Petroleum	22.3	27.3
Electric power	11.5	21.6
Chemical fertilizer	15.7	28.4
Tractors	2o.o	
Cotton yarn	6.3	5.1
Chemical fibres	15.7	

Sources: 1964-1974: Chou En-lai, "Report on the Work of the Government", Peking Review, No.4, January 24, 1975, p.22.

1952-1957: Kang Chao, The Rate and Pattern of Industrial Growth in Communist China, University of Michigan Press, 1965, Appendix Table C.

Although the available data do not permit us to compute the average growth rates for the years after the Cultural Revolution, we do know the rates of increase for some items in 1971, which was a generally normal year[12].

Steel	18.o %
Pig iron	23.o %
Petroleum	27.2 %
Coal	8.o %
Cement	16.5 %
Chemical fertilizer	2o.2 %

Except for petroleum the rates of increase in 1971 are still lower than the corresponding rates accomplished in the First Five-Year Plan period. The achievements are not as "spectacular" as the previous records; they are never-

theless quite remarkable as compared with the industrial developments in many other countries during the same time period.

The petroleum industry is an exceptional case because several rich oil fields have been newly discovered. China's total output of crude oil increased by 150 percent between 1970 and 1973. In the last two years she even managed to export oil to Japan, though the quantity was no significantly large. In the same time she imported from the West and Japan nearly $ 2 billion's worth of refining equipment and petrochemical plants. All these indications point to the fact that petroleum production is a rising star in China's industry and she will soon be a major oil exporting country.

It should be pointed out that while the Chinese planners have become more prudent in terms of speed they have not given up their basic strategy - concentrating on the producer goods production. As clearly manifested in Table 1, the growth rate of cotton yarn, by far the most important item in the production of consumer goods, is the lowest among the eight items. Moreover, the bulk of the increase in cotton yarn output took place in 1964-66, i.e. the period when the economy was gathering the recovery momentum after the deep depression but before the disruptive effects of the Cultural Revolution were fully felt. This can be seen from the estimated outputs of cotton yarn in various years (in 1,000 bales)[13].

1964	4,590
1966	7,070
1970	7,700
1974	8,500

From the output data growth rates may be derived for the three time intervals.

1964-1966	24.1 %
1966-1970	2.1 %
1970-1974	2.5 %

The rate of increase was so high in 1964-66 simply because the preceding depression was so serious that the average utilization rate of cotton spinning capacity in the country had sunk to less than 40 percent[14]. By 1966 the cotton textile industry was fully recovered. But the growth rate in the subsequent years has been maintained at such a low level that it barely matches the population growth. This explains why many tourists who have recently visited China report that the average quota of cotton cloth ration in China has been maintained about six meters per person for many years without any upward ajustment[15].

While for the industrial sector as a whole the achievements after the Cultural Revolution are considered satisfactory the performance of agriculture in the period is quite disappointing. Chou En-lai discloses a 51 percent increase in the total value of agricultural output between 1964 and 1974. This may be converted to an annual growth rate of 4.2 percent. It should be noted that the bulk of the increase took place in the years prior to the Cultural Revolution, reflecting the recovery momentum. Furthermore, non-grain crops scored better than grain crops.

The situation can be better understood by examining the official production statistics of grain crops which account for nearly 80 percent of the total sown area in the country:

1967	23o million metric tons[16]
197o	24o million metric tons[17]
1971	246 million metric tons[18]
1972	24o million metric tons[19]
1973	25o million metric tons[2o]

This performance is regarded as unsatisfactory for a number of reasons.

First of all, the recent records of grain production are unsatisfactory because they fall short of the population growth in the period. In August 1974, the head of the Chinese delegation to the World Population Conference in Bucharest revealed that the population in the PRC was about 8oo million[21]. Another member of the delegation gave the recent growth rate of the Chinese population as 1.7 percent per year[22]. Yet the growth rate that one can derive from the grain output figures of 1967 and 1973 is only 1.4 percent. Obviously, if the disparity between the two growth rates cannot be eliminated in the future the country will have an increasingly heavy burden to feed her people by importing food grains.

The recent performance of agriculture is considered unsuccessful in yet another sense. It is poorer than the previous records during normal years. According to the official data the average growth rate of grain procuction in 1953-57 was 3.7 percent[23]. If an adjustment is made to remove the overstatement due to the underreporting of farmland in the early years, the above growth rate may be scaled down to 2.3 percent[24]. Even if the adjusted rate is taken, it is still substantially better than the recent growth rate of 1.4 percent.

More important from a technical point of view is that the recent production of grains in the country appears to

be extremely disappointing when compared with the quantities of inputs devoted to the production. As is well known, the Chinese agriculture in the 195o's and early 196o's suffered either from the lack of modern inputs such as chemical fertilizers or from some inappropriate technological measures such as the disastrous irrigation systems. But this was not the case in the years after the Cultural Revolution. Having learned the lessons from their previous mistakes the Chinese planners began to adopt a sound and balanced technological policy concerning agricultural production in recent years. The period after the Cultural Revolution also saw an enormous augmentation in the supply of modern agricultural inputs such as new and better seeds, farm machinery, electricity, and chemical fertilizers. Unfortunately, the outcomes as manifested by the grain output figures do not appear to be consistent with the picture we see on the input side.

In the trip report of the U.S. Plant Studies Delegation which visited the PRC during the period August 27 to September 23, 1974, the American experts heartily hail the agricultural research and promotion works in China, which are described as both very extensive in scope and highly fruitful in result[25]. According to the information obtained by the delegation, the first high-yielding dwarf indica varieties of rice were introduced into commercial production in south China in the early 196o's, and the first seed of IR 8 was introduced into China in late 1967. They spread so rapidly that by 1973 they were being grown on 6.7 million hectares, or more than 2o percent of the total sown area of rice in the whole country[26]. In addition there are other new strains of dwarf rice varieties developed by Chinese scientists from their own breeding

programs. In fact the delegation saw very few tall-strawed rice varieties during their entire journey. Similarly, high-yielding winter wheat varieties have been developed since the 196o's. The improved strains were being grown in 2.5 million hectares in 1965 and they are believed to have covered much larger areas at present[27]. During 1973 and 1974, 5,ooo and 15,ooo tons, respectively, of seeds from several varieties of dwarf Mexican spring wheat were purchased and introduced. In some provinces, 6o to 7o percent of the area sown to corn is said to be growing the high-yielding hybrid strains[28]. In addition, the cultural practices of Chinese farmers are said to have improved and now appear to be sound and scientific to the American experts[29].

There have been numerous reports from Chinese publications about the improvements on existing irrigation systems and the building of many many new ones. Prior to the Cultural Revolution irrigation systems in China were not only poorly constructed but also preponderantly of the gravity type. As is well known, gravity irrigation is land-consuming, a drawback that is especially serious in countries like China where farmland is extremly scarce. In recent years, many old irrigation systems have been reconstructed and pumping installations have been added. The total capacity of power irrigation and drainage was 7.3 million horsepower in 1964[30] but it rose to 3o million horsepower by 1974[31]. There were less than 1oo,ooo power-pumped deep-wells in the northern plains in 1965 but the number was raised to 1.3 million by 1974[32]. According to independent estimates electric power consumption in agriculture rose from 2.5 billion kilowatt-hours in 1964 to 5.5 billion in 1971[33]; most of it was used for operating pumping facilities.

Because of their yield-raising effect, the supply of fertilizers deserves special attention. The total supply of chemical fertilizers in the PRC in 1964 was 7 million metric tons in gross weight or 1.4 million tons of plant nutrients[34], but the amount rose to 29 million tons in gross weight or 5.9 million tons of plant nutrients in 1973[35]. Nearly 9o percent of the chemical fertilizers have been applied to grain crops. In addition, Chinese farmers still adhere to their old tradition of using all sorts of organic fertilizers.

There are numerous official reports about the average yield increments per unit of fertilizer applied in the earlier years[36]. In 1959, the yield responses per kg gross weight of ammonium sulphate (21 percent) were 3 to 5 kg for rice and 2 to 4 kg for wheat. The yield responses were slightly higher in 1962-63, 4 to 6 kg for rice and 3 to 5 kg for wheat. Apparently, the stage of diminishing returns had not set in by then because of the small doses of fertilizers applied. Without similar data on yield responses of fertilizers for recent years one can only find some general indications from the aggregate data.

The amounts of nutrients from both native and chemical fertilizers applied in 197o-73 are estimated to be as follows[37] (in million metric tons):

	Nutrients from Native Fertilizers	Nutrients from Chemical Fertilizers	Total Nutrients
197o	4.o3	4.o8	8.11
1971	4.o9	4.64	8.73
1972	4.15	5.22	9.37
1973	4.21	5.89	1o.1o

Taking 197o as the base year, the cumulative total of nutrients applied over and above the 197o level is 3.87 mil-

lions tons (o.62 + 1.26 + 1.99) for the period 1971-73.If we assume that 15 percent of fertilizers have been distributed to non-grain crops the increment of nutrients for grain in the period would be 3.29 million tons (3.87 x o.85). Yet, for the same period, the cumulative total of grain output over and above the 197o level is 16 million tons, i.e. 6 million tons of 1971 plus 1o million tons of 1973. The implied marginal yield response is 4.86 tons of grain from each ton of nutrient applied, or just about one ton of grain from each ton of ammonium sulphate equivalent (in gross weight). This is a drastic decline from the yield responses reported for the 195o's and 196o's.

If we exclude the bad crop year of 1972, there are 16 million tons of incremental grains and 2.22 million tons of extra nutrients applied. The implied marginal yield response would be 7.2 tons of grains from each ton of nutrients, or about 1.5 tons of grains from each ton of ammonium sulphate equivalent (in gross weight). Even this represents an abnormally rapid diminution of returns in fertilizer application in view of the small dose per unit of area. If the returns continue to decline at such a rapid rate, it would not be long before China reaches the point at which it does not pay to increase fertilizer application.

On the basis of the scanty official data it is difficult to identify the factor or factors responsible for the retardation in agricultural production. Since there is no sign indicating that modern inputs have been misused or abused on a large scale, one would be led to suspect that there might exist some institutional elements which are not conducive to agricultural production. The whole problem might boil down to a matter of incentives

and it could not be remedied by the Marathone ideological indoctrination as some people have expected. In fact, the Chinese policy makers must have realized this serious problem. Thus a special direction was issued by the central organ of the Chinese Communist Party at the end of 1971, stressing three points: (1) Agricultural production units should not make excessive accumulation. (2) The government procurement quotas for farm products were not to be increased in the next five years. (3) The principle of "from each according to his ability and to each according to his work" should be strictly observed and the egalitarian tendency must be overcome[38]. More important, the new constitution passed by the Fourth National People's Congress in January 1975 guarantees the system of private plots in the rural areas.

To sum up, the experience of the Chinese economy after the Cultural Revolution proves that the system "works". But it works better in some sectors than others. Unfortunately, the sector in which it works least satisfactorily happens to be the most crucial sector for the whole economy. Until the Chinese government can successfully solve the problems in agricultural production the economy will remain vulnerable.

Footnotes:

1) He frankly conceded this in an interview with Edgar Snow. See Edgar Snow, "Talks with Chou En-lai, The Open Door", The New Republic, Vol.164, No.13 (March 27,1971) p.2o

2) Ibid.

3) Kang Chao, Agricultural Production in Communist China, 1949-1965, The University of Wisconsin Press, 197o, p.246

4) The figure was given by Anna Louise Strong in her "Let-

ters from China", as cited in Benecict Stavis, Making Green Revolution: The Politics of Agricultural Development in China, Cornell University, 1974, p.13.

5) Peking Review, 1975, No.4 (January 24), p.22.

6) Kang Chao, "Policies and Performance in Industry", in A.Eckstein, W.Galenson, and T.C.Liu, Economic Trends in Communist China, Aldine Publishing Company, 1968, p.585.

7) Op cit, p.579.

8) More large and medium-sized plants had been completed in the six years of 1953-58 than what have been accomplished in the last ten years. Besides, the average size of large projects, an open-end class, was very likely to be bigger in the 195o's.

9) See Audrey Donnithorne, "China's Cellular Economy: Some Economic Trends Since the Cultural Revolution", China Quarterly, No.52, October/December, 1972, pp. 6o5-19.

1o) See Frederick C.Teives, "Before and After the Cultural Revolution", China Quarterly, No.58, April/June, 1974, p.336.

11) Audrey Donnithorne, "Recent Economic Developments", China Quarterly, No.6o, December 1974, p.774.

12) "New Leap in China's National Economy", Peking Review, No.2, January 14, 1972, p.7.

13) Kang Chao, The Development of Cotton Textile Production in China, forthcoming, Chapter 1o, Table 1o-5.

14) Op cit.

15) For instance see L.G.Reynolds and others, Observations on the Chinese Economy, New Haven, December 1, 1973, pp.58 and 86.

16) Anna Louise Strong, Op cit.

17) Jen-min jih-pao, December 3o, 1972.

18) Jen-min jih-pao, January 1, 1972.

19) Jen-min jih-pao, December 3o, 1972.

2o) Peking Review, No.1, January 1, 1974, p.2.

21) Peking Review, No.35, August 3o, 1974, p.9.

22) Hsing-tao jih-pao, August 23, 1974.

23) The Chinese State Statistical Bureau, Ten Great Years:

Statistics of the Economic and Cultural Achievements of the People's Republic of China, 1960, p.120.

24) Kang Chao, Agriculture Production, p.227.

25) Trip Report of the Plant Studies Delegation to the People's Republic of China, submitted to the Committee for Scholary Exchange with the People's Republic of China, April 1975, pp.25-6.

26) Ibid.

27) Ibid.

28) Ibid.

29) Ibid.

30) Jen-min jih-pao, December 31, 1964.

31) Peking Review, No.1, January 3, 1975, p.11

32) Ibid.

33) A.L.Erisman, "China: Agricultural Development, 1949-1971", in People's Republic of China, An Economic Assessment, Congress of the United States, 1972, p.138.

34) Kang Chao, Agricultural Production, pp.151 and 156.

35) Kang Chao, "Production and Application of Chemical Fertilizers in China", a paper to be published by China Quarterly soon.

36) Jung-chao Liu, China's Fertilizer Economy, Aldine Publishing Company, 1970, pp.109-110.

37) Kang Chao, "Production and Application of Chemical Fertilizers in China", Table 4

38) Jen-min jih-pao, December 27, 1971.