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THE STRATEGY OF ECONOMIC DEVELOPMENT IN COMMUNIST CHINA RETROSPECTIVE AND PERSPECTIVE

KIA-NGAU CHANG

The Communists gained control of the mainland Chinese government in 1949. Their avowed goal was to make China independent and strong economically and politically within a socialist framework. This paper will discuss the various strategies the Communists have employed to foster economic growth and change the economic structure of China. As a background to the discussion of the development strategies it will be useful to consider the condition of the economy which the Communist regime inherited. At the same time it is possible to consider, for purposes of comparison, the economic plans and progress of the Nationalists prior to World War II.

I. THE CHINESE ECONOMY IN 1949

The Nationalist regime, though inheriting an economy torn by civil war, was permeated by Dr. Sun Yat-sen's Three Peoples' Principles. Particular emphasis was given to the Principle of Peoples Livelihood, that is, improvement in the standard of living. There were a great number of people in the country, foreign educated and leaders in their fields, who were anxious to work with the government to promote the national welfare. Though the promise of economic change was bright, new problems soon darkened the horizon. The Nationalist regime was unable to bring about the unification of the country by subduing the powerful warlords. The countervailing forces were too strong for Chiang Kai-shek's Northern Expeditionary Force. It had been weakened by the split off of the pro-Communist elements and was obstructed by the Japanese in North China. In addition the Western powers were antagonistic toward the Nationalist regime because of incidents provoked by its pro-Communist elements. The Nationalist regime was forced to be content with the warlords' promises of loyalty—the regime could not afford to prolong the campaign. Immediately after the completion of the Northern Expedition a conflict between the Nationalist Government and warlords and intransigent Nationalist generals broke out over several issues. This ignited a number of civil wars throughout the country and resulted in a large increase in military expenditures and budget deficits for the central government. Already strapped for funds by indemnities and loan payments inherited from the Manchu Dynasty,⁽¹⁾ the additional money for the military precluded any effective investment in rehabilitating the economy. Coupled with the ravages

(1) Loan and indemnity payments were 33 percent of government expenditures in the budget year 1928-29.

of the civil war the rural economy deteriorated rapidly and with it, the livelihood of 80 percent of the population. Foreign trade was also heavily affected; 50 percent of China's exports were agricultural.

It was not until 1935 that Chiang Kai-shek was successful in suppressing the major revolts and driving the Communists out of the Yangtze Valley. In the interim many plans had been made and organizations established to revive the economy. A National Economic Conference of businessmen and bankers was convened in 1928. In 1929 the Kemmerer Commission was invited from the United States to assist China in improving its taxation, currency, and banking systems. The National Economic Council was set up in 1933 with divisions of hydraulic engineering, agriculture, health, cotton, and sericulture. Particular emphasis was placed on the questions of land tenure, land taxation, agricultural credit, and marketing. Foreign assistance was obtained in many fields through the League of Nations. In 1935 Chiang initiated a National Economic Reconstruction Movement; it was to be a massive private and public effort to improve the national economy. The one crowning achievement of the period was the unification of the silver currency. Progress was also made in communications, (railway mileage increased by 42 percent from 1927 to 1936), in tax reform and in banking. The Central Bank of China was established and all bank deposits increased 20 percent in the 10 years ending in 1936. Again however, a bright promise was crushed by war, the Japanese attacked in 1937 and all matters save those directly connected with defense were forgotten. Little could be accomplished in the industrial and agricultural sectors during the Nationalist period—total industrial growth is estimated to have been only 5.6 percent between 1927 and 1936. The almost total dependency of agriculture on natural conditions was in no way altered by the Nationalists.

The Sino-Japanese War and subsequent internal struggle levied a heavy toll on the Chinese economy. It is widely held that industrial output in 1949 was less than in 1936. The factories in the coastal cities were largely intact, however the Russians carried away most of the industrial machinery in Manchuria, the only area with the semblance of an industrial base. Agriculture fared relatively better; there was little change in the rural sector except in those areas directly affected by the war. The most serious consequence of the fighting was the state of hyperinflation which prevailed in the economy. A retail price index for Chinese cities shows a figure of 287,700,000 for 1938; 1937 is the base year for the index.

II. THE COMMUNIST STRATEGY OF ECONOMIC DEVELOPMENT

To casual observers of Communist Chinese economic development there appears to be little reason why the regime should pursue a strategy which is characterized by fits and starts rather than one which is characterized by steady sustained movements. My study of this shows that the path pursued by the Chinese was

based on Mao Tse-tung's ideological goal of collective socialism. This ideology is a synthesis of Karl Marx's social collective theory and classical Chinese teachings on ethics and the role of government. Practical circumstances however, at times dictated a shift in the strategies used to achieve the goal of collective socialism. These circumstances can be classified as 1) the desire to shorten the development process of an underdeveloped country; 2) successive seasons of bad weather; 3) changes in the international environment.

1. CONSOLIDATION OF POWER—UNIFICATION OF THE NATION AND STABILIZATION OF PRICES

As mentioned Above, continued internal strife was primarily responsible for the Nationalist regime's failure to improve the economy. The Communists, learning from this and having more military strength at that time than had Chiang, made political unity an immediate goal. Pro-Nationalist generals, leaders of secret societies, and antagonistic landlords were eliminated. Control was established in the border areas. Every class of people was organized into a group under Communist party control and a Chinese People's Consultative Conference was created to link up minority party and non-party personnel from other class backgrounds. By and large the Communists were successful in establishing internal peace and maintenance of it has not consumed large portions of their resources.

The second pressing problem was to control the rate of inflation; this had cost the Nationalists a number of their supporters after the war. In a hyperinflationary situation the most immediate problem is to establish people's confidence in the value of the currency. This was accomplished by promulgating a national budget in 1949 which was nearly balanced. The deficit was only 11.4 percent.⁽²⁾ This was taken by the people as evidence that the Communist Government was sincere in its attempts to halt the ravages of inflation. The success of this measure was nearly immediate; the rising price level was halted by March 1950 and even declined thereafter. Since the establishment of the government controlled distribution system the commodity price index has, of course, continued to remain stable and open inflation has been avoided. The twin strategies of political unity and price stability have contributed greatly to the progress of economic development; these successes have enabled China to weather series of bad crops and production failures.

2. THE EMPHASIS ON INDUSTRIAL DEVELOPMENT 1953–1959

The policies adopted during the period of consolidation, 1949 to 1952, were remarkably successful. By 1952 all sectors of the economy returned to their pre-1949 production peaks, and the battered railway system was restored to operation. A nationwide system of taxation was enforced and a stable currency introduced.

(2) 11.4 percent = (Revenues—Expenditures)/Revenues. Revenues includes bond subscriptions.

A tolerably even distribution of available food and clothing was established. The government succeeded in gaining control over the "Commanding Heights" of the economy—banking, trade, transportation, and key industries. The most important achievement of these initial years however, was the economic unification of mainland China. This greatly facilitated the transformation of the economy to a Soviet type command economy. The basic element underlying the Communist industrialization strategy was to organize agriculture so that the maximum surplus was able to be collected from this sector and then used for internal investment in industry and to pay for plant and machinery imports. This strategy was implemented during this period in three ways. First, the Five Year Plan coupled extensive Soviet assistance with sizeable budgetary investments in heavy industry. Secondly, agriculture was reorganized on a collective basis. Thirdly, the Great Leap Forward attempted to institute extensive industrial development in the countryside.

Soviet Assistance and the First Five Year Plan—

The signing of the Sino-Soviet Treaty of Friendship and Alliance in February 1950 was followed in the next few years by several agreements pertaining to trade, the supply of Soviet machinery and equipment, the provision of Soviet technicians and the training of Chinese personnel. In 1950 the Soviets agreed to implement 50 industrial projects and in 1952 added another 91 projects. Based on this Soviet assistance Communist China announced the outline of her First Five Year Plan to begin in 1953. The intent of the Plan was to accelerate industrialization by allocating almost all efforts and resources to heavy industry. According to the State Investment Plan 61 percent of government investment was for industry, (88.8 percent of which was for heavy industry), while investment in agriculture was only 6.2 percent.

Collectivization of Agriculture—

Despite the fact that most industrial targets of the First Five Year Plan were achieved and some surpassed, agricultural production increased by only 24 percent in the period. On the other hand industrial production, including factory and handicraft output, is estimated to have grown at least 85.9 percent. To compare the two sectors would be somewhat misleading due to the difference in their initial absolute size. Agricultural performance considered by itself was still disappointing. Output of food grains increased by only 19.8 percent while the population increased by 11 percent. The reasons for the poor showing of the agricultural sector were the natural calamities in 1953, 1954, and 1956 and the lack of equipment, fertilizer, and infrastructure, and incentives for peasants to fight them. Lack of incentives can be traced to the absence of consumer products; lack of infrastructure, (flood control and irrigation) was a direct consequence of the continued neglect of the agricultural sector by investment planners. In the last two years of the Plan State procurements of grain and taxation in kind fell to 25.1

percent of the value of all grain products compared to 29.1 percent in 1953–54. This has a serious effect on both the supply of food to urban areas and on government revenue. Moreover, the decline of agricultural export surpluses affected the trade balance with the Soviet Union and the repayment of the Soviet credits. This resulted in a reduction of imports of the producers goods needed for industrialization and necessitated an increase in Chinese exports of the same consumer goods people's subsistence depended on. Mao Tse-tung's response was to speed up the formation of agricultural collectives in 1955–56, to implement the advanced collective system in agriculture in 1956, and to launch the Great Leap Forward in 1958–59.

The movement toward collectivization began in the early 1950s. Following the completion of land redistribution in 1953 the regime began to promote cooperativization in farming. It began with the establishment of mutual aid teams, a purely production organization. The teams were formed by groups of farmers who helped one another with equipment or labor for specific purposes or at certain times of the year and averaged about 20 households per team in 1952. These temporary organizations were soon made permanent. The cooperative movement was initiated in 1953–54 and grew rapidly. It started with cooperative farms formed by groups of 20 to 40 households. This type of cooperative farm was allowed to retain a category of property income, namely, part of the output of the farm was distributed to its members on the basis of their initial land holdings and other means of production which they had contributed to the cooperative. Such property income however, was not permitted to exceed the share of product based on the amount of labor performed. The transition from these cooperatives to larger and more highly organized types was initiated in 1956. This larger cooperative contained 100 to 300 households and was actually formed by the merger of a number of the smaller type cooperatives. Distribution on the basis of property contribution was eliminated completely, though peasants were compensated for their contribution of animals. By the end of 1956 88 percent of peasant households were members of large cooperatives. These became the basic unit in the countryside. Collectivization of agriculture was almost completed, though the Chinese preferred to call the system cooperativization of an advanced type. Land, farm tools, and draft animals were collectively owned, and the members were paid according to the number of their workdays with the cooperative. Each member household was allowed to retain a small plot of land for its own use. The total amount of these plots was not allowed to exceed 5 percent of the land area of the cooperative.

Mao Tse-tung's purposes for speeding up collectivization were; 1) to mobilize the surplus labor power available in the slack seasons, especially on small scale irrigation works at the village level—the building of ditches, ponds, canals, small dams, and reservoirs; 2) to effect more economical management of the agricultural unit by pooling small fragmented plots into fields of a more efficient size; 3) to marshal the savings of cooperative members for productive investment not

feasible on an individual basis but which would benefit everyone; and 4) to develop a better social welfare system by setting aside a welfare fund available to all members of the cooperative. The ultimate goal of course was to increase agricultural production in order to accelerate industrialization.

3. THE GREAT LEAP FORWARD, 1958-59—

The Great Leap Forward was based on the creation of communes and the industrial policy of “walking on two legs”, (which meant the simultaneous development of medium, small, and large industry by the concurrent use of indigenous techniques and modern methods). The Chinese Communist leaders were lured by their success in organizing large collective farms into a more ambitious plan—replacement of cooperatives by communes. It should be emphasized that the advanced cooperative system was a success in the organizational sense only; there was scant evidence that they were successful in increasing output. The communes were not only economic units but also social and political units. The communes, which averaged 5,000 households, were organized into production brigades and teams. Initially the production brigade was solely a unit of production corresponding roughly in size to the larger cooperative farm, while the team was a subunit of the brigade. As far as agriculture was concerned the commune was an extension of the larger type cooperative. The innovative feature of the commune was its focus on the development of small and medium sized industry in rural areas. In addition the commune was responsible for education, medical care, some militia functions and providing for the welfare and cultural needs of its members. Another innovation was the establishment of credit facilities on the local level. The “walking on two legs” policy was designed to tap sources of industrial growth in the countryside. Widely scattered and easily mined minerals such as coal and iron ore could be converted to iron and steel through the application of small scale indigenous technology. The processing of waste materials, such as rice husks, was another field for industry in the countryside. The overall objectives of the commune system and the “two legs policy” were 1) to maximize the mobilization of agriculturally underemployed collective labor in large projects; 2) to decentralize industry in order to increase local self-sufficiency and develop “backward” areas; 3) to increase the accumulation of capital through a shorter gestation period of investment; 4) to develop a complementary relationship between agriculture and industry. Tools, machinery, fertilizers, insecticides were to be provided to agriculture by industry and food supplies for industrial workers and raw materials for processing were to be supplied by agriculture.

When the plan of the commune was conceived many of the Chinese Communist ideologists thought it was possible to skip over the historical transitional stage of socialism directly to communism. Their idea was that it was possible to change social institutions and thereby change people’s attitudes and relations with one another. In this instance the practical working out of the commune system

proved the ideologists wrong. The policy of supplying food and other necessities according to need rather than on the basis of work performed had to be reversed before long. The abolishment of private plots in the commune was another policy which was soon changed. The output resulting from working this land communally fell far short of what the peasants were able to produce when they held the plot privately. In addition there were mistakes in the design of the commune—the most significant was the institution of the “backyard” iron and steel furnaces.

4. RETREAT AND READJUSTMENT 1960–65

During the 1953–59 period the rate of investment was strongly dependent on crop conditions and the amount of outside assistance received. The agricultural surplus which was generated in one year and the Soviet credits which had been extended largely determined the level of state investment in the following year. For example, a high level of investment in 1953 was a result of a bumper crop in the previous year and the expenditure of the balance of the 1950 Soviet credit. On the other hand the bad crop in 1954 and the near exhaustion of Soviet credits caused the rate of investment to decline in 1955. Given this structure of dependencies it was inevitable that the withdrawal of Soviet economic assistance in 1960 and three successive years (1959–61) of natural calamities would have serious effects on China's economy.

Withdrawal of Soviet Economic Assistance

The most severe blow to Communist China's industrialization program was the sudden withdrawal of Soviet economic assistance in 1960. In 1950 the Soviet Union had agreed to supply 50 projects, another 91 were added in 1953, 15 in 1954, and 55 in 1956, making a total of 211 projects. As these projects were mainly in the category of heavy industry they constituted the core of the industrialization program. By 1960 some 150 projects had been constructed or were in progress. More than one thousand Soviet technicians were engaged in these projects.

The importance of Soviet economic aid can be measured by M. Kapitsa's statement published in *Red Star* on February 14, 1964.

The industrial potential created in China with the cooperation of the U.S.S.R. is of considerable importance to the total industrial capacity of the country. In 1960 they (Soviet aid projects) produced 30 percent of the pig iron smelted in China, 39 percent of the steel, 51 percent of the rolled products, 91 percent of the tractors, 80 percent of the trucks, 30 percent of the output of synthetic ammonia, 25 percent of electric power output, and 55 percent of the steam and hydraulic turbines. Between 1954 and 1963 over 24,000 sets of scientific and technical data including over 1400 blueprints covering entire projects were supplied; about 10,000 Chinese engineers, technicians, and qualified workers underwent a course of industrial education and practical training at Soviet enterprises and institutions.

In the space of one month work on all Soviet aid projects came to a halt. The Soviet technicians left and took their blueprints with them. Contracts concerning technical and scientific cooperation were scrapped. The degree of damage caused by the Soviet Withdrawal was set out in a letter addressed by the Chinese Communist Party to its Soviet counterpart on February 29, 1964. It said in part, "This perfidious action disrupted China's original national economic plan and inflicted enormous losses upon China's socialist construction." The cause of the Sino-Soviet conflict was reported to be a disagreement between N. K. Khrushchev and Mao Tse-tung over the Great Leap Forward policies. Reportedly Khrushchev, in a visit to Peking shortly before the withdrawal, warned Mao that too much dependence on institutional change would set back economic growth and, by implication, would counter the beneficial effects of Soviet assistance. Mao held fast to his policies and the Soviet leader's insistence on advising as well as aiding produced the split.

The Effects of Three Successive Years of Natural Calamities and the Great Leap Forward Policy

A combination of floods, droughts, and locusts swept over China in the years 1959, 1960, and 1961, leaving a severely weakened agricultural sector in their wake. This situation was exacerbated by the simultaneous attempt to speed up the reorganization of the rural economy on a communal basis. The result of these events was disastrous for farm output.

Floods, drought, and plagues of locusts spread over 20 of the 28 Chinese provinces and autonomous regions in 1959. These disasters covered fully one-third of the cultivated area of the country. This was followed in 1960 by the most serious natural disaster to occur in China in the previous century. More than half of the cultivated area was damaged, primarily by drought. Then in 1961 severe drought occurred in North China and floods inundated South China. It is believed that during these three years at least 60 percent of the total cultivated area was affected. Agricultural output responded accordingly.

Coupled with these natural perversities was the Great Leap Forward's overly rapid policy of agricultural and social reorganization. On the production level China did not have the inputs necessary to make very large scale agricultural production feasible. Labor, even under the most ideal conditions, is not a perfect substitute for capital on farms of a grand scale and the necessary fertilizers and infrastructure were not supplied. In addition, efforts to combat the unnatural weather conditions were hampered by the diversion of resources to rural industry. On the social level the transformation from individual life to communal life and the abolition of individual plots required changes in mental attitude and daily habit of unprecedented magnitude. However there was a deficiency of experienced personnel to organize and supervise the communes. Bureaucratic decrees were substituted for education, persuading, and guiding people to make the institutional changes. The bewilderment and confusion in the minds of

peasants distracted their attention from regular farming work.

The resulting decline in agricultural output is evidenced in the official published statistics. In 1959 and 1960 they state that grain crops decreased by 12 percent and 16 percent respectively. No official figures have been published since 1961 but some official source indicated a decrease of 16 percent in 1961. Another indicator of the reduction of agricultural output was the large scale imports of grain.

New Economic Policy

The three years between 1959 and 1961 were crisis years. The sudden Soviet withdrawal of economic aid brought about a disruption of construction of important industrial projects; natural disasters not only raised problems of how to prevent the people from starving but also how to obtain a net marketable agricultural surplus to support industrialization programs; and the man-made errors in implementing the Great Leap Forward policies caused disorder in transportation and with the flow of goods between sectors. This crisis gave rise to sharp political and ideological struggles over economic policy.

A change of economic policy was foreshadowed early in 1961 and was given definite shape in 1962. Some Western observers labelled this policy the "New Economic Policy" a name applied to the Soviet reversal of the policy of War Communism in 1920. The main changes were: 1) Priority was shifted from heavy industry to agriculture first and light industry second. 2) A greater scope was allowed for market forces. In industry small and medium firms were permitted to buy raw materials directly in the market, rather than through the wholesale corporations. In Agriculture a free market was gradually introduced in the villages. 3) Profitability was introduced as a motive force in agricultural and industrial production. This meant that emphasis was placed on profit targets rather than on output targets with enterprises. 4) More authority was given to managers, planners, and technical personnel than to Party committees and trade unions. 5) Peasants were allowed to hold private plots and to engage in sideline production such as the growing of pigs and vegetables.

The New Policy was never fully implemented, however the rearrangement of sectoral priorities, the relaxation of government controls, and recognition of the value of experts did prove beneficial. Nature too, cooperated. Chinese technicians were able to master, albeit slowly, the complexities of design and production of essential machinery. Efforts were made to complete the unfinished Soviet aid projects. Emphasis was placed on quality improvement. Investment was directed to those industries complementary to agriculture. In agriculture the basic farm unit was reduced to the production brigade and was stripped of all non-agricultural functions. Individual incentives of private production were restored. The results of the New Economic Policy were increases in both industrial and agricultural output. From its nadir in 1962 it is estimated that industrial production almost reached its 1958 level by 1965. And by 1964 grain

output was probably at an all time high, declining slightly the following year.

III. THE CULTURAL REVOLUTION 1966-68

The Great Proletarian Cultural Revolution took place from 1966 to 1968. The initial battle over political and economic ideology, however started in 1961 between the leaders of the government, represented by Liu Shao-chi, and the leader of the Party, Mao Tse-tung. The Government group, in light of the three crisis years, considered Mao's Great Leap Forward policy not only unable to solve the immediate crisis but disruptive as a pattern of development. Mao was of the opinion that decentralization of the location of industry to the commune level, in addition to decentralization at the province and country levels would facilitate local self-sufficiency, speed industrial and agricultural development, and alleviate transport bottlenecks. The pragmatists won the initial victory and implemented the New Economic Policy. As evidence of the correctness of this Policy they pointed to the improvement in economic conditions dating from 1962. In Mao's view however, the economic recovery was due more to the cooperation of nature than to the New Economic Policy. He also sensed that there had grown up a privileged stratum of administrative pragmatists, factory managers, and technocrats. "Redness" was being replaced by "expertness" in production and in society and a revival of self interest over collective interest was resulting from the reintroduction of material incentives. Mao also saw in these developments the growth of a countervailing political force. The most important development however, which aroused Mao was Soviet revisionism. Due to similarities between China's New Economic Policy and the current Soviet economic experiments Mao feared an alliance between his opponents and the Soviets. The Chinese Party Leader prepared to counteract these forces by first gaining the allegiance of the army and organizing student groups. He fired the first salvos on the educational front in 1966. This was followed by the dismissal of the Peking Committee of the Communist Party. A mammoth rally was held in Peking for the so-called revolutionary masses—the Red Guards. Similar revolutionary groups organized by students mushroomed all over China. They put up big-character posters and held debate meetings to denounce the mistakes of those in authority. The emphasis was on ideological purity; deviations were to be corrected or purged. There were obviously many cases of violence rising out of resistance to Red Guard attacks. The sharp struggle continued until early 1968 when the "three-in-one" team was formed, represented by revolutionary cadres, representatives of the army, and delegates elected in mass meetings. It took control of State functions from the national to the local level. The tide of revolution ebbed by the end of 1968.

On the surface the Cultural Revolution was a struggle between two wings of the Party and the bureaucracy on the issue of the "two roads" of China's development—the road toward revisionism or the road toward socialism. In fact it

was a purge of party members in power who were either more pragmatic than Mao or more sympathetic to Soviet revisionism.

The chaos arising from the outbreak of the Cultural Revolution disrupted the economic life of the entire country. In many cities factories were closed for varying periods of time. But the Central Administration under Chou En-lai attempted to isolate the major centers of heavy industry (Manchuria, Kansu, Sinkiang) from the revolutionary activity and was fairly successful. The operations of the agricultural sector were only slightly affected, primarily by assigned student workers with little appetite for the countryside. It is generally recognized that the 1967 harvest was very good. Output fell in 1968, but this was primarily attributable to unfavorable weather in certain provinces. An excellent crop was again reported in 1969. It is apparent that the efforts to supply more resources to the agricultural sector were bearing fruit. Increasing quantities of fertilizers, machinery, and agricultural extension workers are being felt in terms of increased output.

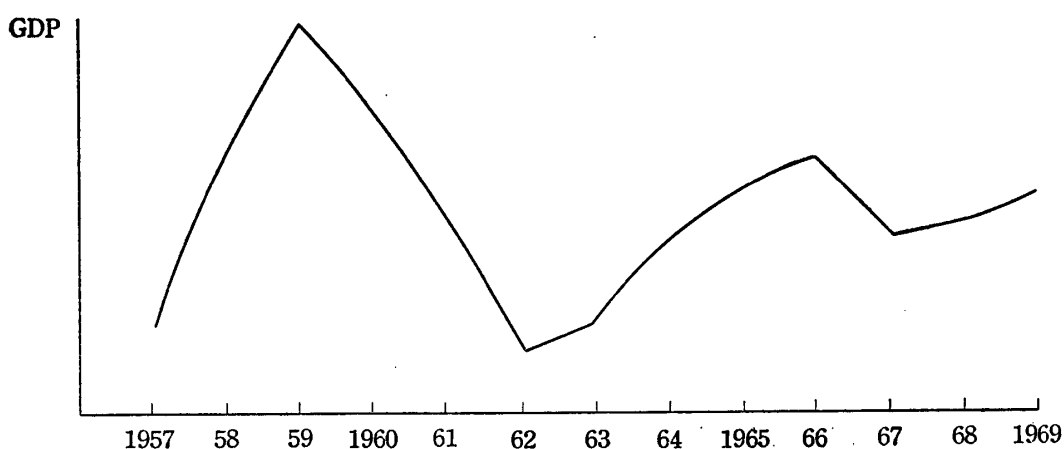
The overall effect of the Cultural Revolution on the industrial sector was much greater than in agriculture. Increases in output were reported in 1968, however official sources frequently compare the industrial output of 1969 with that of 1965. This evidence indicates that industrial production fell considerably in 1966 and 1967 as a result of Revolution-caused disruptions.

IV. EVALUTION

Since Communist China's statistics appear to vary in reliability due to political considerations and the lack of a comprehensive data gathering system, and because there is a lack of official statistics since the Great Leap Forward, it is very difficult to evaluate China's economy.

For the period 1952-57 the official statistics appear to have been reasonably reliable in spite of the existence of certain biases. Their estimate of the average annual rate of growth of Gross Domestic Product (GDP) was 8.9 percent. Unofficial estimates range between a high of 8.6 percent and a low of 6 percent. There is wider divergence in the estimates of the growth rates of GDP for 1958 and 1959. Official estimates show 34 percent growth in 1958 and 21 percent in 1959. Unofficial estimates range between 23 and 14 percent for 1958 and between 16 and 13 percent for 1959. From 1961 onward estimates of China's growth rate are quite tenuous. Drawing information from many sources it is possible to put together the graph shown below which shows the pattern of growth.

There is more information available on individual sectors of the economy and from this it is possible to gain a more complete picture of China's growth and development. Due to initial Soviet assistance in planning basic construction projects and in supplying equipment and technicians Communist China has made great strides in the development of energy and heavy industry. From the base of light industry inherited from the previous regime further extensions have been



made. From a fear of military aggression by foreign powers a policy of decentralization of industry (by location and authority) has been adopted. Control of heavy industry is in the hands of the Central government; light industry was put under provincial control. New industrial centers were developed. These steps were taken to eliminate traditional local grievances of excessive concentration of industrial development in the hands of the central government and in a few big cities. On the technical level the withdrawal of Soviet assistance forced the Chinese leaders to realize the importance of placing more reliance on indigenous research and development efforts and the acquisition of technology from Western countries.

The progress made in heavy industry under the Communist regime can be seen in the table below which compares output of selected industries in 1952 with their output in 1959.

OUTPUT OF SELECTED INDUSTRIES

	1952	1959
electricity	7	60
coal	112	330
crude oil	0.4	20
chemical fertilizers	0.2	5
pig iron	2	200
steel ingots	1.3	16

All quantities are in millions of metric tons with the exception of electricity which is in billions of kilowatt hours.

The important machine building industry has been diversified and is able to produce a wide range of machinery and tools for agriculture and industry. Some progress has been made in precision machinery though this remains a large import item. The electronics industry has developed rapidly, primarily spurred by China's advanced weapons programs.

Among light industries the progress of the cotton industry has been most conspicuous. China has the capacity to be self sufficient in cotton textiles; clothes rationing still exists however because textile exports are one of the country's prime foreign exchange sources. In addition Communist China has embarked upon a synthetic fiber industry.

From the evidence presented it is clear that China has established a basis for a strong industrial sector. Nevertheless she is far from being an industrialized nation. Her present condition hardly compares with that of the major advanced economies. For example, in 1967 China's total developed energy supply was about one-eighth of the United States and slightly more than one-fourth of the U.S.S.R. Consumption of petroleum was estimated at less than 10 gallons per-capita in China compared with 200 gallons in the U.S.S.R. and 900 gallons in the United States. Output of steel was only one-tenth of the U.S.S.R. and one-twentieth of the United States. Initially China adopted a strategy of selective growth. The First Five Year Plan favored heavy industry over all other sectors. Ironically the shift of priorities which characterized the New Economic Policy coincided with the launching of China's nuclear and advanced weapons programs, thereby diverting human and material resources from agriculture and other industry. Selective development of industries is a truly viable strategy only when a nation has free access to the world market. The Soviet Union played the role of a world market in the 1950's supplying needed equipment to the Chinese. Comparable equipment has not been available since then. Inasmuch as there are strong dependencies between industries, full industrial development depends upon a wide and diverse range of products. At present there is as much need to widen as to deepen the industrial base.

Despite the fact that Communist China has made considerable advances in science and technology, due partly to initial Soviet assistance and partly to the efforts of Chinese scientists and engineers, there appears to be a considerable gap between Communist China and the more industrially advanced nations. Filling the gap will require an expanded precision instrument and machinery industry and the development of a much larger scientific and technical manpower pool. Imports can only partially fill the needs in this area. The future however, is uncertain due to the Cultural Revolution's promotion of "Redness" over "expertise".

Transportation is regarded as a major bottleneck. After the rehabilitation of the railway network was completed in 1949-50 the proportion of investment in railways was reduced. Only 10 percent of the total investment in industry was devoted to railroads in the period of the First Five Year Plan. Few new lines have been added during the last ten years. Most goods and people still move by foot, cart, or canal. Although recently motor road mileage was reported to have increased by a factor of four compared to 1949; transportation by this means has been limited by an inadequate supply of motor vehicles. The resolution of this bottleneck is essential to the development of both industry and agriculture.

After twenty years agriculture still holds a predominant position in Communist China's economy. It contributes two-fifths of total output, two-thirds of the nation's exports (including manufactures of agricultural origin), half of the State budget and employs two-thirds of the labor force. At the same time the acreage of cultivated land remains substantially unchanged from earlier periods. New additions which were made were often offset by areas damaged by natural calamities. The Government has also made efforts to extend the multiple cropping system in order to increase the effective planted area—from 1952 to 1958 there was an increase of 10 percent. The agricultural reorganization which proceeded from land redistribution to mutual aid teams to elementary cooperatives to advanced cooperatives to communes was undoubtedly a strategy designed to increase efficiency in the agricultural sector by arranging production such that labor was used to its fullest. The final mass mobilization of labor resulted in inefficiency though when complementary inputs of machinery were not provided and individual material incentives were removed. In addition the Government promotion of such methods as deep plowing, close planting, and crop rotation were ineffective when not enough fertilizer was provided. Obviously all these measures were designed to increase agricultural production by substituting abundant human resources for capital investments. The fact that the government has strongly advocated the mechanization, chemicalization, electrification, and irrigation as the main elements of agricultural improvement shows that the government leaders are not unaware of the importance of greater investments in agriculture. Their error has been to promote changes which require capital investments at times when they were not available. In recent years there has been increasing domestic production and imports of farming implements and chemical fertilizers. Still the gap between requirements and supply is large even considering locally produced fertilizers and implements. The record of the agricultural sector reflects its initial neglect, the Great Leap and crises, and subsequent attention. Between 1952 and 1958 gross value added in agriculture is estimated by Western experts to have grown at about 2.8 percent a year. Official estimates give a figure of five percent. Official estimates are not available subsequent to 1960; those for 1959 and 1960 are highly colored. Agricultural output fell sharply after 1958 to 1961; since that year it is believed that agricultural output rose steadily to 1964 but since that time has fluctuated slightly due to weather conditions, judging from the performance of food crops.

From the above analysis it is clear that China's agriculture and industry are highly interdependent. Agriculture supplies raw materials and is also the source of investment capital. In addition foreign trade is viewed as an industry whose inputs are agricultural exports and whose outputs are machinery and other capital goods. In turn agriculture depends on industry for her machinery and fertilizers necessary to increase production and the consumer goods necessary to maintain incentives. Thus given China's relative isolation from world markets and her proclaimed goal of self sufficiency, simultaneous development of agriculture and

industry is necessary for China's economic growth.

From the preceding analysis of industry and agriculture in China it is clear that their performance has been marked by (in Mao's words) contradictions, resulting in the generation of tensions and dilemmas and thereby fluctuations take place. As a matter of fact no country, developed or underdeveloped, has been able to avoid fluctuations completely. In the case of Communist China there have been more "contradictions" because the process of economic development has attempted to achieve several, not totally compatible, objectives; collective socialism, a self-sufficient economy and defensive military capability. It appears that whether future development will be smooth and rapid or not depends on how successful the Chinese are in reconciling four dilemmas they face—1) Industry versus agriculture, 2) investment versus consumption, 3) material versus moral incentives, and 4) economic growth versus political growth. The first, second, and fourth points are economic questions which, given a planner's objectives, should be amenable to economic analysis. The dilemma arises because, as noted above, the objectives are not consistent primarily in the time sense. The third dilemma revolves essentially on the basic nature of man.

1. INDUSTRY VERSUS AGRICULTURE

This dilemma has arisen because the Chinese have tried to achieve rapid economic growth and a strong military capability simultaneously and without the resources to do it. The Chinese Communist government has not been able to take a long range view of the development process because of their fear of foreign aggression. A growth strategy which stressed the initial development of agriculture and complementary industry and subsequently the development of heavy industry would leave very little industrial basis for defense in the interim. Given China's very limited investment resources the creation of a military-industrial complex means that other sectors of the economy are short changed and the neglected sectors eventually thwart the progress of the entire economy. The final resolution of the dilemma lies in a restructuring of international political relations between Communist China and the other world powers.

2. INVESTMENT VERSUS CONSUMPTION

In an effort to promote rapid economic growth the Communists devoted an extraordinary portion of their resources to investment at the expense of consumption. The trade off between consumption and investment has been nearly one-for-one throughout the 20 year period; there have been little or no foreign grants of aid and the Soviets demanded repayment in foreign exchange and agricultural commodities. Gross investment was maintained at the level of one-fifth of total output from 1953 to 1957 and was dramatically raised to one-third of output in 1958 and 1959. No official information about the level of investment is available since 1960. It is certain that as a percentage of output it has declined from the 1958-59 level. From 1961 to 1965 there was a large amount of excess indu-

strial capacity in China so that investment as a percentage of output was probably less than in the 1953–57 period. This does not however correspond to an increase in the level of consumption in as much as total output remained below the 1957 level.

Consumption is quite naturally influenced by income received. Communist China's policy has been to keep wages relatively low and to provide employment for all who can work; peasants do not receive a wage or salary income, but receive a share of the collective income of the commune. Income distribution has become quite equal and as a result so has consumption. The consumption level is fairly low—only the minimums of food, clothing, and housing have been available. But, quite importantly and in contrast to previous eras, everyone does possess these minimums. There has been however progress in both health and educational services, particularly in the countryside. The path of consumption per capita over the period we are considering has lagged behind the economic successes and fallen faster in times of economic failure. Population growth has been partially responsible as has the government's investment policy. Per Capita consumption grew by about two per cent a year during the 1952–57 period. Between 1958 and 1964 the 1957 level of per capita consumption fell victim to the greatly increased investment expenditures of the Great Leap Forward, three years of natural disasters and the economic collapse of the early 1960s. Since 1960 grains and cloth have been tightly rationed and only recently have restrictions been relaxed a little.

The trade off between consumption and investment can be considered from the point of view of productivity. More capital per worker and more pay per worker both increase his output. Both Chinese and Western experience has shown that the two methods are not independent of each other, that is, one method cannot be used to the exclusion of the other. A closer look at this is provided in the next section on the question of material versus moral incentives.

3. MATERIAL INCENTIVES VERSUS MORAL INCENTIVES

The question of moral versus material incentives exists because of Mao Tse-tung's belief in the perfectability of man and also because of the relative factor proportions which exist in Communist China. Rapid economic development is achievable in China, if at all, only with extended human effort. The ideal of collective socialism is predicated on the equality of all men in all things. Mao seems to feel that differential rewards or encouragement of the profit motive in the process of achieving collective socialism will lead the people away from the final goal and will result in the destruction of the ideal.

Moral incentives have consisted of the bestowal of titles and honors on outstanding workers with attendant publicity. One of the main features of this program has been the creation of models of behavior. The Communist Chinese press is replete with paradigms of men and women who have followed Mao's teachings and have acted courageously and selflessly in promoting the welfare

of the people. Mass meetings have been held on every level to infuse the people with the spirit of self sacrifice and commitment to the goals of their production unit.

The Communist regime has oscillated between policies stressing material incentives and stressing nonmaterial incentives prior to the Cultural Revolution. In the early years and through the First Five Year Plan, primary emphasis was placed on the improvement in the standard of living. The pendulum swung toward nonmaterial incentives during the Great Leap and then swung back to material incentives under the New Economic Policy. The Cultural Revolution emphasized the use of the "mass line", a system of urging workers and peasants to take responsibility and initiative, working without material incentives. They were urged to change from self-materialism to selfless service of the community on the grounds that human motivation as a factor of production is more important than physical investment and technological progress. Bonuses and prizes previously paid to factory workers were abolished and peasants' income, previously allocated by the brigade on a workpoint system, were now distributed on the basis of the consensus arrived at discussion meetings. Model farms and model factories were set up as examples of the moral incentives movement.

The causes of the policy shifts are clear. The initial stress on material incentives was a way to cement the allegiance of the people to the new government by increasing the very depressed standard of living which existed when it came to power. The attempt to "walk on two legs" and the Great Leap Forward necessitated large inputs of nonmaterial resources—the available material resources alone could not have achieved the goals of these policies. The failure of these policies on an economic level left the people with a standard of living so reduced that they could not be compensated by nonmaterial means. The subsequent shift to material incentives and more rational economic programs which characterized the New Economic Policy succeeded in raising output and the welfare of the people. The effects of the reemphasis on moral incentives which were part of the Cultural Revolution have yet to be observed.

To this time there has not been a valid test of Mao's theory on the capability of human effort spurred only by higher ideals. The Great Leap Forward experiment was distorted by irrational planning and natural disaster. I suspect that the standard of living has not been raised sufficiently nor has it been sustained for long enough to permit moral reeducation of the people. Mao has not heeded the words of the Classical philosopher Kuan-Tzu: "When garments and food suffice for the peoples' needs, they will distinguish between honor and shame." Mao has attempted to press for both simultaneously with the result that the peoples' needs and their moral education have been victims of his strategy. The priorities implied by Kuan-Tzu's statement are clear—material comfort precedes spiritual development.

4. POLITICAL GROWTH VERSUS ECONOMIC GROWTH

The discussion in this section is quite closely related to that of the previous section. The distinction which allows them to be treated separately is primarily one of the level of aggregation. The previous section attempted to deal with the micro implications of Mao's ideology, this section attempts to deal with the same issue on a macro basis.

Mao's basic concept behind the Cultural Revolution was that human values, people's thoughts and motivations, are the crucial factor in the functioning of a society and an economy. He feels it is necessary to reconstruct men's minds through the construction of a new morality—a new criterion for human conduct in tune with collectivist society. The fundamental attributes of the new morality are the exaltation of public interest over private interest, and of proletarian values over bourgeois values. There is no set of rules of the new morality, however from various statements we can summarize the main ideas as follows; for an individual—to be incorruptible, thrifty, and accessible to the masses; for production—to emphasize social needs rather than profit; for productivity—to depend on mass initiative through enthusiastic exchange of ideas, experiences, and emotions in the collective, and self-learning-by-doing rather than expertness; for the management of an enterprise—to stress reliance on mass participation as well as on experts and professional managers. The method used to prevent reemergence of the old capitalist morality and indoctrinating people with the new morality is through the appointment of a party cadre as the chief executive of every enterprise and regular study meetings on Mao's thoughts.

In fact, the above policy has been carried out since the beginning of the Communist regime but was relaxed under the New Economic Policy. Mao criticized this Policy as capitalist management, the promotion of "expertness" rather than "Redness", and putting production before noneconomic criteria such as self-reliance, mass participation, public service, and the like. In view of the gradual recovery of the economy from the collapse of the Great Leap Forward and natural calamities a group of Chinese leaders were persuaded as never before of the efficacy of modern management and scientific truth and the inevitability of accepting the existence of "economic man" and "self interest". This emphasis on economic growth at the expense of political growth brought about Mao's reaction in the form of the Cultural Revolution.

In other words, by his actions Mao has shown a willingness to sacrifice economic growth for political growth. It appears though, that he views the two as interdependent and not in an either/or context. Still this does not prohibit us from evaluating his actions on the basis of the allocation of resources to the promotion of each type of growth. In the case of economic growth the resource inputs of land, labor and capital are quite obvious. The fact that political growth requires resource inputs is often obscured, but they are nonetheless present. The training and support of party cadre, the inevitable errors of party cadre in administering

production units, the massive communications network required for propaganda, time devoted by workers to political education, misuse of trained experts, and the resources foregone because of low levels of industrial output during the Cultural Revolution are all real costs against which the benefits of political growth must be weighed. The economic criteria of equating costs and benefits on an incremental basis can be used to determine if Mao's actions are efficient in terms of his goals. As implied by Kuan-Tzu's statement, it appears that Mao's preoccupation with ideology has led him to ignore the material conditions necessary for the achievement of political change.

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