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Reforming China's Economic System

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I. *Introduction*

FOLLOWING THE DEATH OF MAO ZEDONG in 1976, China's leadership put revolutionary politics and class struggle aside and set out to make the nation wealthy and powerful. Economic development became the number one priority, even more than was the case in the 1950s. Equally important, those who took over the levers of economic policy after 1978 were reform minded. Most of these new leaders had been treated badly during the Cultural Revolution period (1966–76) and had a strong distaste for many of the policies and values that played so large a role during that decade. Many were also aware that China's economic performance over more than two decades suffered in comparison to that of the country's East Asian neighbors.

It is unlikely that China's leaders had a worked out blueprint in mind when they set out to reform the economic system. One reform led on to another until China by 1987 had moved a considerable distance from the Soviet-style command system it had introduced in the 1950s.

This reform process was still under way in 1987 and appears likely to continue for some time. Where it will all end is not known to anyone either inside or outside of China. But enough is known about what has occurred to date to step back and take stock of these reforms in midstream.

The first part of this essay is devoted to a description of the rural and urban reforms introduced between 1977 and

Note regarding Chinese names: Chinese authors are cited in text in accord with their practice of putting the family name before the given name; so, for example, a name that appears in the discussion as "Dong Furen" will be found in the reference list under "Dong." Some exceptions occur in the case of authors with Chinese names who have written articles for Western publications.

1987 and an analysis of the rationale, implicit as well as explicit, behind these reforms. The latter half of the essay looks at the impact of reform on economic performance. Did productivity increase and economic structure change as a result of the reforms? Did the standard of living of urban and rural consumers rise and were the benefits of accelerated growth distributed equitably, or was inequality on the rise as market mechanisms became more and more important?

The analysis in this paper draws on many sources. The perspective of this essay is that of a Western economist observing China's economy from the outside, and the paper draws heavily on the works of other Western economists who approach China's economy from a similar perspective. This essay also makes extensive use of official Chinese statistics, occasionally modifying these figures in an attempt to eliminate known biases. The major Chinese statistical handbook of the relatively open publication period of the 1950s contained only 200 pages of tables, and publication of all statistics by China virtually ceased between 1960 and 1980. Since 1980, however, the Chinese have been publishing economic data at an accelerating rate. The official 1986 statistical yearbook, for example, contains over 800 pages of data, each page containing much more data than its 1950s equivalent. In addition, many individual provinces and economic sectors have published their own statistical handbooks that are full of data not in the national handbook.[1]

There is also a rapidly burgeoning literature in China's numerous economics journals some of which deal with issues discussed in this essay, particularly issues connected with the reform of the economic system. Only sporadic references will be made to this literature. Any attempt to do justice to the various discussions and debates in Chinese journals would require a separate essay or essays devoted to that purpose alone.

II. *Economic System Reform*

The key to making China wealthy and powerful was to raise total factor productivity. The idea was understood clearly enough even if the Chinese did not use the term. The Soviet-style system of centralized bureaucratic control over the economy had proved effective in mobilizing capital and labor inputs, but the amount mobilized had to rise continually and rapidly simply to maintain a GNP growth rate between 4 and 5 percent per year, corresponding to a per capita growth rate of 2 to 3 percent.

Debate over the course of economic reform has been vigorous, but most participants appear to share a common perception of the nature of the problem. Central planning led to a misallocation of both investment goods and of current inputs and outputs. Excessive control from the center, together with restrictions on the use of material incentives of any kind, dampened the energies and enthusiasm of workers, managers, and farmers alike. In the terminology of modern economics, there was both allocative inefficiency and X inefficiency on a grand scale.

Among debate participants there was also some agreement on what was re-

[1] In addition to the general handbooks, for example, there are yearbooks that include data and much other relevant information on the iron and steel industry (Ministry of Ferrous Metals Compilation Committee 1985), coal (Ministry of Coal Industry Compiling Committee 1982), agriculture (China Agricultural Yearbook Compilation Committee, every year since 1980), the urban sector (State Statistical Bureau 1985a), and commerce (Trade and Price Office of the State Statistical Bureau 1984). Provincial statistical handbooks include ones for poor provinces rarely visited by foreigners such as Guizhou (Guizhou Yearbook Compilation Committee 1985) as well as the richer coastal provinces.

quired to improve efficiency and raise productivity growth. Production units in industry and agriculture needed to be given greater autonomy to make decisions on the basis of their superior understanding of local circumstances. And rewards, whether in the form of wages, bonuses, or payments to farmers, should be closely tied to economic performance. Moral as contrasted to material work incentives, to the extent they were given any attention at all, were to play a secondary role.[2]

Where consensus broke down in China was over how to achieve greater enterprise and farmer autonomy and how to tie reward more closely to performance. Opinions ranged from those who would retain a dominant role for central planning and bureaucratic control to those who would move to full-fledged market socialism. By 1985 the balance of power had shifted toward advocates of a major or even a dominant role for the market, but many features of central planning remained entrenched in the system and there were considerable differences even among advocates of the market on how much futher to go and at what speed.

China's efforts to increase enterprise autonomy and raise productivity are in many respects similar in nature to efforts at liberalization under way in the 1970s and 1980s in a number of developing countries ranging from India to Brazil. The essence of liberalization is to reduce the hold of the government bureaucracy over the economy and to replace bureaucratic direction with the impersonal forces of the market. Enterprise managers in the bureaucratic system are simply lower-level bureaucrats fighting with each other and with higher-level bureaucrats to get a larger share of the goods and other forms of support that are in the higher-level bureaucrats' hands to give out. In a true market system, on the other hand, enterprise managers must succeed or fail on the basis of their ability to lower their own production costs or to market more of what they produce at a higher price.[3]

Defining liberalization in this way, China differs from other developing countries mainly in the distance it must travel to reach some form of a market system. Soviet-style central planning involves more or less complete bureaucratic control over industry and even much of agriculture, while most developing countries have a mixture of centralized planning, bureaucratically manipulated markets, and markets that are free of bureaucratic manipulation.

The more government bureaucracies attempt to intervene in markets, the more the system slides back toward one of bureaucratic planning even if it is in a slightly disguised form. If China were formally to abolish centrally determined compulsory plan targets for enterprises as, for example, has been done in Hungary, it does not follow that enterprise managers would give up behaving in accordance with bureaucratic principles. More is required.

What are the essential features of a well-functioning market system that the Chinese would have to duplicate if they are to achieve something approaching full-fledged market socialism? These features are discussed first in the abstract and then compared with what is actually

[2] One way of partially understanding the campaigns against "spiritual pollution" and corruption is to see them as an indirect way of attacking what was perceived by some as an excessive emphasis on material incentives. The focus of attacks has been on cadres who take bribes to commit illegal acts, but the line between what is legal and illegal is often a fuzzy one in the Chinese economic system. An attack on corruption thus can become a generalized attack on an "excessive" pursuit of profits or other "capitalist" values, hence on material incentives.

[3] This part of the analysis owes much to discussions with János Kornai. See particularly János Kornai 1986.

happening in China in both the rural and urban areas. There are four essential features:

1. Inputs and outputs must be available for purchase and sale on the market. Some goods and factors may be centrally allocated, but the marginal decisions of managers should mainly involve whether to purchase more or less on the market, not whether to go back to the government bureaucracy for a larger administrative allocation.

2. Enterprise or farm decision makers must behave in accordance with the rules of well-functioning markets—that is, they must approximate some form of profit-maximizing behavior. Few enterprise managers anywhere in the world are pure profit maximizers, but a well-functioning market requires that they give primary attention to raising profits.

This criterion seems at first glance to be easy to meet. It might be thought that in a Soviet-style system of planning such as that in China, all one need do is to change manager success criteria from fulfillment and overfulfillment of the gross value output target to overfulfillment of a profits target. In practice much more is involved. The planners and other elements of the bureaucracy will always have objectives that involve more than profit maximization, so the question becomes one of whether enterprise managers will have to pay attention to those objectives or can safely ignore them. They cannot safely ignore them if,

(*a*) the selection of enterprise managers is done by the bureaucracy as contrasted to some kind of board of directors that is concerned with profit,

(*b*) inputs are in chronic short supply so that some form of rationed allocation by the bureaucracy results even if formal central allocation has been abolished,

(*c*) entry of new firms into an industry or exit of firms from an industry is determined by the bureaucracy. Entry, for example, may require a government license. Exit of firms in difficulty can be and frequently is prevented by government intervention in the form of bail out loans and other similar measures.

The features (*b*) and (*c*) are closely related to a common feature of most socialist countries, the "soft budget constraint." If enterprises have access to almost unlimited credit and subsidies as long as they stay in favor with the bureaucracy, the incentive to be concerned with profits will be weak.

The issues of enterprise success criteria, enterprise autonomy, and the soft budget constraint are also tied in with the question of ownership. It is sometimes naively assumed that private ownership guarantees enterprise autonomy, but bureaucracies can interfere with privately owned firms as well as public ones. In any case China has very little of what could be termed private ownership except in agriculture and the service sector. Most enterprises are either fully public, owned by the state, or collective, owned by their workers but subject to state direction. The Chinese have clearly rejected selling off large state enterprises to private owners or encouraging new large private firms except where foreign investment is involved. But there has been much talk about alternative forms of public and collective ownership that might contribute, among other things, to making enterprises more independent of the bureaucracy. So far, however, the experiments along this line have been modest.[4]

3. The markets faced by enterprise managers must be competitive. Perfect competition in a world of oligopoly, of course, is not feasible. But in many de-

[4] There is a lively discussion in the Chinese literature on issues of ownership and an interest in such systems as the "share economy" and "capital markets" among other things. See, for example, Dong Furen 1985 and Shi Yousheng 1986.

veloping countries, monopolistic situations are more often the creations of government interventions than of underlying "natural" economic conditions. Quotas and other instruments of trade policy in particular are often used to give a favored enterprise shelter from international competition. Licensing can accomplish much the same ends within the domestic market. The Chinese in the early 1970s even went so far as to give most small-scale enterprises monopolies over their local markets and to prohibit sales beyond that market.

4. Prices on a well-functioning market must reflect long-run relative scarcities in the economy. Prices that depart from this principle give the wrong signals to producers and consumers. The result is misallocation and inefficiency.

Liberalization is often seen by economists as a question of "getting the prices right." In nations where all of the other features of a market system are working reasonably well, all that may remain is the task of letting prices adjust to reflect relative scarcities. Some of the early discussion of reform in China stressed the central importance of price reform once inputs and outputs became available on the market.[5] The theme is still an important one and deservedly so, but there is increasing awareness that there is more to making a market work efficiently than "getting the prices right." Indeed, if the other requirements of well-functioning markets are present, the "prices" will be right if they are not controlled.

A. *The Prereform Economic System*

What was the nature of the economic system that China's leadership set out to reform?[6]

Agriculture in China was collectivized in the winter of 1955–56 by the formation of agricultural producers' cooperatives with an average size of about 200 families. Most crop production was done on a collective basis with individuals receiving work points based on the amount of time, effort, skill, and political attitude brought to their collective work. Collective income at the end of the year was determined by the number of work points accumulated plus the value of each work point. The latter was calculated from the net income of the cooperative after deducting taxes, investment expenditures, and a welfare fund. Farm household members also worked in their spare time at home and on small "private plots" that constituted about 5 percent of all arable land. Household production could be sold on free markets that were allowed to exist for that purpose. Collective product was sold to the state marketing system. The state set quotas for the deliveries of the main crops and fixed prices for those deliveries at levels below what would have been required to elicit voluntary sales.

This cooperative system went through convulsive changes during the Great Leap Forward of 1958–59 with the formation of Rural People's Communes, but by 1962 the system had reverted to being much like what had existed in 1956–57, although the names were changed. At the height of the Commune movement

[5] Since the 1950s there has been a vigorous debate in Chinese over the appropriate role of prices and how prices should be determined. In the early 1960s Sun Yefang was one of the major advocates of greater use of the market and of price reform. He was severely criticized and the Institute of Economics was abolished for a time partly as a result. The debate over the reform of prices continues to attract the attention of economists. In the journal *Jingji yanjiu* (Economic Research), for example, in the two and a half years following the issuing of the urban reform directive in October 1984, there were a dozen or more articles dealing with aspects of price reform and the role of prices in the Chinese system. See, for example, Xue Muqiao 1985; Wang Zhenzhong 1985; and Yu Guangyuan 1986.

[6] For those interested in the English language literature on China's economy in the prereform period, see Dwight H. Perkins 1983.

in 1958 and 1959, the basic collective unit had around 5,000 families and food was being distributed as much on the basis of need as on the basis of the number of work points earned. Private plots and free markets were abolished and peasants were left with little time for household production. By 1962 the basic collective unit for organizing labor and determining the value of the work points (the basic accounting unit) had become the production team, a subunit of the Commune with only 20 to 30 families. Private plots equivalent to about 7 percent of arable land had been restored and free markets or rural trade fares were once again allowed to exist on a restricted basis. The marketing of collectively produced crops continued to be done through the state system on the basis of state set quotas.

This collective agricultural system remained intact with only modest changes until the end of the 1970s. There were variations in how work points were determined and a few brigades, subunits of the commune with several hundred families, were made basic accounting units. But these changes left the key features of the system of the early 1960s intact.

In industry in the 1950s the Chinese leadership set out to create a system consciously patterned on that of the Soviet Union. Thousands of Soviet technicians came to China to help install the system, and Chinese regulations governing the way the system worked were often direct translations of Soviet regulations. The first step in the early 1950s was for the state to take over all enterprises, whether public or private, controlled by the Kuomintang government or by the Japanese. By 1956 virtually all industry and large-scale commerce had been socialized. Even what were called joint public-private enterprises were really enterprises owned and controlled by the state.

Along with ownership went the installation of a Soviet-style system of central planning and control. The first five-year plan in principle governing major investment projects for the 1953–57 period was not published until 1955, but had some influence on investment in the latter part of the plan period. Annual plans set output targets that enterprises were obligated to try to surpass and input targets that governed the state's allocation of most important inputs. Inputs and outputs were generally not available on any market but only through the state's material allocation system. For the most part enterprises tried to maximize gross value output subject to these planned input constraints. Financial variables such as profits played only a secondary role backing up the plans' physical targets. The banking system was also little more than a unit designed to use financial controls to help enforce the physical targets. Investment in major new plant and equipment was carried out by separate enterprises in accordance with the plan and the new capacity was turned over to the producing enterprise on completion.

Almost from the beginning the Chinese were dissatisfied with the degree of centralization of decision making implied by this Soviet-style system. During the Great Leap Forward they virtually abandoned central planning and decentralized decision making to the enterprise. But decentralization was not accompanied by any method for coordinating inputs and outputs and the result was chaos.

As in agriculture, the state in the early 1960s attempted to restore many of the features of the pre-Great Leap system, but with one important modification. Planning based on physical input and output targets and the state-run material allocation system was restored, but no longer was all planning and allocation to be done by Beijing. Instead, many planning and allocation decisions were decentralized to the province and later even

to the county. Provinces in China have an average population of 30 to 40 million and some approach 100 million or more. In many cases enterprises obtained most of their inputs from within the province and most of their output was sold to others in the same province; hence there was no need to coordinate these inputs and outputs on a nationwide basis. By the 1970s a large proportion of Chinese enterprises were under the authority of the provinces rather than Beijing. In most cases, particularly with larger enterprises in strategic sectors, Beijing retained effective control even if planning formally was at the provincial level.

Trade between provinces in this decentralized system was handled in a way analogous to foreign trade. State trading firms in the provinces determined what was required from outside the province and the resouces available to export in exchange. Unlike the situation with foreign trade, however, Beijing then balanced the various provincial demands and supplies and allocated financial subsidies to those provinces running a deficit.

Formally, five-year plans and annual plans at both the national and provincial level continued to be drawn up and to govern performance throughout the 1960s and 1970s. In practice, in the Cultural Revolution period (1966–76), there were many forces interfering with any attempt at systematic planning. Scholars continue to debate whether a system of central planning existed in this period. One thing is certain, however. By some mechanism, inputs and outputs and their allocation between enterprises were coordinated in a way that avoided the chaos of the Great Leap Forward, and this coordination was in no sense achieved through a revived market mechanism. China in the industrial sphere remained a nearly complete bureaucratic command system. It is not clear just who in the bureaucracy did much of the planning and control of enterprises, but planning and control through the bureaucracy did take place. Prices were set by this bureaucracy as was the case prior to the Cultural Revolution. The level of savings and investment outside the rural sector was largely determined by the state budget. Enterprises had almost no autonomy and were, in effect, simply the bottom layer in a bureaucratic hierarchy.

B. *Rural Reform*

Reform of the economic system in rural areas preceded that in urban areas in part because the task in rural areas was easier and in part because many of the previously described conditions necessary for a well-functioning market were already in place before the reform effort began.

It is likely that no one in the Chinese government realized how far the process would take them when they started out on the task of rural reform after the Third Plenum held in December 1978. The objective was simply to raise the material rewards going to farmers and to relate those rewards as firmly as possible to the effort expended.

The first step was to free up the rural trade fairs or "free markets," a step implemented in 1979. Limited free markets, as pointed out above, had existed in China throughout the period of collective farming (1956–82) except for a year or two following the initial formation of the People's Communes. Their main function was to provide an outlet for the goods produced by the farm household working in its spare time and on its private plot. The private plots, with 7 percent of the arable land of the collective, were themselves a compromise with full collectivization designed to give farmers an incentive to work in their spare time. Grain and the major cash crops, with few exceptions, were raised on collective

land and sold to the state partly because the task of raising and harvesting grain lent itself to collective management and supervision. State control over the supply and marketing of grain was also seen as critical for maintaining the urban food supply. Supervising and planning household spare-time activities, in contrast, was completely beyond the capacity of rural cadres. Hogs and vegetables, for example, were largely spare time products, and when attempts were made to restrict private hog and vegetable farming, the result was invariably a sharp drop in the output and marketing of these products. Such drops occurred in 1955–56 and again in 1958–60.

While private plots and rural trade fairs had existed throughout the decade of the Cultural Revolution (1966–76), they were tightly controlled and their scope severely limited by rural cadres who opposed them on both ideological and practical grounds. The "practical" grounds were that private plots and free markets made the cadre's task of getting farmers to work on collective land more difficult. The marginal rate of return to peasants on private land was much higher than on collective land.

There is no reliable measure of the extent that rural markets were freed up in 1979, although the results were readily apparent to any traveler who visited the Chinese countryside in both the early 1970s and 1979. The impact on household incomes is also measurable. Income from raising poultry, livestock, and other small animals, primarily a private activity, jumped 58 percent in 1979 and another 35 percent in 1980 (State Statistical Bureau 1984). These increases are in current prices but inflation was less than 5 percent a year. Poultry and livestock were only one particularly dynamic component of private activity, but overall, according to one carefully reconstructed estimate, private sideline income rose by 10 percent in 1979 and 11 percent in 1980 as contrasted to 2.8 and 6.9 percent for rural collective income in those same two years (Lee Travers 1984).

Reform of Chinese agriculture's collective sector also began in 1979 but proceeded slowly until 1981 when the replacement of Hua Guofeng by Hu Yaobang as Communist party chairman removed the most reluctant reformer from a leadership position.[7] The name given to the new ways of organizing agriculture was the "responsibility system," and its spread was the result both of spontaneous actions at the local level and of facilitating actions in Beijing. In its early stages the responsibility system encompassed a variety of organizational forms. The objective of all of the new forms was to tie the reward received more closely to the work actually performed.

In principle the existing commune system with the production team of 30 families as the basic accounting and labor management unit was a system that tied reward to work effort. Farmers, as indicated earlier, received "work points" based on the amount of work they performed measured in both quantitative and qualitative terms. At the end of the year the total work points of all team members would be added up and divided into the net income of the team to determine the actual value of each point. Income was then distributed on the basis of the number of work points earned multiplied by the average value of each point.

In practice it was difficult to tie income

[7] Recently published data have made it possible to reconstruct many of China's economic policy debates. See, for example, Michael D. Swaine 1986. Among other sources Swaine makes good use of the unpublished but widely available version of a book compiling a record of major economic events and decisions. The published version is People's Republic of China Record of Major Economic Events Publishing Committee 1985.

to performance under this work point system. Self-assessment of the quantity and quality of work done was not likely to produce an accurate measure of actual effort. But mutual assessment by all members of the team was also difficult. It could take up enormous amounts of time and lead to great tension among village families because some would inevitably feel they were unfairly treated. Left to their own devices, therefore, production teams tended to favor more egalitarian forms of distribution. "Leftist" ideology could reinforce these egalitarian tendencies, but they were present even in its absence. A third alternative was to have work points set by team cadres acting as supervisors of the various production activities. Effective supervision of small peasant agriculture, however, is a much more difficult and costly task than supervision of a factory production line. Farm work often involves shifting back and forth among many different tasks on a highly irregular basis.[8]

The responsibility system's methods of relating reward to effort ranged from paying work points to small groups in exchange for completing specific tasks (for example, the transplanting of one hectare of rice seedlings) to the allocation of a certain amount of land to an individual family on a long-term basis with the family to receive all income from the land after meeting certain obligations to the collective and the state.

By 1983 most of the more collective forms of the responsibility system had given way to what amounted to individual household farming.[9] Nuclear farm families were allocated a portion of the formerly collective land for a period of 15 years in exchange for meeting certain tax and crop delivery obligations to the state. The commune and the production team no longer existed in any operational sense and this reality was recognized soon thereafter with the removal of the term *rural people's commune* from the names of rural governmental and production units. Except for issues connected with the distribution of income within individual families, reward was unequivocally tied to effort.[10]

With the demise of team farming, the major remaining issue was how the state was to go about ensuring that farm families produced what society and the state required. Under the collective system, the state signed contracts with collective units requiring them to deliver a certain amount of a given crop to the state at a fixed price, a price generally well below what would have been required to elicit comparable deliveries on a purely voluntary basis. From time to time the state did adjust the relative prices of particular cash crops to encourage greater production of cotton or sugar, but price adjustments were rare during the decade of the Cultural Revolution. The emphasis during that period was on grain and regional self-sufficiency. In effect, provinces and even smaller subregions were expected to provide for most of their own needs and to purchase as little as possible from outside their boundaries.[11]

Beginning in 1979, the state increased the premium paid for above-quota deliveries of grain and raised farm purchase prices in general, but with the large in-

[8] For an empirical attempt to test this proposition on the basis of a theoretical model, see Justin Lin 1985.

[9] For more detailed studies of the politics of rural reform in this period, see David Zweig 1983.

[10] One of the best collections of studies of the process of decollectivization, much of it based on scholars who did field work in China, is by William L. Parish 1985. Other useful articles include Kathleen Hartford 1985 and Yak-Yeow Kueh 1984.

[11] The major works on Chinese price policy in the 1970s and the impact of the grain self-sufficiency policy are by Nicholas Lardy 1983a and 1983b. See also interesting papers by Terry Sicular 1986a and 1986b. For an analysis of price policy in the 1950s and early 1960s, see Dwight H. Perkins 1966, chapters III–IV.

creases in grain and total agricultural output, the state budget soon found itself heavily burdened by the huge subsidies required by the organizations involved in marketing agricultural products. The main problem was that grain was sold in urban areas at prices fixed at a low level twenty years earlier. Increases in urban grain prices were blocked by fear of the political repercussions. By 1981 the cereals subsidy had reached 12.9 billion yuan or the equivalent of 10 percent of total government expenditures (Lardy 1983b, p. 194).[12] Total grain purchases had risen from 50.7 million tons in 1978 to 60.1 million tons in 1980 to 117.2 million tons in 1984.[13] Because the government had fixed grain delivery quotas for five years, above-quota purchases at premium prices rose particularly rapidly.

The government, therefore, had a powerful fiscal incentive to get rid of grain purchase quotas and their accompanying subsidies. At the same time the household responsibility system had made it much more difficult to set crop quotas in a way that did not interfere with allocative efficiency even more than was the case with collective units. There had been 4.6 million production teams but there were 185 million farm families in 1983 (China Agricultural Yearbook Compilation Committee 1984, pp. 67–68). Clearly it made sense to use the indirect methods of the market rather than the direct allocation of physical quotas to stimulate output of desired products.

The bumper harvest of 1984 which followed on several bumper harvests in previous years also increased the feasibility of moving to a market system. There was little danger that severe shortages would cause food prices to spiral upward. With storage facilities overflowing with grain, grain prices on the open market in 1984 fell by 10 percent from 1983 and rose only 1.8 percent in 1985 despite the poorer grain harvest (State Statistical Bureau 1985b, p. 535; 1986b, p. 100). In 1985 the state felt able to cut back sharply on the use of compulsory state quotas for agricultural crops including grain with the goal of their complete elimination within a short but unspecified period.

What was the impact of these reforms in the rural areas? Abstract reasoning alone cannot provide an answer because such reasoning can make a case for the productive superiority of either the collective or the private household form of agricultural organization. In fact some models of collective farm behavior demonstrate under certain assumptions that farmers in a collective system will work more rather than less than under an individual household system. In addition, if there are economies of scale, the collective farm may have further advantages. Problems of monitoring work effort, incomplete information, and uncertainty will tend to offset these advantages of the collective under some but not all circumstances.[14]

In certain respects the demise of the collective system may have had a negative impact on rural welfare. The communes were involved in much more than the cultivation of crops. They were also the main vehicle for the provision of rural education and health care. For a decade and more, for example, China's barefoot doctors had organized preventive health campaigns and dispensed remedies for minor illnesses and preliminary diagnoses of more serious illnesses requiring

[12] This percentage is derived by adding the cereals' subsidy to reported government expenditures to get a figure for government expenditure including the subsidy.

[13] These figures are in terms of "trade" or milled grain and are from State Statistical Bureau 1985b, p. 480.

[14] For an interesting attempt to explore these issues in the context of formal models of team and household behavior see Louis Putterman 1985.

referral to more qualified doctors. Partly as a result of this system, life expectancy in the Chinese countryside was much longer than in any other nation at a comparable level of per capita income. But barefoot doctors were part of the commune work point system and, with its elimination, they had to charge a fee for service and many of them found they could do better by abandoning health work and concentrating on agricultural production. Preventive campaigns in particular must have been difficult to organize on a fee basis because of the free rider problem.[15] The problem may have been more severe in poorer areas where the need for primary health care was greatest, but the ability to organize alternatives to the collective health care system was weakest.

Labor mobilization for construction of irrigation systems and rural roads was also made more difficult by the return to household agriculture. Such labor mobilization had been at the core of the Maoist vision of how to raise farm output in China with its massive quantities of underemployed labor. But 20 years of labor mobilization had produced results in terms of increased output that were disappointing. A few areas of North China enjoyed large increases in productivity as a result, but the gains in much of the rest of China proved illusory. The idea of mobilizing labor to build irrigation systems, after all, was one that went back 2000 years and most of the areas where this form of labor-intensive construction was feasible had completed such systems often hundreds of years earlier. In such areas, gains from a renewed mobilization effort were modest.[16]

Whatever the costs of the decline in these collective efforts, the overall performance of agriculture during this period of reform has amply justified the reformers' diagnosis of agriculture's slow growth rate. A general appraisal of the rate of growth of output and productivity in the Chinese economy is the subject of the next section. The question here is whether one can attribute what has happened to the reforms.

Data on the increase in agricultural output and its components during the 1970s and 1980s are presented in Table 1. Figures for rates of growth and for the composition of the increase in output are given for the period immediately preceding reform (1972–78), the first stage of reform when collective farming was still the dominant form of agricultural organization (1979–82), and the second stage of reform when farm management and accounting were on a household basis (1983–86). Because farm output fluctuates from year to year as a result of weather and other causes, growth rates for short periods such as those in the table are quite sensitive to which years are selected in defining a period. The decline in the grain output growth rate in 1983–86, for example, is due to the fact that 1985 and 1986 were poor years for grain, in part, but only in part, because of weather. The total area sown to grain in 1985 and 1986, for example, was respectively 3.6 percent and 1.7 percent below 1984 and other inputs may have been shifted to nongrain crops as well. Still, with this qualification, the data in Table 1 are useful indicators of the principal sources of growth of Chinese farm output. A more systematic analysis will have to wait until the Chinese collect and release large micro data sets that can be

[15] The number of barefoot doctors fell from 1.35 million in 1982 to 1.25 million in 1984 and one suspects that the amount of time spent on health activities by barefoot doctors declined even more sharply. See a discussion of these issues in William Hsiao 1984 and Perkins and Shahid Yusuf 1984, chapter 7.

[16] For an elaboration of this argument see Perkins, 1969, chapter IV.

TABLE 1

THE COMPOSITION OF AGRICULTURAL OUTPUT GROWTH
(based on 1980 constant prices)

	1971–78	1980–82	1982–86
A. Growth Rates (in percentage per year)			
Gross value of agricultural output	4.3	7.5	13.0
Crops	2.7	5.6	4.2
Grain	2.9	3.9	2.5
Nongrain	2.1	13.2	9.4
Animal husbandry	2.6	10.1	10.1
Subsidiary output	17.9	13.7	40.0
Village industry	23.5	14.8	43.1
B. Share in Total Output Growth (in percentage)			
Gross value of agricultural output	100.0	100.0	100.0
Crops	45.8	49.2	17.8
Grain	39.6	27.1	7.9
Nongrain	6.3	22.1	9.8
Animal husbandry	9.1	19.7	11.5
Subsidiary	34.5	25.5	66.3
Village industry	27.2	19.5	58.7
Forestry and fisheries	10.6	5.6	4.4

Sources: Data for this table were derived from figures in State Statistical Bureau 1986b, pp. 32, 37; State Statistical Bureau 1984, pp. 133, 141, 448; and State Statistical Bureau 1987, pp. 24, 28.

The value of grain output in 1980 was derived by multiplying grain output in tons in each year by the average purchase price for all grains in 1980 of 360.6 yuan per ton. The value of nongrain crop output was derived by subtracting the value of grain output from the reported figure for total crop output.

used to estimate national and regional agricultural production functions.

In the period prior to reform, the main contributions to agricultural output growth were increases in grain and in subsidiary output, mainly rural small-scale industrial output which the Chinese include in their gross agricultural production figures. After the freeing up of rural markets in 1979, all components of farm output grew more rapidly including grain despite the de-emphasis on "taking grain as the key link." The largest increases in output growth, however, were in cash (nongrain) crops and animal husbandry. After decollectivization, cash crops and animal husbandry continued to grow rapidly, but the most dramatic contribution to accelerated growth was by rural industry. Nearly sixty percent of the increases in output in the three years, 1983–86, was accounted for by village industry.

The increase in grain output despite a decline in the acreage sown to grain of 10 percent between 1978 and 1985 can be seen as a rise in X efficiency together with a rise in inputs other than land. The increase in cash crops and animal husbandry was due to both improved allocative efficiency as regions paid more attention to their comparative advantage to increases in inputs such as chemical fertilizer and improved plant varieties, and to improved total factor productivity or X efficiency, particularly the release of energies connected with private household output.[17] The dramatic rise in rural industry, particularly after 1982, cannot be readily explained in these terms without more information and research on the policy changes that affected rural industry. Certainly there is more to the story than the impact of decollectivization and the freeing up of rural markets. In fact, a plausible case can be made that decollectivization should have made it more difficult to raise capital and labor for rural

[17] One cannot really measure the contribution of better allocative and X efficiency without a more systematic attempt to estimate agricultural production functions. No such attempt is made in this essay. One can say that the growth of such key inputs as mechanical and electric power and chemical fertilizer all increased at rates no higher and in most cases lower in the 1979–85 period as contrasted to the 1965–78 period. Thus the rise in output growth rates combined with a decline in input growth rates might imply a rise in productivity of some kind, but these facts do not constitute conclusive proof that such was the case. Variation in weather conditions further complicates the analysis.

industry. Clearly, however, that was not the case.

The transformation of rural China from a system riddled with bureaucratic controls to one based increasingly on market forces thus was a clear success in raising output and productivity and was perceived as such by much of China's leadership and probably by most farmers. In fact it was this success with agriculture that provided much of the momentum for those desirous of reforming industry.

The task of reforming agriculture, however, was inherently easier than that of industry. Many of the ingredients of a successful market system were already in place prior to reform or could be readily created. Many agricultural products were sold on markets prior to the beginning of reforms, so rural markets, if only in embryonic form, already existed. Factor markets, to be sure, did not exist and they do not really exist today and their absence may become a more serious problem with time. Perhaps most important, households are natural profit or income maximizers. They have little choice, because the state is not likely to bail them out if they run at a loss. In China the state's only obligation to rural households has been to step in when they are threatened by starvation. Transfer of decision-making authority from commune cadres to heads of households thus automatically created decision-making units that behaved in accordance with market rules. Finally, farm households are so numerous that atomistic competition is the norm. Major crop prices, however, are not generally set by the market in China. As in many other countries, they are set by the state. China has long experience in adjusting relative agricultural prices to stimulate lagging sectors so, while relative price distortions still existed in China in the mid-1980s, they were not the source of major resource misallocations.[18] The major problem for setters of farm purchase and sales prices was how to eliminate the huge state subsidies that contributed to the deficit in the government's budget. Eliminating these subsidies, however, had profound implications for the distribution of income and hence for political support for the reforms. Bumper harvests in the 1980s did not by themselves solve this problem, but they did make the task of eliminating subsidies easier.

C. *Urban-Industrial Reforms*

On October 20, 1984, the Chinese government released a document on urban reform. The document was meant to signal the beginning of a major push to alter significantly the system of Soviet-style central planning that China had established in the 1950s and had more or less maintained throughout the 1960s and 1970s. A careful reader of this document, however, could be excused for being puzzled by what this document portended for China's urban-industrial reforms. There was no clarion call for the introduction of market socialism. Instead there was talk of increasing the role of economic levers (read the market) combined with continued central planning for goods of particular importance to the economy and an expanded role for something called "guidance planning" which different people defined in dissimilar ways.

In fact the October 1984 statement, "On the Reform of Economic Structure," represented an important step toward major changes in the system. Experi-

[18] Relative price distortions, of course, were far from being completely eliminated. Grain prices, for example, are probably too low with the elimination of premium payments for above-quota sales, and feed grain prices may have been low relative to other grains. See Thomas Wiens 1987.

ments with urban reform had begun immediately after the Third Plenum of December 1978 and continued throughout the early 1980s. But there was powerful opposition to the more market-oriented reforms in the person of Chen Yun, a member of the Standing Committee of the Politburo and a dominant economic policy maker in the 1950s and again in the early 1960s after the failure of the "Great Leap Forward" of 1958–59.

Chen Yun's views were expressed in a number of speeches but the essential point was contained in a March 8, 1979, statement:

> There must be two types of economy, *throughout* [emphasis added] the socialist period:
>
> (1) The planned economy (the type that needs to be developed in a planned and proportionate way).
>
> (2) The market-regulated economy (the type that is not subject to planning but is conducted in accordance with the changing market supply and demand, i.e., regulated in an unplanned way).
>
> The first type is fundamental and predominant; the second, though supplementary and secondary in nature, is indispensable.[19]

In the 1950s and particularly during the decade of the Cultural Revolution this statement would have (and did) put Chen Yun solidly in the ranks of those opposed to the radicals around Mao who saw no role for the market at all. But by 1982 this view represented those most opposed to far-reaching change in the industrial system. Debate between this view and those who wanted to move ahead rapidly slowed reform for two years, but by 1984 the pace of reform once again accelerated (Wu Jinglian and Zhao Renwei 1987).

How far had China in fact gone toward reform by 1985–86? To lend clarity to an inherently complex topic, the issues involved will be grouped around the four essential features involved in making a market system work outlined above.

1. *Creating Markets for Inputs and Outputs.* In the 1960s and 1970s most Chinese industrial products were distributed through administrative channels in accordance with the dictates of central and provincial plans. By 1984–85 a considerable share of these inputs and outputs were being purchased and sold on the market at prices largely set by market forces. The products involved included steel, machinery, and raw materials and not just minor inputs and a few consumer goods. A survey of 429 enterprises indicated that market sales by these enterprises had reached 32 percent of their total sales by 1984 and rose further to 44 percent in the first half of 1985. Material inputs supplied by the market over the same period rose from 16 percent to 27 percent (General Survey Group of the Chinese Institute for Economic Systems Reform 1986, p. 45).

Percentages such as these, however, are only a rough guide to whether distribution is dominated by market or bureaucratic forces. Most enterprises, for example, acquire inputs both through administrative channels and through purchases on the market. Administrative allocation, as already indicated, is governed by annual plans set by the central or provincial government. Most enterprises, however, will require more inputs than are provided for in the original plan. Under the system as it existed prior to reform, these additional inputs were obtained either by going back to the planners for supplementary allocations or by informal trades with other enterprises. After reform many of these additional inputs were instead purchased on the newly created markets. If all inputs had

[19] This statement was reprinted in Chen Yun, 1986, pp. 14–15. For a more complete exposition of Chen Yun's views in earlier periods, see Lardy and Kenneth Lieberthal 1983.

been available for purchase on the market, one could argue that market forces governed most enterprise decisions because the marginal choices were being made on the basis of prices on the market, not the prices of goods allocated administratively. But where key inputs were not available through the market, for example, electricity, it was planners' decisions about how much to allocate rather than market forces that governed enterprise behavior. In other cases, inputs may have been available on the market, but plan allocations at lower prices met all of an enterprise's requirements. In such cases it was also planners' decisions that determined enterprise behavior. The key question is which of these two kinds of systems, market or bureaucratic, dominated decision making in most Chinese enterprises. Evidence on that score is not really available. There is no doubt that market forces play a greater role than in the past, but the administrative allocation of certain key inputs ensures that enterprises must still pay close attention to the wishes of the planning bureaucracy.

Factor markets, as contrasted with product markets, have not been freed up to any significant degree. Urban land is in very short supply relative to demand for it, and acquisition of new land usually involves complex negotiations with suburban communes or townships in which the township or other rural unit gives up part of its land in exchange for guaranteed jobs for some of its members. The labor market is also highly restricted. Regular workers in enterprises have permanent employment, the famous "iron rice bowl," and workers are allocated by administrative means to enterprises and are not free to change jobs. Enterprises can and do hire "temporary" workers who are easier to dismiss in slack times, but there are numerous restrictions on a firm's right to hire new workers, temporary or permanent.[20]

Reform groups in the government have advocated the freeing up of the urban labor market. They have taken polls to show that a large share of enterprise employees would like to change jobs and would be willing to take the responsibility for themselves for finding a new job (General Survey Group of the Chinese Institute for Economic Systems Reform 1986, ch. 5). Labor in much of the urban collective and individual service sector[21] is able to move from job to job. But in the mid-1980s regular (as contrasted to temporary) employment in state enterprises was still permanent and governed by administrative rather than market rules. Many enterprise jobs could in fact be inherited by the children of workers who retired.

Capital markets involve issues that are best left to the next section.

2. *Making Enterprise Managers Behave in Accordance with the Rules of the Market.* The primary target in the objective function of managers in a Soviet-style centrally planned economy is maximization of gross value of enterprise output. Many of the characteristic features of the Soviet economic system derive in part from this objective function, notably the excessive buildup of inventories and the neglect of product quality.

The objective function of Chinese enterprises by the first half of the 1980s, in contrast, paid little attention to gross value of output. Questionnaires sent to

[20] The urban labor allocation and wage system by the mid-1980s was still much like what it was in the 1950s and 1960s. For an analysis of the system in that earlier period, see Christopher Howe 1973.

[21] "Urban collective and individual service sector" employment refers to people who work in restaurants, shops, and small factories that are owned on an individual or cooperative basis. The contrast is with people who work in state enterprises that are owned by "all the people" of the nation.

359 enterprises came back with "improvement of efficiency and benefits" as the number one objective with "fulfillment of production quotas" listed in the eleventh position (General Survey Group of the Chinese Institute for Economic Systems Reform 1986). Attempts to get behind these shorthand answers to questions about objectives suggest that enterprise managers are driven by a desire to increase benefits to enterprise employees through higher bonuses, better housing, and more employment opportunities for their children (William Byrd et al. 1984; Byrd and Gene Tidrick 1985). The main avenue for pursuit of these ultimate objectives was increased profits. The portion of profits that enterprises have been allowed to retain has risen steadily in the 1980s, and profits have become the main source of funds spendable according to an enterprise's own determination of its needs, as contrasted to funds whose use is specified in detail by the planning bureaucracy.

This pursuit of profits, however, does not prove that enterprises are driven by market as contrasted to bureaucratic forces. The issue is one of how enterprises pursue profits. If profits are raised primarily through bargaining with the bureaucracy for lower tax rates or by getting hold of larger allocations of low-priced raw materials from the central planners, Chinese enterprises would still be operating in a bureaucratic rather than a market environment.

With respect to tax policy, the objective is clearly to abandon the pre-1970s Soviet-style system where all profits after paying turnover taxes and subtracting a small retained portion for the enterprise are simply turned over to the state. In this kind of system there is in effect a 90 plus percent corporate profits tax. The Chinese, in contrast, are attempting to move toward a corporate profits tax that allows substantial retained earnings and is the same for all enterprises. In the practice of the mid-1980s, however, the rates varied enormously between enterprises and were set through individual bargains made with the state. The main obstacle to adopting a single rate was the wide variation in enterprise profit rates, including many enterprises operating at a loss, together with the state's reluctance to allow these loss makers to fail.

The existence of loss-making enterprises propped up by subsidies is symptomatic of what János Kornai calls the "soft budget constraint." It is a pivotal obstacle to moving from a bureaucratic to a market system. The problem has several dimensions, but the essential question is whether enterprises must live within a budget set by the profitability of the firm, where profitability is determined by market forces rather than bureaucratic manipulation. One dimension is whether enterprises that run losses for long periods will be allowed to fail. If, instead, losing enterprises can always turn to the state to bail them out, the incentive to live within the enterprise's own resources is a weak one. The Chinese have introduced a bankruptcy law designed to move away from the guaranteed bail-out, and in 1986 the first bankruptcy was announced with great fanfare in Shenyang. But there was considerable resistance to the bankruptcy law when it was first introduced and little or no evidence as of 1987 that bankruptcy in any form would become common.[22]

Another key dimension of the soft budget constraint involves the availability of bank credit and grants from the central governmental budget. The Chinese in the 1980s have been moving steadily away from provision of investment funds on a grant basis from the government

[22] There is a growing literature in Chinese on the appropriate role of the bankruptcy law. See, for example, Zhu Yongyi 1986 and Wu Ming 1986.

TABLE 2

INVESTMENT IN AND OUTSIDE OF STATE BUDGET

(annual averages in billions of yuan)

Period	Investment in State-Owned Enterprises: Within State Budget		Investment in State-Owned Enterprises: Outside of State Budget		Investment by Collective Enterprises in Individual Housing and for Other Purposes		Total Accumulation (Investment)	
	amount	%	amount	%	amount	%	amount	%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1953–57	10.87	54.5	1.36	6.8	7.73	38.7	19.96	100.0
1958–62	19.14	55.2	7.00	20.2	8.50	24.5	34.64	100.0
1963–70	16.86	47.2	4.50	12.6	14.37	40.2	35.73	100.0
1971–79	34.23	41.2	18.17	21.9	30.61	36.9	83.02	100.0
1980–84	36.54	27.5	51.19	38.5	45.37	34.1	133.10	100.0

Sources: State Statistical Bureau 1985, pp. 36, 413, 420, 450. See also Barry Naughton 1986.

Explanation of table:

(1), (3) State enterprise investment includes both "capital construction" and "investment in technical updating, transformation."

(5) These figures are derived as a residual [(7)–(1)–(3)]. The Chinese have published estimates for these categories only for the 1980s.

(7) Total accumulation includes all investment in material-producing sectors including housing minus depreciation.

budget. Both working capital and investment financing now come mainly from the enterprise's own funds or from the banking system at government-determined rates of interest. The magnitude of these changes with respect to investment is given by the data in Table 2. By the 1980s only 27.5 percent of total accumulation (roughly equivalent to gross domestic investment) went through the state budget.

Turning funding over to the banks, however, does not necessarily harden the budget constraint. The fundamental question is who decides whether or not a loan is to be given. If interest rates are below market-clearing rates, as is apparently the case in China, there is credit rationing rather than market allocation.[23] The issue then becomes one of who determines which clients of the bank receive the funds available and what criteria they use to make these allocations. In China government authorities, both central and local, play a major role in these decisions. Thus enterprise managers in need of funds must still deal with the government bureaucracy and their allocation criteria. Still, the situation is a far cry from the lax financial policies of the Great Leap Forward (1958–59) or the system of the 1960s when the banking system existed mainly to monitor the plan and had little authority of any kind to allocate funds. In that period any enterprise that wanted credit could usually

[23] If one could assume that enterprises maximized profits subject to output and input prices and subsidies and taxes were outside of enterprise control, then the excess demand for credit would be prima facie evidence that the interest rate did not reflect the true scarcity price of capital. Because one cannot fully make these assumptions, there could be excess demand even if interest rates were set at rates that would equilibrate a financial market if all participants were playing according to market rules.

get it if it could show that the proposed uses had some connection with the plan. Enterprises were often awash with credit, but these funds were of limited use because inputs were available only through administrative allocation determined by the plan. The constraint on enterprise behavior, therefore, was the plan, not the enterprise budget.[24] Even the shift to greater emphasis on enterprise-retained profits did not necessarily harden the budget constraint as long as the level of taxes payable to the state remained an item for negotiation between the enterprise and the bureaucracy. The state, as mentioned above, is attempting to move to fixed tax rates, which would harden the constraint, but as of 1986 it was still possible for an enterprise in financial difficulty to negotiate a lower rate.

Finally, there is the question of who hires, fires, and promotes enterprise managers. Even with a hard budget constraint, managers may pay special attention to the interests of the planning bureaucracy if they hope someday to be a part of that bureaucracy. If, on the other hand, they care most about their share of profit-based bonuses or the goodwill of their workers who want bonuses and jobs, they will behave more in accordance with the rules of the market. In an effort to reduce this element of bureaucratic control, there is even some talk in China of creating independent boards of directors for enterprises and allowing the boards to select the managers. Little has been done to implement this proposal, however, and it has vigorous opponents (Xu Jingan 1987; Ma Bin and Hong Junyan 1987).

Clearly in the mid-1980s both bureaucratic and market forces governed enterprise behavior. Unfortunately there is no systematic way to measure the relative strength of these opposing forces with the data now available, but there is indirect evidence. Foreign trade liberalization in 1984–85, for example, led to a substantial run on foreign exchange reserves and a reintroduction of tight central exchange controls, suggesting that there was considerable excess demand for imports. But was this excess demand due to a soft enterprise budget constraint, an overvalued exchange rate, or simply the expectation that foreign exchange liberalization would not last long? Whatever the source of this excess demand, it was far less than the excess import demand that appeared when trade was liberalized in 1977–78 prior to the reforms. At that time, Chinese firms are reported to have signed contracts or letters of intent to purchase some U.S. $600 billion worth of foreign imports, a formidable excess given that exports at that time were running at U.S. $10 billion a year.[25] By comparison with this experience in 1977–78, the budget constraint had been hardened considerably in the mid-1980s.

Another relevant indicator is the "Kornai index," which measures the ratio of input inventories to output inventories. High ratios are indirect evidence of a seller's market created by bureaucratically controlled shortages of inputs, while a low ratio indicates the demand-constrained buyer's market that is typically found in a market economy. The Kornai ratio for a sample of Chinese enterprises fell from 4.4 in 1984 to 3.8 in the first half of 1985. Comparable figures for the Soviet Union are 9.2–12.3, for Hungary

[24] There is a good deal written about the operation of the banking system prior to the recent reforms. See, for example, Katherine Huang Hsiao 1971; William Byrd 1983; and Perkins 1966. Articles that take the story up through 1984 or early 1985 include Barry Naughton 1986 and Andrew G. Walder 1986.

[25] These figures come from a private communication to the author and were estimated by a firm in Hong Kong.

7.3–8.5, and for the United States 0.9–1.2 (General Survey Group of the Chinese Institute for Economic Systems Reform 1986, p. 18).

Neither of these tests is conclusive, but when put together with more impressionistic material, there is little question that China had made strides toward creating enterprises that behave according to market rules. It is equally the case, however, that government bureaucratic involvement in enterprise decisions remains pervasive if less strong and direct than in the past.

3. *The Introduction of Competition and the Abolition of Monopoly Power.* There was little direct competition in China's centrally planned system of the prereform era. There were few markets on which to compete. Markets made the job of central planners more difficult by directing inputs from designations set by the plan to alternative unplanned uses.

When China decentralized the allocation of inputs and outputs in the 1960s and 1970s, it did so, not by increasing the role of the market, but by setting up planning and materials allocation systems at provincial and even county levels. Typically a provincial-level firm would acquire most of its inputs from within the province and would have a monopoly over the provincial market for its output. County-level firms similarly would have a monopoly of the market within their county for such products as cement or farm machinery. If the demand for threshers within the county was exhausted, the enterprise did not attempt to find a market for its threshers in a neighboring county. Instead it shifted to producing some other type of machinery where the county's demand had not yet been met (American Rural Small-Scale Industry Delegation 1977).

At the national level competition was further restricted by isolating domestic enterprises from foreign competition. Special corporations under the Ministry of Foreign Trade had a complete monopoly of imports and exports within their sphere of product specialization. Generally these corporations would not import items that were being produced within China even if the Chinese products cost more and were of lower quality. Domestic firms thus did not have to worry about losing their markets to superior foreign products.

It is not that the Chinese saw no virtues in competition. Emulation campaigns, where one enterprise attempts to surpass another in producing a new product or more of an old one, were a regular feature of enterprise life. But competition was indirect and not allowed to interfere with the orderly allocation of inputs and outputs through the plan.

In the early 1980s, however, the Chinese made a major effort to increase direct competition for markets. Competition was most readily apparent in urban services when the government abolished the regulations that had prevented private and collective traders from operating. State-run department stores, repair shops, and food distribution outlets then suddenly found themselves in a head-to-head battle for customers with individual traders and small collective shops. To keep up with the competition, state stores had to stay open later and pay more attention to serving their customers.

Industries also lost their monopoly control of regional markets. Where buyer's markets existed because products were in excess supply, enterprise behavior had to be modified, often substantially, to meet the new competition. The Chongqing Clock and Watch Factory, for example, found itself in 1981 facing a saturated market for clocks in part because the southwest China market has been opened up to competition from high-quality efficient producers in Shanghai

and Tianjin. The Chongqing Factory, having failed to reintroduce effective bureaucratic limits on competition, was forced to cut prices, launch a serious market effort, and develop new products more in line with consumer preferences (Byrd et al. 1984).

Where excess demand prevailed, however, competition was more hypothetical than real. There was little market pressure to pay more attention to marketing, lower prices and costs, and raise quality Excess demand for foreign imports combined with tight controls over foreign exchange meant that competition from foreign producers also was largely absent. Chinese exporters of manufactures, in contrast, did have to meet foreign competition in markets outside of China, but it was foreign trade corporations which did most of the exporting, so that competitive pressures were filtered through these corporations and may or may not have been felt by the manufacturer of the goods exported.

4. *Setting Prices in Accordance with Relative Scarcities.* Chinese prices fluctuated in accordance with market conditions in the early 1950s, but with the introduction of central planning and the abolition of the private sector, industrial input and output prices were frozen at existing levels. For all but a few products, industrial prices remained frozen at mid-1950s levels for the next quarter century. China did not even institute the periodic price reforms found in the Soviet Union designed to make prices bear some relation to costs.

During these two and a half decades of frozen prices, Chinese industry grew from 16 percent of net material product in 1955 to 50 percent 1978 (both in 1980 prices). Relative conditions and hence prices in the world outside of China also changed during this period most notably as a result of the OPEC oil price rise of 1973. Chinese prices in the mid-1950s may have been a reasonable reflection of relative scarcities of that time, but they bore little relation to the relative scarcities of the 1980s.

Chinese reformers recognized early on that an increased role for market forces required major changes in relative prices. The question was when and how to introduce these changes and according to what criteria. There were hesitant steps in 1979–82 to raise or lower state-set prices for particular industrial products such as coal and iron ore. This effort picked up momentum in 1983 with price changes for certain consumer durables, textiles, chemical products, and railroad freight, but the state prices of most industrial products remained frozen (Naughton 1986, p. 626).

The real breakthrough came in 1985–86 with the recognition that, if prices on the portion of enterprise inputs and outputs available through the market were allowed to fluctuate, the state could avoid the arduous task of changing prices by administrative means. Prices would reflect scarcities of these unregulated markets. China thus created a dual price system. More than half of all industrial inputs and outputs continued to be distributed at administered prices, but it appears that many marginal enterprise decisions were made on the basis of uncontrolled market prices. The question in 1986 was whether to retain this dual price system indefinitely or move toward a single market determined set of relative prices either quickly or slowly (Cyril Zhiren Lin 1986). Advocates of a return to administered prices also existed but included mainly those who wished to stick with a centrally planned economy.

A move toward the greater use of market prices opens up the issue of which market prices to use, those of the uncontrolled market of the dual price system,

of a single unified national market, or of the world market.[26] If world market prices are desired at least for traded goods, a mechanism is needed to bring Chinese domestic relative scarcities in line with relative scarcities in the outside world. In the absence of more foreign trade liberalization than is currently contemplated, however, it will be difficult to create the pressures required to bring domestic market prices for tradeable goods in line with world prices.

D. *Opening up the Economy*

The subject of foreign trade deserves greater emphasis in this context than is given by the passing references made in the preceding discussion. One of the most dramatic elements in China's urban reform movement was the decision to reject the autarkic policies of the previous two decades and to open up the economy. Opening up actually began earlier than most other urban reforms and is a major reason why the years 1977 and 1978 should be viewed as part of the reform period.

It is a widely held view that the rapid expansion of foreign trade, particularly the fast-paced development of the export of manufactures, had much to do with the high level of economic performance experienced elsewhere in East Asia (Japan, South Korea, Taiwan, Hong Kong, and Singapore). Between 1977 and 1981, Chinese exports as well rose from U.S. $7.6 billion to U.S. $22.0 billion, or at 30 percent a year, a very high rate even when the relatively high world inflation rates of that period are taken into account. In addition, the government took other steps to open up the economy. China returned to its seats at the World Bank and the IMF and began to borrow from those institutions. A Joint Venture Law was passed and foreign direct investment, formerly prohibited, was actively encouraged. Special economic zones, in effect export-processing zones, were created in Guangdong and Fujian Provinces. By 1985 foreign credits and direct investment commitments reached U.S. $9.87 billion before falling off in 1986, although foreign capital actually used in 1985 was U.S. $4.46 billion (State Statistical Bureau 1986a, p. 581). The cumulative total of actually utilized foreign investment and credits over the 1979–85 period was U.S. $21.8 billion.

How did this opening up further the urban reform process? Exporters of manufactures, to begin with, operated in a highly competitive market. Chinese bureaucratic planners had no control over consumers in Hong Kong, the United States, or Japan. Chinese exporters, however, were usually foreign trade corporations, not the manufacturers of the goods exported. With the advent of reforms, the number of these foreign trade corporations proliferated and such firms did to some degree compete with each other. But competitive pressure on the manufacturers themselves was indirect. Chinese enterprises may also have felt competitive pressures on the import side, but high excess demand for imports kept bureaucratic controls over imports tight. It is unlikely, therefore, that competitive pressure from imports operated through the market mechanism by reducing the profits of domestic firms producing import substitutes. Imports,

[26] The coexistence of two sets of prices for the same products was made possible by the fact that enterprises were not free to sell on whichever market gave them the highest price. Instead, enterprises had first to meet their delivery quotas set by the plan. Only the surplus over and above those quotas could then be sold at higher prices on the market. Discussions of the dual price system and its implications for efficiency and other issues can be found in various sources including Wu Jinglian and Zhao Renwei 1987 and Byrd 1987.

however, may have had a positive "demonstration effect" on domestic enterprises. The more Chinese purchasers became aware of the quality differences between a Sony and Chinese-brand television set, or between a Toyota and a Shanghai automobile, the more pressure there was on Chinese producers to raise their quality.

It is impossible to measure the quantitative impact of these competitive pressures, but it is likely that their magnitude was much less than that among China's East Asian neighbors. To begin with, even after opening up, trade was still a small share of China's GNP or of its industrial output. Exports of goods and services from South Korea in 1975, for example, were 22 percent of GDP in 1975 and rose to 39 percent in 1985, and the share of imports was even higher (Economic Planning Board 1986). China's export share in GDP, presented in a later part of this paper, was only about a third the level of Korea in 1975 (see Figure 3, which appears in Section IV of this article). A lower export ratio is to be expected given China's large size and the fact that there is a strong negative relationship between trade share and country size. The fact remains, however, that a lower trade ratio means less competitive pressure from abroad.

Imports were not freely available through the market in either China or South Korea. The bureaucracy set and allocated quotas in both countries, thus sharply restricting competitive pressures from this source. The degree of bureaucratic control in China, however, was more pervasive than in Korea, even the Korea of the tight import controls of the 1960s. China did attempt to loosen controls by decentralizing the authority to import to provinces and even on occasion to enterprises, but the process remained a highly bureaucratic one.

Will bureaucratic controls over foreign trade be loosened further in coming years, and will such a loosening move China's foreign trade most of the way toward a market system? There are formidable obstacles in the way. In a bureaucratic system with a soft budget constraint there is an almost insatiable demand for imports. Nearly anything imported can be sold at a large profit, particularly when it comes to high technology investment goods. Conceivably the exchange rate could be devalued to a point low enough to bring import demand in line with the availability of foreign exchange, but the resulting exchange rate would have to fall a long way as long as the soft budget constraint continued to persist in Chinese industry. China's currency has been devalued several times in recent years without achieving an equilibrium in the demand and supply of imports or anything close to it.

The bureaucratic command system is also an obstacle to the expansion of exports of manufactures. It is difficult for enterprises used to supplying goods of poor quality to a captive market to convert to meeting the constantly shifting demands for high-quality stylish products required by export markets in the West and Japan. Despite this handicap, however, Chinese exports rose by over 20 percent a year between 1976 and 1986 (in nominal U.S. dollar terms) from U.S. $6.9 billion in 1976 to U.S. $30.9 billion in 1986 and manufactures made up over 60 percent of total exports in 1986. The question for the future is whether exports will continue to grow rapidly and whether import demand can be held back through hardening the budget constraint, devaluation, and other similar measures to a point where the supply and demand for traded goods will be in equilibrium and bureaucratic controls will be unnecessary. China still has a long way to go.

E. *Macro Economic Controls*

In principle the question of functioning markets and appropriate relative prices is separable from the question of the overall price level. In practice it is difficult for reformers to keep these two questions apart. Inflation in the general price level usually leads to attempts to control inflation that typically have profound implications for relative prices and the orderly functioning of markets. Nowhere is this more true than in China where political sensitivity to inflation is keenly felt. The Communist party came to power in part because of the hyperinflation of the 1940s, and thirty years of a nominal price level that hardly rose at all have made the Chinese population averse to even small annual increases in the general price level.

Official indexes of Chinese retail, worker cost of living, and free market (trade market) prices are presented in Table 3. As these figures indicate, China had little or no overt inflation prior to the 1980s except for the famine harvest years of 1960–62, when output for consumers fell much faster than money income and purchasing power. Prices between 1966 and 1979 were in essence frozen, but in 1980 China got its first burst of overt inflation since 1962 followed by another jump in 1985. In fact, inflation may have been higher than these figures indicate because the retail cost of living indexes reflect state list prices better than they reflect what consumers actually paid for goods purchased.

Controlling inflation on consumer markets was a comparatively simple task prior to reform. Controlling inflation on industrial investment and intermediate goods markets was even easier and in fact trivial because prices were frozen and had little influence on allocation as pointed out above. Excess demand on the investment and intermediate goods markets did not spill onto the consumer market because the wage bill was tightly controlled by the central planners, not the individual enterprises.

TABLE 3

ANNUAL INCREASES IN PRICES
(in percent)

Period	General Retail Prices	Worker Cost of Living	Trade Market Prices
1950–59	2.3	2.6	n.a.
1959–62	7.5	7.3	n.a.
1962–65	−4.1	−3.6	n.a.
1965–79	0.2	0.4	n.a.
1980	6.0	7.5	3.3[a]
1981	2.4	2.5	4.9[b]
1982	3.3	2.0	3.5
1983	1.5	2.0	4.1
1984	2.8	2.7	0.3
1985	8.8	11.9	17.2
1986	6.0	7.0	8.1

Sources: State Statistical Bureau 1984, p. 433; State Statistical Bureau, 1985b, pp. 530, 535; State Statistical Bureau 1986b, pp. 100–01; State Statistical Bureau 1987.
[a] 1980 figure is the average rate of increase for the two years, 1979 and 1980.
[b] The 1981 figure was derived from an index for 1980–85.

The control of inflation was thus a problem of matching the planned increase in state-marketed consumer goods at fixed retail prices with the increase in the wage bill and the value of state purchases of farm products minus the increase in individual bank savings deposits. All these variables except perhaps savings deposits (and private hoarding) were under the direct control of the planners.

Inflation is still possible in this system, usually because the wage bill may grow more rapidly than the availability of consumer goods. Inflation may be either overt or repressed. In the latter case it manifests itself in the form of an involuntary increase in savings deposits. Such

inflationary pressure is likely to be the case if employment in the producer goods sector is growing more rapidly than in the consumer sector or if there is a shortage of labor and weak control over wage rates leading enterprises to bid against each other for workers. Both of these conditions existed in the Soviet Union in the 1930s. But in China in the 1960s and 1970s, labor surplus conditions made control of the wage rate by the center comparatively easy, and strict controls on hiring and rural-to-urban migration limited the ability of enterprises to increase the number of workers on their payroll. The main motivation behind the restriction on rural-to-urban migration was a desire to avoid additional expenditures on urban infrastructure and housing, but the policy had the additional role of making it easier to control the size of the wage bill.

In statistical terms China's experience with inflation since the 1950s fits a monetarist or quantity theory view of the process. Gregory Chow, for example, estimates an equation that explains the increase in the logarithm of retail prices with the increase in the logarithm of the money supply divided by real national income available.[27] but one gets comparable results with quite different assumptions about the relevant variables and the nature of the relationship between them.[28] Much more work is required before we have a reliable model for analyzing China's inflationary experience.

In general what was happening in China was that money (defined as currency in circulation, because bank demand deposits played no consumer role) was used almost exclusively by consumers. There were strict and very low limits on the use of currency by enterprises. The demand for currency was thus highly correlated with cash income, hence with the wage bill and farm purchases, which are the main sources of cash income. The task for planners, therefore, was to control money incomes and the money supply would take care of itself.[29]

This straightforward method of controlling inflation, however, began to break down with the reforms of 1979 and after. The problem in 1980 in part was simply a result of excessive increases in the wage bill and in prices paid to farmers in 1979 and 1980. The state in effect attempted to solve pent-up frustrations due to long-stagnant wages and farm incomes a bit too quickly.

But more was going on than a small miscalculation. The segmentation between the consumer and producer investment and intermediate goods markets had begun to break down.

(*a*) Retained profits were rising and could be used to raise worker bonuses, and state control of enterprise hiring was weaker.

(*b*) The large collective enterprise sector made up of hundreds of thousands of small industrial and commercial firms was not subject to central control, and local authorities had little interest in or ability to aid the anti-inflation effort. These collective enterprises could hire labor subject to few if any central controls.

(*c*) The decline in state compulsory purchases of farm products and the floating of many purchase prices meant the

[27] Gregory Chow, forthcoming, gets the following results:

$$\Delta \ln P = 0.0075 + 0.127\,\Delta \ln (M/y)$$
$$(0.0461)\quad (0.025)$$
$$R^2 = 0.465.$$

See also Chow 1985, pp. 223–27.

[28] A useful analytic survey of many of the issues involved is in Hang-Sheng Cheng 1987.

[29] This assertion may overstate the direction of causation, particularly in recent years when Chinese economists have talked more about the need to control the money supply as a principal form of macro economic control. See, for example, Li Chengrui 1986; Lin Jiken 1985; and Zhao Haikuan 1985.

government had much less direct control over the amount of cash income received by farmers.

(*d*) Certain important products such as cement (used by individuals for rural housing) and coal (used for home heating) were sold on both consumer and producer markets neither of which were directly controlled. Thus excess enterprise demand could directly impact on consumer prices.

In short the system with its many new leakages between consumer and producer markets was much more complex. Government macro economic planners attempted to maintain control over aggregate demand, but in this new environment they had only a vague idea of how to go about it. There was an effort to balance the government budget, but no clear understanding of what connection, if any, there was between a government deficit and rising consumer prices.

In 1986 the process of achieving a better understanding of China's post-reform macro economic system had only just begun. How well policy makers succeed in achieving this understanding will influence the future course of reform in general. Some societies could tolerate 10 or even 20 percent inflation each year without undue strain or temptation to resort to price controls and other similar methods that create suppressed inflationary pressures and a return to forms of bureaucratic control. But China is not likely to be able to tolerate price increases of this magnitude, mainly for political reasons.

Surplus labor in the countryside may do as much for holding inflation in check as any increase in the government's skills in the manipulation of macro economic controls. The impact of surplus labor on wages, however, will be muted if the government continues to create artificial urban labor shortages through its strict control over rural-to-urban migration. These controls on migration were relaxed a bit in the mid-1980s, but very real restrictions on the ability of enterprises to hire new workers were retained.

F. *The Future of Reform*

In 1986 China's rural reform process had largely run its course, but urban reforms were still in midstream. While it is conceivable that the urban reforms could stabilize at this midpoint, it is more likely that the reform effort will continue on toward a greater role for the market or will slide back toward tinkering with a restrengthened system of planning and bureaucratic control. The current mix of market forces and bureaucratic control is not a stable one.

The direction of change will depend in part on whether the reforms have achieved their goals of raising productivity and the Chinese standard of living. As the discussion in the next section will indicate, the first eight to ten years of reform (1977–86) were marked by conspicuous success in meeting these goals and this success gave clear impetus to further reform. But much of this early success was due to the performance of agriculture. As agriculture settles back into a slower growth path as is likely, will industry pick up the slack? Future periods of slow growth and inflation could be logically used to make a case for further reform, but the more likely result would be a retreat to more bureaucratic control. Perceptions of why economic growth has been fast or slow thus will play an important role in deciding whether to push ahead or fall back. Except among a handful of reform activists and Western-trained economists, few among the Chinese leadership believe instinctively in the superiority of market forces. Most people in developing countries are suspicious of market forces, and in China this suspicion is reinforced by

Marxist ideology that views market forces as chaotic.

The exercise of power is also involved in decisions to expand the role of the market. A decline in bureaucratic control means a decline in bureaucrats' power. If the new system makes bureaucratic skills built up over decades of practice obsolete, those being made obsolete will fight reform for that reason as well. It is no accident that much of the impetus behind reform in 1985–86 came after virtually all of China's ministers, enterprise managers, and institute directors had been replaced by individuals typically two decades younger than those who had run China's economy up to that point.

The relationship between reform and power is important at a more fundamental level. All political power in China is monopolized by the Chinese Communist party, a party that is organized along Leninist lines. In Leninist parties power is centralized at the top and not easily challenged from below. On the one hand this centralization of power facilitates major changes in policy direction once a few top leaders are convinced change is required. Bureaucratic resistance can slow implementation of such changes, but it cannot overrule them. If power had been diffused among the planning commission, the ministries, and lower-level party committees, the pace of the 1979–86 reform efforts would have been much slower. The ability to change policy quickly can, of course, affect reform negatively as well as positively. A change in thinking at the top could lead to an equally rapid retreat at least with respect to urban reforms.

The Chinese Communist party is not only organized along Leninist lines. It is a party made up of people who share or profess to share a common set of values and modes of analysis based on Marxism. It is these shared values as much as the desire to retain power that is the glue holding the party together in much the same way that shared Confucian values held together China's imperial bureaucracy for a thousand years.

How do these shared values predispose China's leadership toward reforms involving an expanded role for the market? Reformers have argued that central control and planning have little to do with Marxism. It is simply the way the Soviet Union set out to implement Marxist principles and other national goals in a particular historical context. But will a party steeped in the Marxist classics be comfortable with a system in which enterprises are allowed to go bankrupt and workers allowed to become unemployed? In addition to Marx, there are Mao Zedong's own values that he tried so hard to inculcate into the population. Much of Mao's effort, most notably the Cultural Revolution, had an effect opposite to his intentions. But are Maoist values and the values of Yenan and the Long March completely a thing of the past?

There are no conclusive answers to any of these questions. Much of what had occurred by 1986 was not inconsistent with an optimistic outlook for reform. Rural reforms involved a major surrender of party and bureaucratic power in the countryside, albeit one falling far short of total abdication. Mao's strictures against material incentives did not outlast him by more than a year. And, at a less cosmic level, a small sign of the times was the effort by the State Education Commission to revamp the economics curriculum of China's universities to include a strong dose of "Western" economics. Western theories of how markets work were to be placed alongside traditional courses on Marxist political economy.

No one, including the Chinese, knows when or how this reform process will end. Momentum in the fall of 1986 appeared clearly on the side of those pushing for reform, but by January 1987 Hu Yaobang was out of office as party secre-

tary and conservatives associated with Chen Yun and Peng Zhen appeared to be gaining strength. By the Thirteenth Party Congress in October 1987 reformers appeared once again to have the upper hand. These swings in the relative fortunes of the reformers and the conservatives will no doubt continue, but the wild swings in policy of the Cultural Revolution period and before are not very likely.

III. *Measuring Economic Performance*

What is the evidence that China's reforms have had a positive impact on the performance of the economy? The most convincing figures are those for the growth rate of what the Chinese call national income but which Western economists usually refer to as net material product (NMP). Net material product differs from the more familiar concept of gross national product (GNP) because it excludes a large part of the service sector.[30]

As the data in Table 4 indicate, the growth rate of net material product (in 1980 prices) fell from an impressive 6.2 percent during the first five-year plan period (1953–57) to a more modest average of 3.9 percent a year during the 19 years (1958–76) that encompassed the Great Leap Forward and the Cultural Revolution. In the nine years following the death of Mao Zedong, in contrast, the growth rate accelerated to nearly 9 percent a year.[31]

What accounted for this accelerated growth? As the growth accounting calculations in Table 4 suggest, after 1976 there was both an increase in the growth rate of the capital stock and in the rate of growth of total factor productivity, but it was productivity growth that registered the more significant change. Throughout the 19 years prior to 1977 total factor productivity growth was zero or even slightly negative. From 1977 on, productivity growth accounted for over 40 percent of total growth.

These estimates, to be sure, are derived from very crude data. The capital stock data in particular are based on assumptions about the initial capital stock and on the appropriate deflator for figures expressed originally in current prices. The net material product estimates in 1980 prices are based on more solid data, but are still subject to error and the 1980 prices only vaguely reflect "true" relative scarcities in the Chinese economy. Finally the methodology used to separate the contributions of increases in factor inputs and rising productivity in the use of those inputs remains a controversial topic on theoretical as well as measurement grounds. However one comes down on these data and methodological issues, no plausible estimates are likely to upset the principal conclusion that productivity growth after 1976 was much higher than it was in the years prior to that date.

Did an increase in the growth rate of the capital stock lead to a rise in the rate of productivity increase or was it the productivity increase that pulled up the rate of growth of the capital stock? If the reforms were responsible for the higher NMP growth rate, then causation would have been from productivity growth to higher rates of capital formation rather than the reverse and this appears to have been the case. In the first half of the 1970s, the Chinese gross domestic capital formation rate was around 30 percent of gross domestic product, an extremely

[30] The Chinese have begun to calculate gross domestic product (GDP) estimates in accordance with standard international methodology (Albert Keidel, September 8, 1986, and October 20, 1986). For work on this and related price issues, see Kung-chia Yeh 1986.

[31] In making these calculations, I have treated the entire 1977–85 period as a reform period rather than the more conventional choice of the years 1979–85. In 1977 and 1978 the Chinese government took a number of important steps to open up the economy and to restore material incentives.

TABLE 4

SOURCES OF GROWTH
(percentage increase per year)

Period	Growth Rate of Net Material Product (1980 Prices) (G_Y)	Contribution of Increase in Capital Stock ($W_K \cdot G_K$)	Contribution of Increase in Labor Force ($W_L \cdot G_L$)	Productivity Increase Contribution (a)
1953–57	6.61	0.84	1.67	4.10
1957–65	2.09	1.87	1.63	−1.41
1965–76	5.11	2.81	1.68	0.62
1976–85	8.78	3.30	1.69	3.79

Sources: State Statistical Bureau 1984, pp. 29–32, 107, 425; State Statistical Bureau 1985b, pp. 33–36, 213; and State Statistical Bureau 1986b, pp. 7, 27.

Methodology: These figures are derived from an aggregate production converted into the standard growth accounting form:

$$G_Y = a + (W_K \cdot G_K) + (W_L \cdot G_L)$$

where G = the growth rate of the variable in question
Y = net material product or national income as the Chinese define that term
K = the capital stock
L = the total labor force
W_K = elasticity of output with respect to capital
W_L = elasticity of output with respect to labor
a = productivity growth or the residual derived by subtracting the contribution of labor and capital inputs

Data Estimation: The official indexes for real national income (net material product) are linked indexes in which sectoral value added for the 1980s is calculated in constant prices for subperiods. Output for 1952–57, for example, is calculated in 1952 constant prices, while that for 1981–85 is calculated in constant 1980 prices. The subperiod indexes so derived are then linked to get an index in "comparable prices" for the whole period. This procedure tends to bias early year growth rates upward because of the very high industrial and low agricultural prices of

high rate for a poor country. If Chinese planners had tried to push the rate even higher, say to 40 percent, the likely result would have been even more pressure on consumption and resulting negative influences on worker and farmer incentives and productivity. A higher rate of capital formation would have made it possible to introduce more new technology embodied in that additional capital, but the amount of embodied new technology in the absence of reform was greatly reduced. Reform was particularly critical to increasing the amount of new technology imported from abroad. It was reform, therefore, that made possible a rise in productivity and growth of net material product which in turn allowed for an increase in both consumption and the absolute amount (but not the share) of capital formation. After peaking in 1978, however, the rate of capital formation actually fell by 8 percentage points by 1981 before rising slightly again in subsequent years.

Reform and productivity growth thus led the way to higher overall growth, but which reforms were most instrumental and where was productivity growth highest? Unfortunately it is not possible to disaggregate product, capital stock, and labor force data by sector or by industry in a way that would allow a systematic identification of those sectors that accounted for most of the rise in productivity. The discussion that follows, therefore, is based on impressionistic evidence and is in no sense definitive.

Agriculture clearly played an important role in the accelerated productivity growth of the reform periods. As demon-

those earlier periods. These high industrial and low agricultural prices reflect relative scarcities in the recovery period from wartime destruction (1949–1952) and do not reflect relative scarcities in other periods including the latter half of the 1950s. To remove this source of bias, I have recalculated each sector's net value added into 1980 prices for all periods. The procedure followed was first to derive the deflator used by the Chinese for their linked index (index in current prices/index in comparable prices) and then use that deflator to estimate sectoral value added in 1980 prices. The result is a quantity index of net material product based on 1980 price weights. The method is crude but it has the virtue of recalculating net material product using prices that give a more realistic weight to agriculture and industry than do prices from the 1950s. Many other sources of bias in the data remain, however. High prices for certain fast-growing industrial products such as petroleum and low prices for slower-growing industries such as coal, for example, may bias upward the constant price industrial price index. Agricultural value added is deflated by an index based mainly on the purchase prices of farm products, but we know that farm input prices behaved very differently from output prices and value added should have been derived by first deflating gross output and inputs separately. For a discussion of those and other sources of bias, see Yeh 1986.

Labor force growth rates are based on official data on the size of the labor force. Capital stock data were estimated from official data on annual "accumulation" in current prices deflated by the same index used for industry. This index may understate inflation in the investment goods industry in the 1980s, in which case the true capital stock growth rate in the 1980s would be lower than the figures used in this table, and productivity growth would be higher (K. Chen, et al. 1987). It was assumed that the capital stock depreciated at 5 percent a year and that the initial capital stock in 1980 prices was 214.5 billion yuan (3 times net material product in that year). Capital stock figures for later years were obtained by adding deflated annual accumulation minus depreciation to the initial capital stock estimate.

The capital and labor output elasticities (W_K and W_L) were assumed to be 0.4 and 0.6 respectively. Estimates of these elasticities for other countries have used differing methodologies and have come up with widely varying results. The estimates for China in this study are similar to those of L. R. Cummings, D. Cummings, and D. W. Jorgenson for various countries, but are substantially different from the elasticity estimates of Edward Denison (W_L typically is around 0.75) or Robinson (W_L is about 0.35). Given that the incomes of factors of production are not determined by market forces in China, Chinese income data are not a reliable basis for estimating what income shares would be under market conditions. All one can really do, therefore, is to use some plausible estimate of the shares or a range of plausible estimates. Only an implausibly high estimate for the share in income of capital, a capital elasticity of say 0.7 or 0.8, would require alteration of the conclusions reached in the text of this essay. In fact, even such a high elasticity, if it existed earlier as well, would not change the conclusion that the rate of growth in productivity was higher after the reform than before.

strated in Table 1, the growth rates of grain and cash crop output and of animal husbandry accelerated markedly after rural reform got under way in 1979. Growth rates of major agricultural inputs, however, did not rise significantly in the late 1970s and early 1980s. Growth in chemical fertilizer and farm machinery accompanied the reform effort but growth rates were lower than in previous years.[32]

Another possible contributor to productivity growth was the small-scale industrial sector. Data on the number of small- and large-scale enterprises and on their gross value of output are presented in Tables 5 and 6. The output of collectively organized small-scale industries actually grew faster than that of the large- and medium-scale sector and by 1984 accounted for a quarter of all industrial output. A standard criticism of these small-scale industries as they performed in the early 1970s was that they made inefficient use of key inputs such as steel and electric power and thus were a drag on growth in the large-scale enterprises. One recent econometric estimate using county cross-section data, however, suggests that the rate of return on capital in the small-scale sector was significantly higher than in the large-scale sector. Total productivity and the marginal product

[32] Conceivably the growth rate of the total fixed and working capital stock in agriculture could have risen even though the growth rate of specific components such as chemical fertilizer fell. It does not seem likely that this was the case in China in the 1980s, however. While the growth rate in the use of chemical fertilizer fell, the amount of chemical fertilizer used doubled between 1978 and 1985, and was a large share of current input.

TABLE 5
THE SCALE OF INDUSTRIAL ENTERPRISES
(number of enterprises)

	Total	Large- and Medium-scale	Small-scale	Of Which: Collective	Of Which: Rural Collective
1957	169,500	n.a.	n.a.	119,900	n.a.
1959	318,000	n.a.	n.a.	219,000	n.a.
1962	197,400	n.a.	n.a.	144,400	24,600
1965	157,700	n.a.	n.a.	111,800	12,200
1970	195,000	4,000	191,000	138,000	45,000
1975	262,900	5,700	257,200	187,900	77,400
1977	322,700	6,600	316,100	240,600	133,000
1979	355,000	4,500[a]	350,500	271,200	171,500
1982	388,600	5,400[a]	383,200	301,900	185,800
1984	437,200	6,400[a]	430,800	351,100	217,200
1985	463,200	7,900[a]	455,300	367,800	217,100
1986	499,300	8,790[a]	490,500	400,100	246,000

Sources: State Statistical Bureau 1981, p. 207; State Statistical Bureau 1985b, pp. 305, 315; State Statistical Bureau 1986a, pp. 234, 276; State Statistical Bureau 1987, p. 38.
[a] The definition of "large- and medium-scale" is based on data on physical production capacity (tons of steel produced per unit, etc.). The definition was made more restrictive after 1977, thus reducing the number of enterprises in this category.

of labor, on the other hand, were lower in small-scale industries.[33] A related consideration is that small enterprises, particularly those located in rural areas, could mobilize local supplies of labor, small coal mines, and other local resources that would otherwise lie idle. Small enterprises in the early 1970s were also criticized for overemphasis on regional self-reliance leading to a proliferation of farm machinery and other plants of inefficient scale (Christine Wong 1982).

In the late 1970s and 1980s, however, the state took steps to consolidate plants where there were obvious economies of scale and to restrict or close down those enterprises that made wasteful use of key inputs. There was a greater emphasis on subcontracting relationships between small and large enterprises. There is no hard evidence, but the likely result of these measures was a marked improvement in productivity in this sector.

The one sector that may not have experienced major gains in total factor productivity is large- and medium-scale industry. The evidence, however, is somewhat contradictory. As mentioned above, cross-section data suggest that total factor productivity in Chinese large-scale industry is much higher than in the small-scale sector even though capital is used less efficiently in the former. Time series data for the state-owned industrial sector which includes most large- and medium-scale plants suggest that total factor productivity did not rise at all during the first years of the 1980s (The World Bank 1985, p. 157). There are numerous problems with the data including, for example, the lack of any reliable price index for deflating the industrial capital stock figures given in current prices (Thomas G. Rawski 1986). Until

[33] These are preliminary results reported in Gary H. Jefferson 1986.

TABLE 6
GROSS VALUE OF INDUSTRIAL OUTPUT BY ENTERPRISE SCALE
(billion yuan)

Year	Total	Large- and Medium-scale	Small-scale	Of Which: Collective
1952	34.3	—	—	1.2
1957	78.4	—	—	14.92
1965	139.4	—	—	13.84
1975	321.9	—	—	54.02
1979	459.1	—	—	87.09
1980	499.2	215.56	283.69	103.44
1982	557.7	248.38	309.37	119.28
1984	703.0	315.32	387.67	175.78
1985	829.5	382.87	446.58	230.08
1986	902.8	421.88	480.92	263.80

Sources: See Table 5.

these data issues are resolved, it is difficult to say anything very conclusive about whether reforms in the 1980s did or did not have a positive impact on state industry's productivity.

Finally, some mention should be made of the service sector. Because more than half of all services are excluded from the Chinese definition of net material product, changes in the performance of the service sector do not account for a significant portion of the changes in productivity estimated in Table 4. Services grew rapidly during the first five-year plan and then were actively suppressed for the next two plus decades. All but a few restaurants were closed down, for example. The state had a monopoly of most commerce and did little to develop commercial networks beyond ensuring the delivery of basic supplies to a limited number of retail outlets. This negative attitude toward services began to change with the freeing up of rural markets in 1979, and the change gathered momentum in the early 1980s. By the mid-1980s Chinese cities were teeming with new collective shops and restaurants and hundreds of thousands of individuals providing personal services of various kinds. As a result the service sector in 1984 and 1985 may have grown by as much as 26 percent a year.[34] Whether or not such a high growth rate occurred, data and methodological limitations make it impossible to say anything about the contribution of productivity growth in the service sector.

There is little doubt, therefore, that productivity growth in China accelerated during the late 1970s and first half of the 1980s and it is plausible to assume that reforms had something to do with this acceleration. But, as the above discussion indicates, it is difficult to identify the measures that had the largest productivity impact.[35] If these sources of growth could be more precisely identified, that knowledge would contribute to an understanding of what needed to be done to sustain high growth in China in the future.

IV. *Structural Change*

China's per capita product rose threefold between 1953 and 1985. Rises in per capita income of that magnitude are usually accompanied by important changes in the structure of national product and China is no exception to that rule. But were the structural changes in China similar to those of other nations at comparable levels of per capita income?

To answer this question requires an estimate of Chinese per capita GDP in U.S. dollars or some other currency that

[34] The service sector, according to preliminary data, measured in accordance with the definition used in calculating GDP, rose by 14.8 percent in 1953–57, but only 2.1 percent per year in 1958–78 and 3.9 percent per year in 1979–82 or at just over half the rate of GDP in the latter two periods. In 1984–85 services grew at a rate 60 percent above the overall GDP growth rate (Keidel 1986b, p. 2). In 1986 that part of services included in GNP but excluded from NMP grew by 21.1 percent in nominal terms (State Statistical Bureau 1987, p. 4).

[35] For a further discussion of the complexity of relating performance to specific reforms see Robert F. Dernberger 1986, pp. 15–48.

makes comparison across countries possible. But how does one convert Chinese GDP into dollars? Official exchange rates are an unreliable basis for such a conversion under the best of circumstances and China's exchange rate bears no relationship to a free trade equilibrium exchange rate. And there are a variety of official exchange rates to pick from in any case. The rate was 1.98 yuan to the U.S. dollar in 1983, 2.33 in 1984, 2.94 in 1985, and reached 3.7 in 1986.

There have been a number of attempts to convert Chinese product into U.S. dollars on a product-by-product basis, but these have yielded widely varying results because of the difficulty in getting prices for goods that are truly comparable in type and quality across countries.[36]

The assumption used here is that Chinese per capita GDP in 1985 was about U.S. $500. This estimate would imply that Chinese per capita GDP in 1952 was under U.S. $170 (in 1980s prices). China in 1952, by that estimate, was comparable to Burma and only slightly above the 1980 GDP per capita levels of Nepal, Bangladesh, and Ethiopia. I am skeptical that China was in fact that poor in 1952, but it certainly was not poorer than these countries, which are among the poorest in the world.[37]

In Figures, 1, 2, and 3 structural changes in Chinese GDP are compared with the patterns of large (over 15 million population) and very large (over 50 million population in 1965) countries.[38] Because space is limited, the comparisons are for only three variables: the share of industry in gross domestic product, the share of agriculture, and the share of exports. Share data are sensitive to differences in relative prices between countries, so the data in these charts should be interpreted with caution. The Chinese share data are based on 1980 relative prices, which are much closer to the relative sector prices of other developing countries than 1952 or 1957 prices, which weight the industrial sector much more heavily.

As the patterns in these figures indicate, China prior to 1976 experienced a pattern of growth strikingly different from that of other large nations. Industry's share in GDP grew much more rapidly, agriculture's share fell faster, from a very high level to be sure, and the foreign trade share fluctuated around a very low level. These patterns, of course, reflect the Stalinist growth strategy pursued by China throughout the 1950s and into the early 1970s. The emphasis was on industry and autarky. Within industry, the focus was on the heavy industry sector, particularly machinery and steel. Between 1952 and 1976, the share of heavy industry rose from 36 percent of the gross value of industrial output to 56 percent.

Since 1976, however, and particularly in the 1980s, China's growth pattern has moved in the direction of the pattern of

[36] Attempts to calculate Chinese GDP in U.S. dollars range from an estimate that puts China at a per capita level near that of the Philippines ($700 in 1980) (Irving Kravis 1980, pp. 64–86) to $205 per capita (Keidel 1986a, pp. 1–3). The problems in making reliable comparisons of China's prices with those of other countries are described in Jeffrey R. Taylor 1986.

[37] Agricultural output per capita, for example, was much higher in China than in these countries and the Chinese industrial sector was also more developed. One scholar estimates that China in 1952 was at a level of per capita income roughly comparable to India in the early 1950s (Subramanian Swamy, forthcoming, ch. 2). This study is controversial, however, and is not used as the basis for the estimate of per capita GDP used here.

[38] *Sources:* The data in Figures 1–3 are for 108 countries for the years 1960–82. Among socialist countries, only China and Hungary are included in the sample. Very large countries were those with a population of more than 50 million in 1965. The data are from a data bank made available to me by Hollis Chenery and Moshe Syrquin as part of research for a joint paper on large countries (Dwight Perkins and Moshe Syrquin, forthcoming). The Chinese data were derived by taking the net material product figures and building them up to Gross Domestic Product so that these figures would be comparable to those for other developing countries.

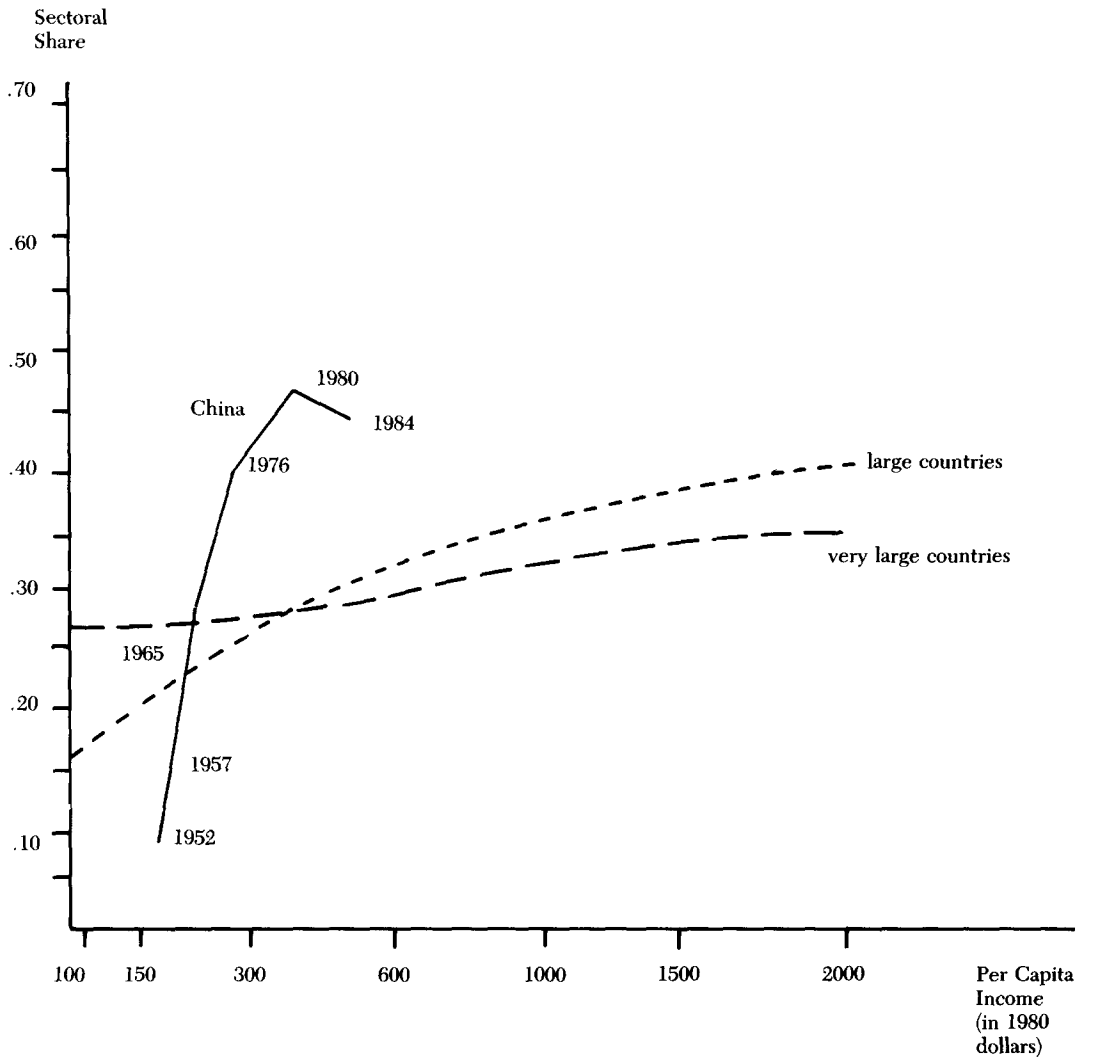

Figure 1. Share of Industry in GDP

other large nations at a comparable level of per capita income. In part this change results from a rethinking of China's long-term development strategy, but short-term probably temporary influences are also involved. The doubling of the foreign trade ratio, for example, is the direct result of China's turn outward in order to better exploit the potential for gains from trade. The decline in the share of industry, on the other hand, reflected the bumper harvests that followed on the introduction of agricultural reforms plus the fact that rapidly growing rural industry was classified as being a part of agriculture. When rural industry is reclassified and the growth of grain and other crops settles back onto a more sustainable path, the share of industry may resume its rise.[39]

[39] Chinese relative prices may still exaggerate the share of industry. Thus a renewed upward trend in the share of industry would not necessarily take Chinese industry to an unprecedented share of GDP if the value of industry were measured in relative prices similar to those in large countries.

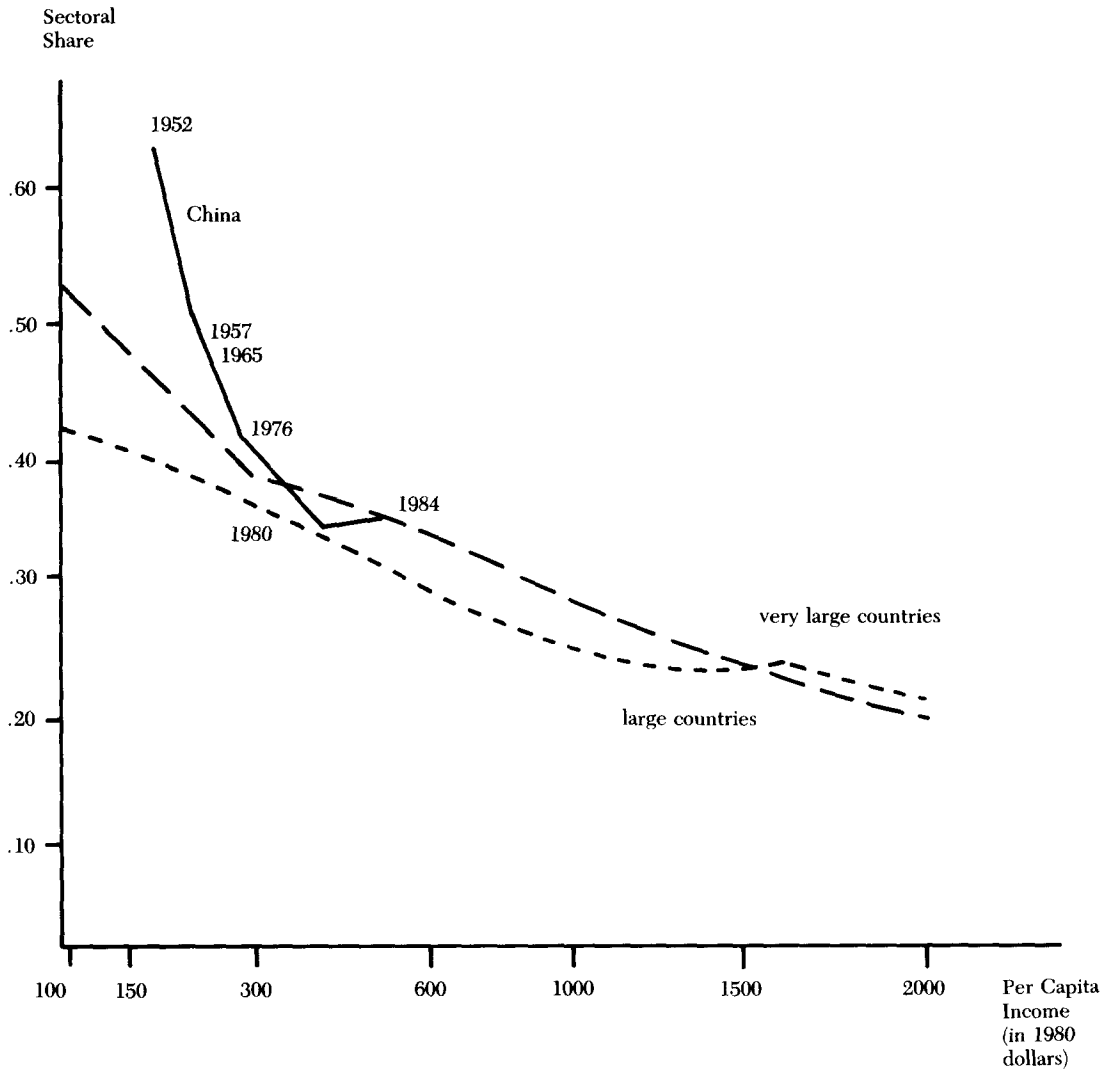

Figure 2. Share of Agriculture in GDP

In a similar vein, the share of heavy industry fell from 56 percent in 1976 and 57 percent in 1978 to 48.5 percent in 1981, in part because of a long-term effort to achieve a better balance between heavy and light industry. But it is also the case that the severe energy shortage of 1980–81 necessitated a cutback in industries that were major users of energy inputs. With the easing of the energy shortage, the share of heavy industry began creeping up again and reached 53 percent in 1985.

If the data were available, it also would have been desirable to include a figure portraying the changing share of the service sector in Chinese GDP. Like most socialist countries, China neglected its service sector throughout the 1950s and 1960s and well into the 1970s. In the 1980s, as already discussed, in an effort to ameliorate the urban employment problem, the state removed many of the restrictions on the urban service sector, and as a result, restaurants, small traders, and many personal services blos-

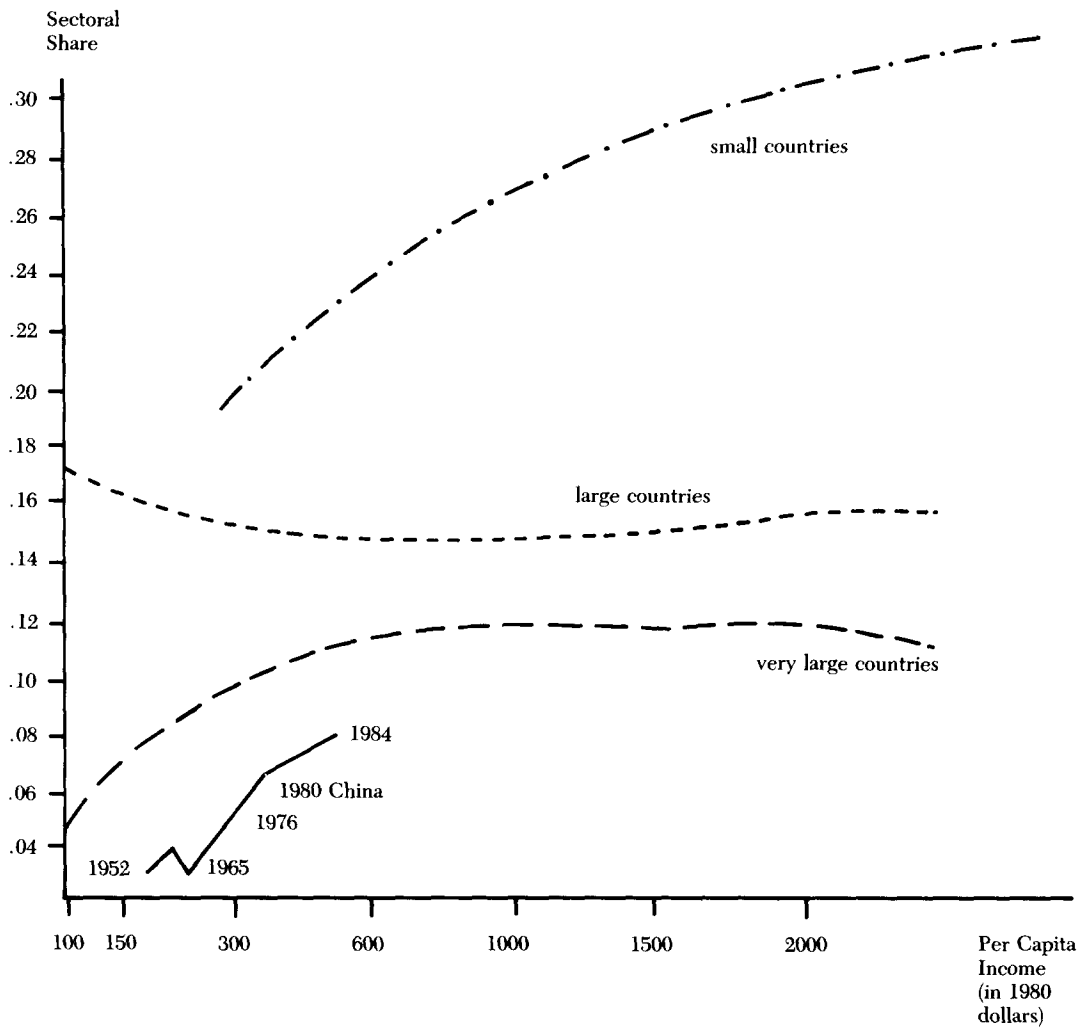

Figure 3. Share of Exports in GDP

somed. The state also began putting large amounts of investment into housing. In the 1960s only 5 percent of all capital construction investment went into residential buildings. In the 1980s this figure had risen to 21 percent. The data, however, are not yet in a form that allows for systematic comparisons of the Chinese service sector with patterns of service sector development elsewhere.

Chinese planners are still groping for an appropriate sectoral development strategy. The greater emphasis on material incentives necessitates greater attention to providing the consumer goods to back up the increases in incomes. Export promotion has a similar influence, because China's comparative advantage lies mainly with consumer manufactures. On the other hand, China's low foreign trade ratio and its large investment budget combine to encourage the continued rapid growth of construction materials, steel, and machinery. The demand for steel, for example, continues to grow rapidly as does the demand for energy, and China does not have sufficient foreign ex-

change earnings to meet these needs entirely with imports.

V. *Income Distribution and Welfare*

In most societies, the ultimate purpose of economic growth is to raise the consumption and welfare of the people. Did growth in China lead to a rise in the standard of living of the Chinese people? Was the rise that occurred faster or slower after the introduction of reforms?

Data on the rise in per capita consumption in real terms are presented in Table 7. Alternative data sets and deflaters give results that differ from those in this table, but the basic trends remain much the same. As the estimates in the table make clear, the impact of the reforms on the standard of living of the Chinese people was dramatic, particularly in agriculture. The rise in real per capita consumption of the average Chinese farmer was greater during the 7 years after 1978 than in the entire previous 26 years (91 percent versus 76 percent). The change was less dramatic in urban areas but the average annual growth rate still doubled, although the quality of these urban figures is open to question.[40]

Were these increased benefits equitably distributed? In this section we shall look at the distribution of benefits defined to include money income and goods and services distributed through the market. In the next section we shall deal briefly with how the state allocated one particularly critical social service, health care, and will mention briefly other benefits not distributed through the market. A common assumption both inside and outside of China is that the expanding role of the market would to some degree reverse the presumed trend toward reduced inequality of the previous three decades. The Chinese press, for example, has frequently proclaimed in recent years that it is all right for a few to get rich first and pull the others along with them later. These proclamations have generally followed incidents in which successful small enterpreneurs have been criticized or subjected to extortion by local cadres and their neighbors. The perception among many, therefore, is that inequality is on the rise and in politics perceptions often matter more than the reality. The reality in China in the early 1980s was in fact quite in contradiction to these perceptions.

Nationwide income inequality in China is driven by what has happened to the distribution of income within the urban and rural sectors and to the ratio of income between these two sectors. Data on the within-sector distribution of income are based on small sample surveys and are not reliable. These figures, however, do not support the view that inequality has changed significantly in recent years. Within the rural sector, there was a major decrease in inequality in the early 1950s when landlord land was confiscated and turned over to the poorest elements in the villages.[41] Surprisingly, collectivization of agriculture had little impact on the size distribution of income in rural areas. Regional differences in the distribution of rural income accounted for most of the inequality before and after collectivization. Because regional in-

[40] The figures on urban consumption in Table 7 and the income data in Table 8 need to be treated with great caution because there are important differences in these two series that are difficult to explain. The reported urban population, for example, actually grew faster than the total urban wage bill (measured in real terms), which implies a decline in average per capita real income in the 1980s. The urban population figures, however, significantly overstate the rise in urban population in the 1979–85 period because the definition of what was urban was changed for the 1984 and 1985 estimates. Until we have better urban population data, it will be difficult to know whether the urban consumption data are consistent with urban income data (net of savings).

[41] The one study of the income distribution implications of land reform is by C. Robert Roll 1974.

equalities did not narrow significantly if at all in the 1960s and 1970s, the rural income differences also did not narrow significantly. Attempts to estimate Lorenz curves or Gini coefficients from rural household income surveys suggest that the rural distribution of income in China in the 1970s and 1980s may have been little changed from the mid-1950s.[42]

Similarly, in the urban sector inequality was reduced significantly in the first half of the 1950s by the confiscation (sometimes with modest compensation) of most privately held urban property. The within-urban inequality that remained after this state takeover of urban property was due to wage and salary differentials in state enterprises. These differentials were set by the central government and there was little regional variation in either the average urban wage or the differentials between one grade and another. Furthermore neither the average real wage nor the size of these differentials changed much from the time they were first introduced in the 1950s to the late 1970s. In the early 1970s and perhaps earlier, new entrants to the labor force came in at the lower end of the scale and there were few promotions. When wages were unfrozen in the late 1970s, the initial increases were concentrated in the lower wage grades, which should have reduced inequality further. The large increase in collective and individual service workers in the 1980s may also have had an impact on inequality, but the direction of that impact cannot be determined by a priori reasoning. For what it is worth, an urban household survey for 1984 indicates that inequality in that year was slightly less than in the 1981 survey.[43]

Wages and bonuses constitute only a part of the real income of the urban population and we know even less about the distribution of nonwage benefits over time such as highly subsidized housing and health care. For the urban elite there are the added privileges of access to automobiles, telephones, and stores where high-quality imported goods are available. These privileges existed before 1976 and they have continued to exist since, but it is not possible to say whether their share in total real income has risen or fallen. The real significance of these special privileges, however, does not rest with their impact on formal measures of income inequality. It is people's perceptions of these privileges and whether they are increasing or decreasing that will have the greatest influence on the future of reforms. If it is widely felt that a small elite is enriching itself by manipulating the system to their personal benefit whether by soliciting bribes or through conspicuous consumption of imported goods, opposition to the system that made this possible will build.

Trends in the rural-urban income and consumption differentials are easier to trace and to explain than the within-urban differences. As the data in Table 7 indicate, the ratio of rural to urban consumption per capita changed little between 1952 and 1965, declined perceptibly by 1978, and then rose sharply after 1978. Even when one takes into account the uncertainties connected with the estimates of rural consumption (see note

[42] There is a growing literature on the distribution of income in rural China based on data released over the past few years by the Chinese government. See, for example, E. B. Vermeer 1982; Perkins and Yusuf 1984, chapter 6; and Lardy, 1983b, chapter 4.

[43] The standard deviation of urban household income divided by the mean of that income was .31, down from .345 in 1981. An estimate for 1964 suggests a ratio of .35, but this latter figure is based on data that required assumptions by the analyst that could significantly bias the results. These figures are from State Statistical Bureau 1985b, pp. 561, 565, and State Statistical Bureau 1981, p. 438.

TABLE 7

URBAN AND RURAL CONSUMPTION PER CAPITA
(yuan in 1985 prices)

	(1) Rural	(2) Urban	(3) Ratio (1) ÷ (2)
1952	96.6	248.9	.388
1957	113.4	314.6	.360
1965	129.4	331.4	.390
1978	169.1	514.1	.329
1985	324.0	754.0	.430
Growth Rates (percent per year)			
1951–78	2.2	2.8	
1978–85	9.7	5.6	

Note: The data in this table were originally given in terms of current prices for the "farm" and "nonfarm" population. They have been converted into real income by deflating the urban figures by the worker cost of living index and the rural figures by the nationwide retail price index. The use of the nationwide retail price index to deflate rural consumption may overstate the growth of rural consumption, mainly because rural consumers do not have easy access to goods sold at the official retail prices that dominate the national retail price index. Thus peasants buy more on uncontrolled markets where prices have risen faster than on controlled markets. How much of a difference this would make in the above estimates cannot be known until we have a better deflator and we know more about how the consumption figure in current prices was calculated.

TABLE 8

GROWTH RATES IN REAL PER CAPITA INCOME
(in percentage per year)

	1951–1978	1978–1984
Agricultural sector		
Value added per capita deflated by farm purchase prices	0.4	9.4
Value added per capita deflated by retail prices	1.9	14.3
Urban state wages		
Average wage of state workers	0.5	—[a]
Total state wage bill divided by total urban population	3.2	—[a]

[a] Because of the large increase in the collective sector wage bill and in the number of workers in that sector plus the redefinition of urban areas in 1984, it is misleading to divide the state wage bill by total urban population. The growth rates so derived are negative but meaningless.

Note on methodology: Agricultural value added deflated by prices paid to farmers for their output is a measure of the real net output of the agricultural sector. Agricultural value added, however, is also a measure of the income in current prices of farmers. But the real value of this income to the farmers is determined by how much in terms of consumption goods this net value can purchase. Money income (or value added) in current prices deflated by the retail price index of goods sold to farmers is the appropriate measure of changes in real farmer purchasing power. If the prices paid to farmers for their output rise faster than the prices paid by farmers for consumption goods, the real purchasing power of farmers will rise faster than their real production. The retail price index used here to deflate agricultural value added is subject to some of the same limitations discussed in the note to Table 7.

to Table 7), there is little doubt that rural consumption grew faster than that in urban areas. In the urban areas real wages per worker were frozen throughout the 1960s and much of the 1970s but real wages per urban resident rose at around 3 percent a year. Heavy urban investments combined with tight restrictions on rural-to-urban migration led urban enterprises to employ a higher percentage of the members of urban households. Thus the real income per household rose even though the wage rate remained unchanged.

Rural income and consumption also grew over the pre-1978 period but at a slower rate. Value added per farm worker increased little (see Table 8), but improvement in the rural-urban terms of trade meant that rural purchasing power did rise at nearly 2 percent a year. The rise in rural income relative to that in the urban areas after 1978, of course, is the result of both the agricultural boom brought about by the rural reforms plus a continued improvement in the rural-urban terms of trade. There was no com-

parable boom in the urban areas in the 1980s.

Despite the closing rural-urban gap after 1978, a nationwide measure of inequality such as a Gini coefficient could still show rising inequality if the percentage of population in the urban areas was rising fast enough to offset the effect of the declining gap in average incomes.[44] Between 1957 and 1978, official data suggest that the urban share in total population rose only modestly, but data published in 1984 and 1985 indicate a big jump in the share of people in urban areas (Table 9). But this jump resulted from a change in definition of what constituted an urban area and the formal designation of many new cities and towns. Some of the new "urban" residents are in fact still farmers. More to the point, while an increase in the urban share in total population has occurred and may be of the order of magnitude indicated in Table 9, that increase may have occurred over the previous decade or even two decades. It is not possible, therefore, to estimate how this changing share in total population affects nationwide measures of inequality in particular periods such as the seven years following the institution of reforms.[45]

Despite the poor quality of the data, there is no support for the view that inequality in China fell significantly during periods such as that of the Cultural Revolution or rose as a result of market-oriented reforms. Conceivably, the trends were the reverse because of what happened in these two periods to the rural-urban income gap, but the data simply are not good enough to tell for certain. Whatever the precise trends in inequality turn out to be as a result of further research using better data, there is no doubt that the economic benefits of the reforms in the 1979–87 period were widely shared.

TABLE 9

URBAN AND RURAL POPULATION DATA

	Within Cities and Towns		Within Rural Villages (Communes)	
	(Millions)	(Percentage)	(Millions)	(Percentage
1952	71.6	12.5	503.2	87.5
1957	99.5	15.4	547.0	84.6
1960	130.7	19.7	531.3	80.3
1965	130.5	18.0	594.9	82.0
1976	163.4	17.4	773.8	82.6
1978	172.5	17.9	790.1	82.1
1983	241.3	23.5	783.7	76.5
1985	382.4[a]	38.0	662.9[a]	62.0

Note on urban population data: Chinese population figures include all people within an area designated as urban even if many of those people are farmers. People living in rural villages or communes are classified as rural even if those people work in industrial or commercial enterprises. Given these and other uncertainties and conceptual problems connected with China's urban statistics, they are crude indicators at best of the level and pace of urbanization in China.

[a] In 1984 the Chinese redefined the population designated to be in urban areas by including newly formed townships and the like. Definitional changes have also occurred in earlier years, although none had the impact on the totals as did that of 1984. See Kam Wing Chan and Xueqiang Xu 1985.

VI. *Health and Population*

This discussion of income and inequality would not be complete without mention of the fact that many goods and services destined for consumers in China are distributed outside the market mechanism and are not included in data on either consumption or income. Rents for

[44] If urban incomes are higher than those in rural areas, then national inequality rises as the percentage of population in urban areas rises up to the point where half the population is in the urban areas, after which further rises in the urban share will lead to a decline in inequality. All of this assumes that the rural-urban differential itself does not change.

[45] For a useful attempt to construct nationwide Lorenz curves over a longer period, see Irma Adelman and David Sunding 1987.

urban housing, for example, include only part of the basic maintenance and utility charges, and none of the cost of capital embodied in the dwelling.

One of the most important of these nonmarket goods and services was health care. In fact, the case for greater equity in China in the 1960s and 1970s rests in substantial part on the view that certain "basic needs" such as health care were more equitably distributed than income. Health care in the 1960s and 1970s shifted from an urban-based emphasis on curative medicine to a focus on the rural areas and preventive medicine. "Barefoot doctors" or rural paramedics were trained and rural clinics and hospitals built. The commune system provided selected members with the time to acquire training and with income support when they returned to the commune to practice what they had learned.

As is the case with income distribution data, statistics on health in China such as life expectancy and infant mortality are not very reliable. Various analysts have tried to piece together plausible series from scattered data using formal demographic models. The story these estimates appear to tell is a dramatic one. Infant mortality in China in 1965 may still have been as high as 165 per 1000. Twelve years later in 1977 it had fallen to 64 per thousand despite only modest increases in per capita income. Life expectancy at birth in 1965 is estimated to have been 44 years. By 1977 it had risen to 64 years (Dean T. Jamison et al. 1984). If these figures give a rough picture of what occurred in this period as appears likely, the improvement in health care in rural areas was unprecedented either in China or anywhere else where per capita incomes were comparable. Another Western estimate also supports the view that infant mortality fell substantially (from 84 to 45 per 1000) and that life expectancy rose (from 57.8 to 64.2 years) between 1965 and 1976, although these changes are not so large (Judith Banister 1986). On either estimate these health measures suggest that there was a great deal more than rhetoric to China's basic needs strategy. Declines in mortality of these magnitudes could only have occurred if the benefits of better nutrition, better curative care, and organized preventive health programs were widely available throughout China. Programs concentrated in urban and a few rich rural areas could not have yielded these results.

Have the reforms of the 1980s undermined these health care and nutrition efforts? The demise of the commune system withdrew one important base of support for rural nutrition and preventive health programs (Athar Hussain, forthcoming). The number of barefoot doctors declined significantly. On the other hand, the number of people with more formal training increased. It may be that the barefoot doctor system had done its job by the 1980s and needed to give way to a system based on longer, higher-quality medical training. It is too early, however, to know whether this is the case.

Mention should also be made of China's population policies which were intimately tied to both the health programs and the rural political and economic control system of which the commune was the core element. The official estimates of China's population and vital rates together with two Western estimates of China's vital rates are presented in Table 10. The Western reconstructions suggest that the 1960–61 famine may have been worse than even the grim official figures suggest. Differences between the two Western reconstructions and between them and the official series also raise questions about when and how rapidly the crude death rate began to fall.

All three series, however, tell much

TABLE 10

POPULATION AND VITAL RATES

	Population (millions)	Crude Birth Rate (per 1,000)			Crude Death Rate (per 1,000)			Rate of Natural Increase (per 1,000)
		Official	Reconstructed (a)	(b)	Official	Reconstructed (a)	(b)	Official
1953	587.96	37.0	42.2	45.5	14.0	25.8	30.7	23.0
1957	646.53	34.0	43.3	45.0	10.8	18.1	23.4	23.2
1960	662.07	20.9	26.8	24.5	25.4	44.6	36.0	−4.6
1962	672.95	37.0	41.0	41.0	10.0	14.0	19.5	27.0
1965	725.38	37.9	39.0	41.5	9.5	11.6	17.5	28.4
1970	829.92	33.4	37.0	34.0	7.6	9.5	10.1	25.8
1976	937.17	19.9	23.1	20.1	7.25	7.8	9.3	12.7
1978	962.59	18.25	20.7	18.7	6.25	7.5	8.0	12.0
1980	987.05	18.2	17.6	18.5	6.3	7.7	7.8	11.9
1982	1015.41	21.1	21.1	—	6.6	7.9	—	14.5
1985	1045.32	17.8	—	—	6.6	—	—	11.2
1986	1060.08	20.8	—	—	6.7	—	—	14.1

Sources: The official data are from State Statistical Bureau 1984, p. 83; State Statistical Bureau 1986b, p. 21; and State Statistical Bureau 1987, p. 16. The reconstructed figures under (a) are from Judith Banister 1986, pp. 165–66. The reconstructed figures under (b) are from Jamison et al. 1984, p. 113.

the same story about China's rate of population growth. China's demographic transition began with a sharp fall in the crude death rate between the early 1950s and 1970. During that same period, birth rates fell modestly, if at all, and China's population growth rate rose about 2.5 percent a year. After 1970, however, the crude birth rate declined sharply by 15 or 16 per thousand in only six years and then leveled off. China's population growth rate, as a result, fell to an average of 1.2 percent per year in the ten years after 1976.

What could explain such a rapid fall in the crude birth rate? To begin with, the national rate was driven by the fall in birth rates in rural areas. The urban birth rate decline began much earlier, but the urban share in total population was too small to have a major impact on the national averages. Because rural real income per capita grew by only 4 percent between 1970 and 1976 or 8 percent between 1965 and 1976, it is difficult to see how rising per capita incomes could explain much of the change.

There is little reason to doubt that most of the explanation for China's birth rate decline in the 1970s rests with the country's family planning program, particularly given the fact that China's changing age structure, other things being equal, would have led to a rise in the crude birth rate. Education about family planning was backed up by both material incentives and some degree of coercion (John Aird 1986). Political relaxation and a consequent reduction in the coercive power of rural cadres might have had something to do with the rise in the birth rate in 1981 and 1982 and again in 1986, but we do not really know. The advent of household agriculture under the responsibility system, which should have provided peasants with an incentive to increase family size, was initially accompanied by a renewed decline in the crude birth rate. This decline possibly can be explained in part by the vigorous cam-

paign to limit family size to one child per couple. When enforcement of the one child family policy was relaxed slightly in 1985 and 1986, the crude birth rate did rise. Until more data are made available and until more analysis is done on the data that are available, however, no firm conclusions are possible about which measures explain the fertility decline.

VI. *Conclusion*

No short article can do justice to the magnitude of China's economic reform efforts in the decade following Mao's death in 1976. The task of simply describing the diversity of initiatives is made doubly difficult by the fact that reform as of the mid-1980s was an ongoing process. Major strides toward expanding the role of the market in both rural and urban areas had been made, but many features of central planning and bureaucratic control remained. The direction was toward further expansion of the market's role, but there was also resistance, most of it political in nature.

Fueling the momentum of reform was its impact on economic performance. The improvement in performance was particularly marked in rural areas, but there were urban successes as well. Nationally, total factor productivity rose dramatically after 1976 only in part due to agriculture. China also moved away significantly from its earlier Stalinist emphasis on machinery and steel and on autarky. Foreign trade expanded rapidly and consumer goods and services were much more plentiful in the 1980s.

Nor does this first phase of reform appear to have led to a significant worsening in the size distribution of income. The farm output boom of the late 1970s and early 1980s actually reduced inequality by narrowing the rural-urban income gap, although other forces may have been at work that widened within-sector inequality. The rural-urban gap had clearly widened during the previous decade of the Cultural Revolution (1966–76). On the other hand, the pre-1976 decade coincided with a period of pronounced and widely shared improvements in rural health and other "basic needs," so it would be incorrect to picture that decade as one of rising inequality.

If the future of market-oriented reforms in China were indicated by its success to date measured in economic terms alone, that future would seem to be assured. Except for the inflation rate, all measures of performance favor the post-1976 period over what went before, usually by a wide margin. But in China politics have more often driven economics than the reverse. A slowdown in growth in the future could feed political discontent and generate opposition to reform, and even the most rapidly growing developing nations experience periods of slow growth and stagnation. Whether those who oppose reforms are capable of mobilizing sufficient support to slow or reverse the reform process during periods of lowered growth only time will tell.

What is required is not movement all the way to an unfettered market system with or without private ownership of industry and commerce. Expansion of the role of the market is an essential part of the reform package, but large areas of bureaucratic control and direction will remain. Of equal or greater importance than expanding the scope of market forces are efforts to improve the functioning of the market forces that are allowed to operate. To achieve that goal enterprise managers need to gain more autonomy from China's economic bureaucrats and to pay attention to cutting enterprise costs, increasing sales, and raising product quality. The budget constraint needs to be hardened substantially. Price reform is also important and that involves

further restrictions on the quantity of goods distributed through the state allocation system at fixed prices. Finally, the hoped for productivity gains from continued reform depend critically on maintaining an open economy and rapidly growing exports of manufactures. Without rapidly growing exports, the foreign exchange bottleneck will be a chronic drag on rapid growth. Whether or not China will be able to expand exports rapidly, however, is not in China's hands alone.

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