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THE ECONOMIC OUTLOOK OF MAINLAND CHINA IN THE 1970'S*

KUAN-I CHEN**

CONTENTS

To assess the prospects for the Chinese economy in the 1970's we must first analyze the basic changes which have occurred in the economy and in economic policy during the past twenty years. We can then appraise the probable direction of Chinese economic policy for the 1970's and the prospects for the economy under such direction.

I. TRANSFORMATION OF ECONOMIC INSTITUTIONS AND POLICY SHIFT DURING THE PAST TWENTY YEARS

There were several phases of changes during the past 20 years. During the first phase, 1949–1957, the development of industry followed the Soviet model of emphasizing heavy industries. The sources of growth in agricultural output mainly came from the more intensive use of traditional methods of production. Nationalization of industries and collectivation of agriculture were virtually completed. Despite the disruptive effects resulting from such rapid changes in economic organization the GNP(1) managed to increase at an annual rate of about 9.0 percent for the period, 1950–57.

The period, 1958–1961, represented the second phase which started with the experiment of "big push" strategy, the Great Leap Forward. When the new communes rapidly came into existence during the Great Leap, 1958–59, the garden plots and livestock were confiscated and the rural free markets largely abolished;

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(1) The GNP growth rate was estimated at 8.9 percent for this period by Hollister. GNP was measured in constant market price (Hollister, p. 126)

household was no more considered as the basic unit of society. The excess of the commune system brought greater disruptive effects to the economy than the reorganization of institutions during 1949–57. In addition to these disruptive effects, expedients such as the backyard furnace, deep plowing, etc. combined with overemphasis on heavy industry, the withdrawal of Russian experts in 1960, and successive years of poor weather caused the Great Leap to end in deep economic chaos. This fiasco, however, did pave the way for a number of important changes in economic policy and rural organization. These changes have long-range significance to both economic and technical development in China.

The third-phase, 1961–66, started with the new policy in 1961–62 which gave priority to agriculture and consumer goods industries, especially those turning out goods for peasant consumption. Heavy industries were geared to support these two sectors. The sources of recovery and new growth in agriculture after 1962 came increasingly from greater use of modern technology like electrification, extension of irrigation and improvement of its effectiveness, chemical fertilizers, mechanization, and improved seeds. The commune system was greatly modified, including the reintroduction of private plots, to provide more incentives for the peasants. Economic planning was further decentralized.

In 1961 a policy of self-reliance was seriously pursued in response to the withdrawal of Russian experts; applied industrial and agricultural research was greatly encouraged resulting in a rising level of diversification and self-sufficiency in industrial products, especially machinery and equipments, in recent years. Prior to 1950 China's technical level was as a whole several decades behind that of Japan's. According to a study made by the Japanese Ministry of Foreign Affairs, the Chinese technical level in 1965 was 15 years behind Japan in machine tools and irons and steel, 10 years in hydraulic machines and chemical industry, and 20 years in automation (Takahashi, p. 59). Thus China has succeeded in reducing her technical gap relative to Japan during the past decade. In addition her machine building industry has grown substantially. In the 1950's China could only supply less than 15 percent of her domestic demand for machinery; she can now supply over 80 percent of her need of machinery (Cheng, China Quarterly, pp. 54–6).

The fourth phase, 1967-present, includes the Cultural Revolution and the return to normalcy. There are indications that China's economic policy since the end of the Cultural Revolution has been concerned with building up a new economic program (MacDougall, October 2, 1969, p. 43). By the beginning of 1970, the new program of industrialization of the rural areas had already been carried out on a fairly wide scale. The programs for development of industry was the further decentralization of industries, and the increase in the number of small and medium-size industries in the countryside. The emphasis of industry is, as it has been since 1962, on the production of chemical fertilizers, agricultural machinery and other food production aids. (The New York Times, Novemeber 2, 1969, p. 5; January 11, 1970, p. 3.)

The main purpose of the new policy is to make the commune a self-supporting unit. Every commune not only grows its own food but also produces its own fertilizers and tools (or purchases them from a nearby town). In addition it generates its own electricity, runs its own small factories, health schemes and primary schools. Expanded efforts were also made to expand roads, waterways, telecommunication, and health services and to construct more irrigation and water-control projects. (Far Eastern Economic Review, 1970 Yearbook, p. 105) Peasants were asked to mobilize their savings to finance these programs. A number of amalgamation of communes was reported. This will make the production unit larger and economically more capable of financing these investments. The needed skills for such programs, including birth control scheme, are to be supplied by the expansion of rural part-work, part-time vocational schooling and by the few millions of better trained city youths sent to the countryside during the past few years.

II. TREND OF ECONOMIC POLICY FOR THE 1970'S

The present economic policy continues to adopt the basic programs of "agriculture first" policy. The recent changes in the commune structure have been far less drastic than they were in 1958 and more consideration is given to local attitudes and traditions. Some lessons have been learned from the failure of the Great Leap. New small-scale plants are more sophisticated than the disastrous backyard iron smelters of 1958 and a market guarantee for their products is offered. Also more thought has been given to the selection of the best location for the plants. (Ibid, p. 106)

Do the current social and economic policies point to the trend for this decade or are they merely a step toward other drastic changes? To provide the answer we must analyze the relevance of these current policies in terms of the long-range social-economic policies for economic development expressed so often by the Chinese leadership during the past 15 years or so. These long-range policies include: (1) developing the rural areas and narrowing the gap in standard of living as well as the difference in mental attitudes between the country and town population, (2) employing the system of "mass line", the system of calling upon workers and peasants to take responsibility and initiative with less emphasis on material incentives, (3) the policy of simultaneous use of modern and traditional methods of production or popularly called "walking on two legs" and (4) "taking agriculture as the foundation and industry as the leading factor". (Ibid, pp. 103, 105)

The May 7, 1966 directive of Mao embraces the first policy which was obviously pursued with increasing vigor during the past year (MacDougall, October 2, 1969, p. 43). The second policy reflects the philosophy of the Great Leap period and has been incorporated into the current policies. The third policy has been employed in the past and was further emphasized after the withdrawal of experts from the U.S.S.R. in 1960. It responded to the need to industrialize in a way

that China could afford without outside help. The current policy of further decentralization and of building small industries in rural areas actually continues to pursue the goal of self-reliance and economic independence. The fourth was reported to have been initiated by Mao in 1957. He proposed that the most logical way for China to develop heavy industry was to use the rural areas both as a market and as a source of investment fund. Therefore the way to expand industry was to invest in industry the profits derived from the sale of agricultural and light industrial products. (Far Eastern Economic Review, 1970 Yearbook. p. 105) This policy was adopted four years later by the "agriculture first" policy, and continues to be a part of the current economic policy.

It is apparent that the current social and economic policies are not just measures designed to boost the economy for the immediate future but are part of a long range scheme. In view of these facts it is most likely that the current policies will represent the trend for the 1970's. In the event that Mao passes from the scene a new coalition form of leadership may adopt the present policy with some modifications. It is expected that ideological extremism will be tempered somewhat and the monetary incentive will be used to a greater extent.

III. OUTLOOK FOR ECONOMIC GROWTH IN THE 1970'S

What then are the prospects for China's economic growth in the 1970's? What will be the range of growth rates that could possibly be realized under different economic and political environments? The assessment should be made with the two following assumptions for the coming decade:

(1) No large scale war with a superpower.

(2) No major civil turmoil.

A. An Annual GNP Rate of About 6 Percent For the 1970's?

A growth rate of 6 percent is very close to the middle of the estimated range of annual growth rate of 5.5–7.2 percent for the period 1950–66 (Richman, p. 598) or of 5.2–7.0 percent for the period 1951–66, and is also close to the 6 percent rate (at least) estimated for the period 1949–66 (Gurley, p. 188). These rates reflect the actual economic performance for a fairly long period of sixteen or eighteen years. 6 percent is also close to the rate probably attained in 1966[2] which represented a year of new growth after the recovery from the 1960–61 crisis and the last relatively normal year before the main thrust of the Cultural Revolution. The new growth in 1966 also reflected the result of the new economic policy introduced after 1961 and was achieved on a more self-dependency basis than ever before. If it were not for the Cultural Revolution, this rate of growth would most likely have been substained into the following few years.

(2) Barry Richman estimated a GNP growth rate of at least 6 percent for 1966. He put the upper limit at 8 per cent (Richman, p. 616) Also see his estimates for aggregate GNP in various years (Richman, pp. 600–1) The latest estimate of Robert M. Field estimated the growth rate of industrial production for 1966 at 8.8–10.0 percent. (Field, p. 47)

The increase in the foodgrains production[3] during the period, 1962–66, did contribute to the overall economic recovery during 1962–65 and to the new economic growth in 1966. The agriculture performance for 1967 and 1968[4] was reported as rather good despite the interruption of the Cultural Revolution, and the 1969 harvest was estimated to be an unprecedentedly good one due to the wider use of Los Banos rice seeds, new wheat and corn strains of higher yield, increased use of fertilizer,[5] new irrigation projects, and favorable weather (The New York Times, October 26, 1969, p. 21 and January 19, 1970, p. 49C). If we compare the conservative estimates of foodgrain output in in 1966 to the preliminary estimate[6] of 1969 output the rate of increase in output should be between 2.3 percent and 5.6 percent for the period 1966–69. Thus the rather good performance in agriculture during the past three years would reflect the result of a continued basic improvement of the productive capacity for agricultural growth rather than the result of a temporary improvement in weather condition.

It appeared that the expanded effort on agriculture since 1962 has begun to show results. The past two decades saw the reorganization of rural institutions on an unprecedented scale; but now relatively stable rural institutions have finally emerged. The decade of 1970's should be a period of relative stability for rural organization in China. In view of the relative stability in rural institutions as well as the expanded effort on supporting agriculture under the current economic policy, the foodgrains output (or total agricultural output) may be able to increase approximately 2.5 percent[7] annually during the 1970's. This moderate prospective rate of increase will be sufficient to provide food for an annual population

(3) Total agricultural production date are not available and foodgrain output is used in lieu of total production. Foodgrains include rice, wheat, corn, sorghum, millets, other miscellaneous grains and tubers. The conversion ratio of tuber to grain is 4-to-1 grain equivalent.

(4) The following source reported a bumper crop for 1967 and an average harvest in 1968 due partly to the weather condition and partly to the unfavorable impact of Cultural Revolution. (*Far Eastern Economic Review, 1970 Yearbook, p. 110*)

(5) Latest estimates on chemical fertilizers consumption indicate that about 13–14 million metric tons were used annually during the period, 1966–68. Consumption for the first eight months of 1969 was around 12 million metric tons (Dawson, p. 132). Fragmentary data suggest that there were no letup in the use of chemical fertilizers during the remaining months of 1969. Thus it is very likely that the total consumption of fertilizer for 1969 would amount to 18 million metric tons. The consumption of chemical fertilizers was estimated to be 4.5 million metric tons in 1964 and 2.3 million metric tons in 1961 (Larsen, p. 246).

(6) One estimate in Hong Kong put the 1966 output at 178 million metric tons. (Current Scene, March 31, 1969, p. 8) The report of Hong Kong on 1969 output ranged from 190 to 210 million metric ton (The New York Times, January 19, 1970, p. 49C). If we use 190 million metric tons for 1969, the annual growth rate would be 2.3 percent between 1966 and 1969. If the middle of the range, 200 million metric tons, for 1969 is used, the annual growth rate would be 4.0 percent. If the upper limit, 210 million metric tons, is used the annual growth rate would be 5.6 percent.

(7) Pranab Bardhan estimated the annual growth rate for Chinese foodgrain output to be 1.9 percent for the period 1952–67. If unusally disastrous years of 1960 and 1961 were excluded, the growth rate would be 2.5 percent. These rates were accomplished during a period of fundamental rural transformation and interruptions on an almost unparallelled scale. See (Bardhan, p. 55).

increase of 1.5 percent to 2.0 percent, agricultural products for export, and raw materials for light industry. Output of light industry could be expected to increase about 5–6 percent and part of the increase would be available for export (Dernberger, p. 22).

Because foodgrains still made up about 15–20 percent of total imports in recent years, an incease in their production and the consequent reduction of food imports will mean a substantial saving in the foreign exchange position. Furthermore if foodgrain output were to increase at a rate of 2.5 percent during the period 1967–80, the annual net food export surplus would be somewhere between $600 million and $900 million. The stipulated range gives no allowance for diet improvement and the actual achievement within the range depends on the rate of population growth. (For details of estimates, see Part A of Appendix).

A 2.5 percent annual increase in agricultural production would provide an extra net export earning of $600–$900 millions from agricultural products and of $50–$100 million from light industrial products. These export earnings would go a long way toward meeting the need of additional foreign exchange for imports of machinery, equipment and industrial raw materials. They will contribute greatly to the annual expansion of heavy industry of 10–12 percent (Robert Dernberger, p. 23) necessary to provide producers goods and defense hardware commensurate with an investment rate of some 20 percent of GNP. This investment rate is close to that[8] estimated for 1965. Apparently an annual GNP growth rate of 6 percent can be accomplished with more or less the same investment rate as that realized in 1965–66 even if the gross (total) incremental-capital-output ratio[9] for the 1970's turns out to be as high as 3.2. In that case no greater saving rate than the current one is required to accomplish an annual GNP growth rate of approximately 6 percent.

When the communes and other local governments finally assume the full cost of health, education and welfare expenses under the current policies, the central government will be able to make substantial savings on these functions. With its new education and health policies, the central government might be able to reduce its total expenditure in a few years by as much as 15 percent-20 percent

(8) A 19-percent figure for 1965 could be obtained from Edwin Jones' data (Jones, p. 96). Most likely a rate of 19–20 percent was maintained in 1966 and in 1969.

(9) The net (total) incremental-capital-output ratio (ICOR) was estimated by Liu and Yeh to be 3.3 for the period 1952–57 and gross (fixed) ICOR to be 2.8 (Liu, p. 62). Hollister estimated a gross (fixed) ratio of 1.8 for 1950–57 and 2.3 for 1952–57. (Hollister p. 126). The ratio of 3.3 is rather high for a developing nation such as China which has carried out numerous labor intensive projects in both agricultural and industrial sectors. Even the gross (fixed) ratios of Japan and Taiwan were only 2.4 and 1.7 respectively for the period 1950–59. Jones' 1965 data (Jones, p. 96) would yield a 19-percent figure for the proportion of GNP in gross (total) investment. This figure may well represent the proportion for the period 1963–66. If we use Richman's lower estimate of GNP growth rate, 6.0 percent, for the period 1963–66 (Richman, p. 598) the gross (total) ICOR would be 3.1 for this period. If Richman's higher estimate of growth rate, 8.3 percent, is used, the ICOR would be 2.3.

(MacDougall, June 26, 1969, p. 706). If the ratio of government expenditure to GNP for 1957 (26 percent)[10] is used as the yardstick, the savings in expenditure may amount to 3.9 percent-5.2 percent of GNP. These savings could then be channeled to the investment sector, especially investment in heavy industry.

In case this scheme could only raise the government saving fund by an amount equivalent to 4 percent of GNP during the latter part of the 1970's, this would still be a boost to the capital formation sector. It would either accelerate the GNP growth rate beyond the 6 percent level or at least keep the growth rate from falling below that level. It seems the achievement of an annual growth rate of 6 percent during the 1970's is well within the realm of possibility for the Chinese economy to do so. The ingredients for this achievement are present, provided there is no substained idological extremism which would create disincentive effects on the peasants and workers. Compared to the Chinese economic performance since 1949 this is not an unrealistically high rate[11] to expect from its economy. With relative institutional and organizational stability the GNP might even grow less erratically in this decade than in the past.

B. An Annual GNP Growth Rate of 9 Percent For The 1970's?

The Chinese GNP was estimated to grow at an annual rate of 9 percent[12] during the period, 1950–57, despite the disruptive effects resulting from the rather rapid change in economic organization. (Hollister, p. 126) This period represents the heyday of her economic development. What are then the outlook of attaining such a relatively high rate of growth during the 1970's? Let us first assess the required saving and investment rate for such a GNP growth rate.

The gross (fixed) incremental-capital-output ratio (ICOR) was estimated to be 1.8 for 1950–57 and 2.3 for 1952–1957 by Hollister. A gross (fixed) ICOR of 2.8 was obtained by Liu and Yeh for 1952–57; the gross (total) ICOR was estimated to be 3.1 for the period 1963–66. (For details, see Footnote No. 9). It seems the ICOR may have increased gradually during the past two decades.

(10) This 26-percent rate was derived from an estimated state budget expenditure of 29 billion yuan (Godaire, p. 157) and an estimated GNP of 112 billion yuan (Hollister, 1967, p. 125). No data for state budget were published after 1960; 1958, 1959 and 1960 were not considered normal years. Therefore, the figures for 1957 were used here.

(11) Liu's exploratory estimate approximated a net domestic product of 71.4 billion yuan for 1952 and 108.1 billion yuan (1952 yuan) for 1965. A rate of 3.3 percent is derived for the period 1952–65. His reconstructed communist estimate yielded a rate of approximately 4.9 percent for this period (Liu, p. 50). This 6-percent rate would be a rather high rate to achieve if Liu's rate is used as a yardstick for the past performance.

(12) It was estimated that the pre-1949 peak output was surpassed in 1951 (Richman, p. 600) but not in 1950. Some readers may like to point out that this 9-percent rate might not have been achieved during 1950–57 if 1950 were a year under normal condition and the economy operating close to the capacity. But one should not ignore the fact that the U.S.S.R. had removed $1–$2 billion worth of industrial equipment from Northeastern China to the U.S.S.R. during 1945–6. In order to regain the pre-1949 peak output it, therefore, would require not only resumption of production to the former level from the existing plants but also rehabilitation and reconstruction of plants which required substantial investment expenditures.

The past record of ICOR, of course, does not necessarily provide us with a reliable clue to the prospective ratio for the coming decade. In addition there is no simple and direct relationship between the rate of investment, ICOR, and growth rate. Other factors such as the morale of the workers, the efficiency of utilizing existing productive capacity, the pattern of allocation of available investment funds, etc., would influence the growth rate which in turn would affect the ICOR.

The substantial increase in output over the present level, as required by a GNP growth rate of 9 percent, would need large scale capital investment to build new plants and to replace worn-out equipment. In view of the rather long gestation period of many capital-intensive projects, it would be prudent to take the view that ICOR in the coming decade would not be lower than that of 1963–66. In case the ratio turns out to be no greater than 3.0 during the coming decade, the required saving and investment would still have to be stepped up greatly to the level of about 27 percent of the GNP, as compared with the 20-percent level in recent years. Even the latter percentage is already quite high for a low-income country like China.

How could the Chinese government raise the national saving or its investment revenue by an amount equal to 7 percent of the GNP (or about $6.6 billion in terms of the 1969 GNP of $94 billion[13]) In view of the fact that the Chinese government has been sensitive to the potential repercussions resulting from a policy of raising tax rate, it may not be inclined to raise agricultural and other tax rates beyond the present levels. The expedient scheme would, then, be the gradual reduction of its subsidies to local units and communes on a number of functions such as education and health. This scheme may ultimately create a saving in government expenditures amounting to 3.9–5.2 percent of GNP for capital construction purposes.

It is very likely that at least a few years of time are needed to accomplish this scheme. Ironically, in some local areas the central government must initially absorb a greater burden for the health program; this represents a retrogression from the policy of transferring costs downward (Current Scene, December 15, 1969, p. 2). Even if the government enthusiastically pursues a policy of expenditure cutback during the 1970's, the first two years may not yeild any saving at all. The saving in expenditure may increase gradually and eventually amount to 3.9–5.2 percent of GNP during the second half of the 1970's. Taking the

(13) Richman estimated the GNP and per capita GNP to be $90 billion and $120 respectively for 1966. These figures were obtained by coverting yuans into U.S. dollars at an intranational purchasing power rate (Richman, p. 607). It was estimated that by 1969 the industrial production might exceed the level of 1966 by a narrow margin (Cheng, Current Scene, p. 4) and that foodrain output was significantly higher than in 1966 (The New York Times, January 19, 1970 p. 49C). (Also see footnote No. 6). A conservative educated guess would suggest that the GNP made some gain between 1966 and 1969 and probably increased at least as much as the population growth. The growth of population was estimated to be about 4.5 percent between 1966 and 1969. (Orleans, p. 15) If the "conservative educated guess' is correct, then 1969 GNP might be estimated at $94 billion, with per capita GNP stationary at $120.

1970's as a whole, the budgetary savings may amount to 3.1–4.0 percent of the GNP. This fiscal scheme probably opens the largest possible domestic source for tapping investment fund; but even the successful execution of this scheme could only hope to raise the annual saving and investment rate from 20 percent to 23.1–24.0 percent during the coming decade.

In order to succeed in this venture, the central government has to depend upon the cooperation of the communes and other local units in assuming the full costs of health and education, as well as administrative and welfare expenditures. The commune and local unit must now charge a higher price, or charge a price if none was charged previously, to finance these services; otherwise an additional local tax will have to be levied. If peasants and non-agricultural workers are not willing to forgo these services, their consumption of other goods and services will have to be reduced unless the increase in their productivity or income will be as much as the reduction in government subsidy during these years. These practices may have a net disincentive effect on the peasants and workers since their present level of consumption is still close to the one of subsistence.

Agricultural sector would provide another major source of finance for the required investment. Of course, the magnitude of fund that could be generated from the agricultural sector depends chiefly on the performance of this sector during the coming decade since the exports of agricultural products (mainly food products) and of industrial products based on agricultural raw materials make up the lion share of total export earnings. To sustain a GNP growth rate of 9 percent, average annual imports of machinery, equipment and industrial raw materials during the 1970's should be $850 million–$1,500 million above those in 1965–66.

In order to have a net export surplus of that magnitude the food grain output per capita during this period must be as high as 310–320 kilograms as compared with 295 kilograms for the period 1952–58. Table I shows the possible foodgrain output per capita in 1980 at various growth rates of population and grain output, projected from the per capita output of 283 kilograms in 1967. With an output growth rate of 3.5 percent, the output per capita in 1980 would be 365 kilograms and 342 kilograms at a population growth rate of 1.5 percent and 2.0 percent respectively. The average (annual) output per capita for the total period, 1967–80, would then be about 324 kilograms and 312 kilograms at the respective population growth rates.

With such a high rate of growth it is reasonable to expect that per capita consumption would also rise somewhat for diet improvement. Allowing 10 kilograms per capita for diet improvement in the form of poultry and livestock products, the net increase in per capita output over that of 1967–31 kilograms and 19 kilograms for the respective population growth rates—would be available as raw materials for light industry and for export. Thus depending on the population growth rate, the margin over the population growth and diet improvement would yeild $700 million to $1,500 million from food export surplus annually after the

TABLE I. POSSIBLE FOODGRAIN OUTPUT PER CAPITA IN 1980 AT VARIOUS GROWTH RATES OF POPULATION AND FOODGRAIN OUTPUT BETWEEN 1967* AND 1980. (IN KILOGRAMS)

Annual Increase in population (%)	Annual Increase in Foodgrain Output (%)						
	1.0	1.5	2.0	2.5	3.0	3.5	4.0
1.00	283	310	331	353	376	401	426
1.50	257	283	302	321	342	365	388
1.75	249	274	292	311	332	353	376
2.00	242	265	283	302	321	342	364
2.50	224	249	266	283	301	321	342

* Per capita foodgrain output was estimated to be 283 kilograms for 1967.

Source: Foodgrain output for 1967 was put in the range of 190–210 million metric tons. The middle figure, 205 million metric tons, in that range is used here. See *Far Eastern Economic Review, 1969 Yearbook*, p. 150
Population in 1967 was estimated at 724.9 million. See Leo Orleans "Propheteering: The Population of Communist China" *Current Scene*, December 15, 1969, p. 15.

Note: According to Owen L. Dawson, foodgrain output for 1967–68 was estimated to be 214 million metric tons and the population at mid crop years to be 754 million. The per capita foodgrain output would be 284 kilograms for 1967–68 which is very close to the 283 kilograms used in the above table. See Dawson, Owen L. *Communist China's Agriculture*, Praeger Publishers, 1970, Table 14, p. 211

allowance for the increase of chemical fertilizer import, provided the 3.5 percent in foodgrain output can be achieved. (For details of estimates see Part B of Appendix). The output of light industry could then be expected to increase about 8–9 percent; part of the increase would be available for export providing additional export earnings of $90–$180 million. The total increase of export earnings would contribute heavily to the required expansion of heavy industry in the neighborhood of 15 percent per year. Thus a 3.5 percent growth rate in foodgrain output would more or less cover the increased foreign exchange need.

If the total net increase in foreign exchange would be devoted to capital formation in the form of imported plants and equipment, the annual investment rate as a percent of GNP could be increased by 0.5–1.1 percent during the 1970's. Adding this investment percentage to the projected 23.1–24.0 percent associated with the fiscal scheme mentioned above, the annual gross investment rate for the economy would reach the level of 23.6–25.1 percent during the 1970's. Even these rates, if ever attained, still fall short of the required investment and saving rate of 27 percent by 1.9–3.4 percent.

Is it possible to reach a growth rate as high as 3.5 percent in the agricultural sector in the 1970.s? The present expanded rate of increase in agricultural inputs would most likely ensure a growth rate of 2.5 percent. However the heavy industry base in China today is simply not large enough to provide all the modern inputs required for a growth rate of 3.5 percent in agriculture without greatly affecting its

supply of inputs to other sectors unless the expansion of machine building industry during the past decade has been greater than we have anticipated. (For explanation, see Part C or Appendix).

Thus for any growth rate beyond the 2.5 percent, much depends upon a host of such unknown factors as the morale of the peasants, the improvement in the incentive system in rural areas, the rate of extension of improved seeds which offer a sure way to attain significantly higher yeilds, and weather conditions. Since a considerable degree of ideological extremism still exists in China, such intangible factors as the morale of the peasants and the incentive system are not likely to be very favorable there today and are not expected to be so in the immediate future. It is doubtful if the desired growth rate of 3.5 percent in agricultural sector could be realized during the 1970's.

Another source of finance for the required investment is to obtain long-term loans from other countires. Foreign loans serve the dual purpose of filling both saving and foreign exchange gaps. Due to the policy of economic independence, China thus far has not made any serious attempt to obtain large scale long-term loans for imports from the West. In general China's reputation for honoring its trade agreements and commitments, including payment, has been rather good. (Eckstein, p. 272). It was estimated that China may be able to obtain some loans from Western and Japanese enterprises in 5–7 years (medium) term with export credit guarantees from their governments. The exact magnitude of such loans for imports of industrial plants on an individual basis would of course depend on the ability of Western and Japanese enterprises to ignore U.S. pressure attempting to prevent the extension of medium-term credit to China. Since U.S. further relaxed its embargo on nonstrategic trade with China toward the end of 1969, it should not be long before the relaxation of such restriction on medium-term credit follows suit.

In case Mainland China makes a serious attempt to seek loans from the West and Japan, it may succeed in the coming decade in obtaining medium-term loans of up to $2 billion with a grace period of five years. Even loans of such magnitude would only amount to $200 million per year at the most. They would enlarge China's imports of needed machinery and equipment by 10 percent annually during the decade of 1970's, however their contribution to the total saving and investment picture is not significant. Any foreign long-term credit could only come from intergovernmental loans; but any large scale extension of such loans is ruled out for the foreseeable future unless some dramatic change in China's political relation with capitalist industrialized countries occurs during the first half of the 1970's.

One more policy could be pursued by China during this decade is to develop the labor-intensive industries and handicrafts for export to the affluent Western nations. The labor-intensive modern industries such as sporting goods, musical instruments, gourmet foods, clothing articles, electronics, and optical goods offer China a favorable competitive position in the world market. The expansion of handicraft goods such as arts and crafts, unique clothing articles, jewelry, rugs,

etc. also have good prospects for the export market. These are the industries in which China has a comparative advantage. However before large scale commercialization of such products can be realized, great effort in the areas of quality control, style, and marketing organization must first be made.

The recent partial relaxation by the U.S. on the embargo of non-strategic trade with China may signal the full-scale resumption of non-strategic trade for a later date. Ultimately the exports of these labor-intensive products to the Western nations, including U.S.A., would provide China with foreign exchange earnings of a few hundred million (U.S.) dollars to import machinery and equipments for capital formation. However, if China were to pursue this direction of foreign trade seriously in the immediate future, the earnings from these items would not be significant until the latter part of this decade.

Judging from the assessments above, it is most likely that China would not be able to generate sufficient investment fund, from both the internal and external sources, to finance the required investment rate of 27 percent of GNP. In the mean time the intangible factors—the morale of the peasant and workers, the incentive system and the efficiency of utilizing existing productive capacity—in China do not seem to be unusually favorable toward economic growth. It is highly doubtful that she could attain an annual GNP growth rate of 9 percent in the 1970's.

C. Future Outlook For The Economy

Thus the Chinese economy may be able to achieve an annual GNP growth rate of somewhere between 6 percent and 9 percent during the 1970's with the greater likelihood of a rate not much higher than 6 percent. The GNP may have a fairly good chance of reaching $180 billion (1966 U.S. $) or may be even as high as $190 billion in 1980 as compared with $94 billion in 1969 (1966 U.S. $), Table II. But even these levels of GNP would only amount to about 20 percent of the U.S.

TABLE II. PROJECTED ESTIMATES OF GNP IN 1980 AT VARIOUS GROWTH RATE AND PROJECTED ESTIMATES OF PER CAPITA GNP IN 1980 AT VARIOUS GNP AND POPULATION GROWTH RATES BETWEEN 1969 AND 1980

Annual Growth Rate of GNP	Projected Estimates of GNP in 1980 (In 1966 U.S. $) (in billion)	Projected Estimates of Per Capita GNP in 1980 (in 1966 U.S. dollars) At The Following Annual Growth Rates of Population				
		1.00%	1.50%	1.75%	2.00%	2.50%
4%	145	166	157	153	149	141
5%	161	184	174	170	165	156
6%	178	204	193	188	183	174
7%	198	226	214	209	203	193
8%	219	251	238	231	225	213
9%	243	278	263	256	249	236

Source: See Footnote No. 13 for the estimates of GNP and Per Capita GNP in 1969. The GNP was estimated at $94 billion (in international purchasing power rate in 1966) and the Per Capita GNP at $120 in 1969.

GNP in 1968 and 1969.

In recent years the value of China's import and export has been close to 4 percent of the GNP. The pursuance of a policy of import-substitutes may reduce the import need for a growing number of products. However the expanding capital investment necessary for an investment rate of 20–27 (of GNP) would require a large expansion in the import of sophisticated machinery and plants. Thus, it is anticipated that the volume of trade would grow as fast as the GNP, and the value of foreign trade in 1980 would also be around 4 percent of the GNP. The total volume of Chinese foreign trade would, therefore, reach a level of $7–$8 billion in 1980.

It is anticipated that the foodgrain output would increase at an annual rate of 2.5 percent, or somewhat higher, and reach a level of 290–300 million metric tons in 1980. Modern heavy industrial output is expected to grow at a rate of about 12 percent while the growth rate of modern light industrial output is projected at about 6 percent. The aggregate output of modern (manufacturing) industry would, therefore, increase at a rate of 10 percent. (See Part D, Appendix). With such a growth rate, the modern industrial output would reach a level of $48 billion by 1980. Because the agricultural sector will grow only at a moderate rate, it is expected that by 1980 this sector will account for about 30 percent of the GNP, as compared with about 40 percent of the GNP in recent years. The value of the modern industrial output would make up 24–27 percent of the GNP in 1980, as compared with 17–18 percent of GNP in recent years. (See Part D, Appendix). It is expected that small-scale industries in communes would be developed at a rapid rate. By 1980 communes will be more self-sufficient as economic units than at the present time.

The per capita GNP in 1980 would be within the range of $190–$210 if the population grows at an annual rate of 1.5 percent; this would represent a gain of 60–75 percent over the $120 level in 1969. However with a population growth rate of 2.0 percent, the per capita GNP would be $180–$200, thus reducing the gain to 50–66 percent. With a respectable growth rate of 6–7 percent in the 1970's the average Chinese citizen on the Mainland would find himself still living close to the subsistence level by 1980.

One crucial factor which would greatly affect the future performance of the economy is the success or failure in birth control. The other crucial factor is the question of ideological extremism versus managerial, technical and economic rationality. The prevailing ideology in China continues to deny self interest and material gain[14] as major motivating forces for managers, technicians or workers.

(14) The Chinese structure of material incentives in industry and agriculture is much the same as the Russian but the Chinese have not, however, pushed material incentives to the same extent as the Russians (Hoffmann, p. 117). In the past during periods of ideological extremism, when the nonmaterial incentive schemes were emphasized and material incentive schemes deemphasized, the performance of the economy was generally poor. It is expected that the effectiveness of nonmaterial incentives in raising output would be even poorer in the future than in the past. Thus greater emphasis on material incentives is a requisite for the rapid future growth of the economy.

This aspect of ideology is in basic conflict with effective management and efficient enterprise performance and would, therefore, hinder the efficient performance of the economy. If ideological extremism could be abandoned or at least greatly compromised in the process, the Chinese economy would be in a better position to achieve an impressive, self-sustained growth rate in the future.

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APPENDIX

Part A: Foodgrain Output At 2.5 Percent Growth Rate

The per capita foodgrain output was estimated to be about 283 kilograms in 1967. In that year probably the value of food exports was close to the value of food import, and the net food exports, if any, were minimal. If we assume an annual growth rate of 2.5 percent for foodgrains during 1967–80, by 1980 per capita output would be 302 kilograms, 311 kilograms or 321 kilograms at a population growth rate of 2.00 percent, 1.75 percent or 1.50 percent respectively, Table 1. In order to save calculation, we may take the *average* of the 1967 and the 1980 per capita outputs to represent the *average* of output per capita for the period 1967–1980. The *average* for this period would be 293 kilograms, 297 kilograms and 302 kilograms at the respective population growth rates. The average per capita output was 291 kilograms for 1952–57 and 318 kilograms for the exceptionally good crop year, 1958. The average per capita output for the period 1952–58 was 295 kilograms. The import of foodstuffs averaged about $23 million for 1955–57 and the export of foodstuffs (excluding $79 million of inedible livestock products and tabaccos) about $505 million, given an average yearly foodstuffs export surplus of $482 million. For 1958 the import of foodstuffs was $34 million while the export was $592 million (excluding $81 million of inedible liverstock products and tobaccos), leaving a surplus of $558 million. The surplus was $566 million in 1959 (excluding $80 million of inedible livestock products and tobaccos). According to another source, the surplus in 1959 was $820 million (Price, p. 586)

The estimates of foodgrain export earning for the period, 1967–80, are based on the relationship between foodgrain output per capita and food export earnings

which existed during 1952–59 and in 1967. It also gives due allowance to the fact that even if per capita output remained unchanged, the greater total population in 1967–80 would provide greater export capacity in this period than in the period 1952–59. At an annual growth rate of 2.5 percent no allowance is made for the improvement of diet. Therefore, depending on the population growth rate, the annual food export surplus could be somewhere between $600 million and $900 million for the period 1967–80.

Part B: Foodgrain Output At 3.5 Percent Growth Rate

If we assume an annual growth rate of 3.5 percent for foodgrains during 1967–80, by 1980 per capita output would be 342 kilograms, 353 kilograms and 365 kilograms at a population growth rate of 2.00 percent, 1.75 percent and 1.50 percent respectively, Table I. Again we take the *average* of the 1967 and the 1980 per capita outputs to represent the *average* of output per capita for the whole period 1967–80. The *average* for this period would come to 312 kilograms, 318 kilograms and 324 kilograms at the respective population growth rates.

A growth rate of 3.5 percent in foodgrain is considered a rather successful one and some improvement of diet is bound to happen. If 10 kilograms is given for such purpose, the *average* of output per capita for 1967–80 would be reduced to the net level of 302 kilograms, 308 kilograms and 314 kilograms respectively. Based on the same method as used in Part A of the Appendix, the annual food export surplus would be estimated at somewhere between $1,000 million and $1,800 million depending on the population growth rate.

At a growth rate of 3.5 percent, total foodgrain output would increase from 205 million metric ton (M.M.T.) in 1967 to 320 M.M.T. in 1980, an increase of 115 M.M.T. In order to achieve this output in 1980, the use of fertilizer must also be greatly increased. Assuming one half of this 115 M.M.T. would come from improved seeds, irrigation, expanded acreage, etc., the remaining 58 M.M.T. must depend on chemical fertilizers. Given a ratio of 1 M.M.T. of fertilizer to 2 M.M.T. of foodgrain, the supply of fertilizer should be 29 M.M.T. in 1980. In 1967 the fertilizer imports amount to 3.5 M.M.T. while domestic production was 6.0 M.M.T. Projection of the past rate of increase in domestic production would put the output at 16 M.M.T. by 1980. Fertilizer imports must therefore be stepped up to 13 M.M.T. by 1980. During the period, 1968–80, the annual import level would exceed the 1967 import level (of 3.5 M.M.T.) by about 5.0 M.M.T. on the average. With a price of $60 per ton including freight, insurance,

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Sources: Part A & Part B

1. Orleans' population figures are used here. See (Orleans, p. 15)
2. Foodgrain output for 1967 is assumed to be 205 million metric tons which represents the middle of the estimated range of 190–220 million tons. See (Far Eastern Economic Review, 1969 Yearbook, p. 150)
3. Foodgrain output for 1952–57 are the estimates of O.L. Dawson. See (Jones, p. 93)
4. Import and export values are compiled from Eckstein's data. See (Eckstein, pp. 106–7; 114–5)

etc., the average annual *extra* cost of importing fertilizers (over the cost of 1967) would amount to $300 million. Deducting from the annual net food export earnings citied above, net annual earnings of $700 million—$1,500 million would be obtained.

Part C: Estimates of Fertilizer Requirement And The Capacity of Heavy Industry.

According to the estimates presented in Part B of the Appendix, by 1980 the total required supply of chemical fertilizers would be 29 M.M.T. higher than that in 1967. Thus between 1967 and 1980 the annual increase of fertilizer production capacity would average about 2.2 million ton. The annual cost of constructing such additional capacity would be about 1.93 billion (1957) yuan which would amount to 46 percent of the estimated net fixed investment 4.2 billion (1957) yuans allocated to heavy industry in 1965. In the meantime heavy industry sector is also expected to step up its support to industries producing insecticide irrigation pumps, etc. which normally go together with chemical fertilizers. It is obvious then the heavy industry sector will be overburdened by the large order of machinery and equipments for fertilizer production if this plan is to be implemented. Consequently either the heavy industry sector will be compelled to reduce its supplies to a number of other industries, or the expansion of fertilizer production capacity must be curtailed.

An increase in the imports of fertilizer would of course reduce the burden of the heavy industry sector but the ability to import additional large amount of fertilizers depends on the realization of the increase in foodgrain output per capita. Thus there is no assurance that additional foreign exchange will be available for such increased imports prior to the actual increase in foodgrain output.

So far our estimates are based on the rather optimistic assumption that one half of the additional 115 M.M.T. of foodgrains would come from improved seeds, irrigation, etc. If we accept the (less optimistic) assumption that only four-tenths of the additional foodgrain would come from improved seeds, irrigation, etc. the required supply of fertilizers in 1980 would be 34.5 M.M.T. higher than that in 1967. Thus between 1967 and 1980 the annual increase in fertilizer production capacity would *average* about 2.65 M.M.T. The annual cost of constructing these new facilities would amount to 55 percent of the net fixed investment funds allocated to heavy industry in 1965. The adverse effects on the other industries would be so great that modification on the fertilizer production goal will have to be made.

Sources: Construction cost of fertilizer plant, see (Walker, p. 45). Total net fixed investment in 1965 yuan, see (Eckstein, p. 164). Convesion factor to 1957 yuan, see (Liu *v* Yeh, p. 235). The share of fixed investment in heavy industry for 1965 was assumed to be the same as in 1957. For 1957 ratio, see (Hollister, p. 128)

Part D: Estimates of Foreign Trade, Foodgrain Output and Modern (manufacturing) Industrial Output

The value of China's foreign trade has amounted to 4.0 percent of GNP in recent years. Because of the policy of economic independence, this rate may remain the same in 1980. Thus, with a GNP of $180–$200 billion in 1980, the foreign trade would be in the neighborhood of $7.2 billion—$8.0 billion by 1980.

Foofgrain output was estimated to be $205 M.M.T. in 1969 (See Table I, text). With a growth rate of 2.5–3.0 percent it may reach the level of 290 M.M.T.—300 M.M.T. in 1980.

Heavy industrial output is expected to grow at a rate of 12 percent while the growth rate of light industrial output is projected at 6 percent. Heavy industrial output made up about 70 percent of the total modern manufacturing output while light industry constituted 30 percent. (Richman Table 7–6, p. 620. For 1965). The aggregate manufacturing output should, therefore, increase at a rate of 10 percent. If modern (manufacturing) industrial output made up about 18 percent of GNP in 1969, the value of modern industrial output would amount to $17 billion in that year. At a growth rate of 10 percent it may reach the level of $48 billion in 1980, and would thus account for 24–27 percent of the projected GNP of $180–$200 billion. The 18-percent figure mentioned above approximates the 1957 figure as reported in (Richman, p. 617) and the 1967 figure as reported in (Richman, p. 658)

Agriculture production in recent years probably still made up 40–45 percent of the GNP. (Richman, pp. 617–8). If agricultural output grows at an annual rate of 2.5–3.0 percent while GNP at a rate of 6–7 percent during 1969–1980, agriculture would only account for 27–33 percent of the GNP in 1980.