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THE POLITICAL ECONOMY OF AGRICULTURAL DEVELOPMENT IN THE SOVIET UNION AND CHINA†

Attempts to advance understanding of the political economy of agricultural development and structural transformation must come to grips with the experience of the Soviet Union and the People's Republic of China.¹ Agricultural policies in both countries are currently in a state of flux that make confident predictions about future policies and performance impossible; but a great deal of new information, scholarly analysis, and a much improved data base are now available for China and the Soviet Union.²

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¹ Structural transformation is defined and the nature and significance of the process are discussed in Johnston and Kilby (1975).

² Kaser (1987) provides an interesting and up-to-date survey of reforms in the two countries. For China, there has been a notable increase during the post-Mao period in the availability of statistical data and in the quantity and quality of scholarly documentation. A book by Perkins and Yusuf (1985) prepared for and with the assistance of the World Bank provides an especially useful summary account and a good bibliography. A paper by Dong (1987), a respected Chinese

There are similarities in the experience of the two countries because of their authoritarian past as well as the strong influence of Marxist-Leninist ideology. It is essential, however, to emphasize some highly significant contrasts that should be kept in mind when comparing agricultural and rural development in the two countries.

There have been a number of major changes in China's agricultural policies during the past few decades whereas the Soviet system, despite a great deal of tinkering, only now appears to manifest the possibility that major policy changes will be introduced. Over the longer period there was a large increase in the emphasis on state farms at the expense of an earlier emphasis on collectives, and during much of the period since Khrushchev came into power following Stalin's death in 1953 there has been a significant increase in farm prices, but with surprisingly little impact on productivity.³ The Soviet experience is also less relevant for the contemporary less developed countries because of differences in timing and in demographic and structural conditions. Rates of growth of population and labor force have been low compared to China and other late-developing countries that began their demographic transition following World War II. (The average rate of population growth of only 1.2 percent in the Soviet Union between 1927 and 1939 was to a considerable extent a consequence of high mortality associated with the famine that struck the countryside in the 1930s (Lorimer, 1946, p. 112)). However, the fact that Russia's demographic transition took place before the era of antibiotics and post-World War II advances such as oral rehydration therapy is alone sufficient to account for a much more gradual reduction in infant and child mortality than has characterized the contemporary late-developing countries including China. Those differences in timing and in the demographic situation in the two countries go far toward explaining why structural transformation is much further advanced in Russia than in China. It is estimated that 80 percent of China's labor force was still dependent on agriculture in 1965 compared to only about 35 percent in the Soviet Union in that year. By 1985, only a fifth of the total labor force in the Soviet Union was dependent on agriculture whereas about three-fourth's of China's workforce still relied primarily on agriculture for income and employment.

For nearly a decade after its victory over General Chiang Kai-Shek's Nationalists, the Mao Tse-tung regime's policies unfolded in a series of increasingly drastic changes. The first was a conventional "land-to-the-tiller"

economist, is also of great interest. A recent essay by Ofer (1987) provides a comprehensive and balanced review of the huge literature on Soviet economic growth (1928-85), including an analysis of the slowdown in growth rates and the prospect that the Gorbachev reforms will reverse that declining trend.

³ For a more detailed account of Soviet policy changes from 1929 to the 1970s, see Johnston and Kilby (1975, pp. 276-90).

land reform that established a family farm system without tenancy or feudal practices such as *corvée* labor. That was soon followed by the establishment of producers' cooperatives that increasingly brought land and other assets under collective ownership. In 1958, the advanced producers' cooperatives that had become general were transformed into agricultural communes. By 1961, this sudden move to complete collectivization, compounded by bad weather in 1960–61, had led to a calamitous decline in agricultural production. With recognition of the disastrous consequences of the commune system and of the Great Leap Forward, major reforms were adopted in 1961. Partly because of setbacks associated with the Cultural Revolution that began in 1966, the recovery was slow until 1977. However, the fundamental reforms in agricultural policy implemented since 1978 have led to a remarkable upsurge in farm production and rural nonfarm activity.

How can one account for China's pragmatic willingness to make major changes in agricultural policy and the lack of major changes in agricultural policy in the Soviet Union in spite of the persistently mediocre performance of the agricultural sector? A major difference in the experience of Soviet and Chinese leaders must be part of the explanation. Stalin, Lenin, and most of the other Soviet leaders had very weak links with Russia's farm population, but Mao Tse-tung and his colleagues and the Chinese peasantry had a long period of intimate association, especially during the Yen-an period.⁴ The number of policy shifts in China, however, also reflects the fact that periods of pragmatism were interrupted by Mao's radicalism during the Great Leap Forward (1958–60) and again during the 1966–76 period of the Cultural Revolution (Perkins and Yusuf, 1985, pp. 4, 90).

Another major contrast derives from the fact that China's agricultural resources are extremely limited relative to its population whereas there is considerable slack in the Soviet agricultural economy.⁵ As a result the Soviet Union has had more policy space than China and could stick with agricultural policies despite their serious shortcomings. That slack was most obvious in the considerable scope that existed for extending the area

⁴ Following the Long March of the 1930s and during the War with Japan, the Communist Headquarters was located in a remote rural area in Yen-an. "In the course of nearly two decades of skillful guerrilla campaigning in the 1930s and 1940s, the Communists became adept at organizing and leading the peasantry" (Perkins and Yusuf, 1985, p. 88).

⁵ Tang (1984, chap. 1), who places particular emphasis on this contrast between China and the Soviet Union, offers an interesting explanation: because China's population and food production increased five- or six-fold between the late fourteenth and early nineteenth centuries, compared to a doubling of Europe's population, the slack for further expansion of food production through acreage or yield increases had been exhausted. (Resort to new off-farm inputs, notably chemical fertilizers, has of course raised the yield ceiling in recent decades.)

under cultivation. For China, that potential had been virtually exhausted by the 1950s. In addition, China and other low-income countries do not have another type of slack that characterized the Soviet food economy. Those countries rely so heavily on cheap calories and other nutrients from starchy staples that there is much less scope than existed in the Soviet Union for offsetting reductions in total food supplies by increased reliance on grains and potatoes (or other starchy staple foods) that are the cheapest sources of food energy. This was undoubtedly a major reason why the results of China's 1959–62 food crisis were so disastrous; demographers estimate that from 16 to 30 million people died as a result of malnutrition and starvation.⁶ The death toll in Russia associated with the collectivization drive in the 1930s was also enormous; Jasny (1949, p. 553) estimates that "at least 5.5 million people died in excess of normal mortality" in the years centered around 1932–33. The loss of life would have been greater if it had not been for the fact that there was still considerable scope for "raiding the feedbin" and sustaining human life by direct human consumption of grain normally destined for feeding livestock. (See Bennett, 1954, for an extended discussion of the significance of a country's starchy staple ratio, i.e., the percentage of total calories obtained from cereals, root crops, and other starchy foods.)

It is only with the accelerated growth of agricultural production since 1978—and the sharp reduction in the population growth rate—that the PRC is now beginning to experience a major change in diet patterns, with reduced dependence on the cheap starchy staples and increased consumption of livestock products, fruit and vegetables, and other preferred but more expensive foods. This has already entailed some shifting away from production of cereals to more profitable products, resulting in an increase in grain imports. In spite of the uncertainties that make it so difficult to assess the future prospects for either the Soviet Union or China, it seems that China is evolving policies that may enable it to become "Asia's next economic giant" (Perkins, 1986). In that connection, it will be of interest to note a few of the significant similarities and contrasts between the development experience of China, Japan, and Taiwan.

⁶ Because of the detailed and high-quality demographic data obtained in China's 1982 census, "a reasonably plausible account of demographic trends between 1953 and 1964 can be based on them" (Ashton et al., 1984, p. 618). See also Banister (1986). There are significant differences in their reconstructions of China's population dynamics, but Ashton et al. (1984, p. 619) and Banister (1986, p. 618) agree that the high death rates for the famine years 1958–61 imply about 30 million excess deaths.

AGRICULTURAL DEVELOPMENT IN THE SOVIET UNION

It is somewhat puzzling that the Russian model of agricultural development is still being emulated, probably most notably in Cuba and Ethiopia. A half century has passed since the Soviet regime completed its whirlwind collectivization of agriculture (1929 to 1938). But in spite of many twists and turns in Soviet policy, agriculture has continued to be a problem area. In a recent review of the Soviet experience, Alec Nove (1983, p. 86) states flatly that "no one seriously questions the proposition that the Soviet agricultural performance has been disappointing." Apart from two periods—1952–58 and 1964–70—the rate of growth of agricultural output has been mediocre.⁷ The slowdown in output growth in the 1970s must have been especially troubling because, as Gale Johnson (1983, p. 19) emphasizes, that was "a decade of unprecedented levels of agricultural investment, a doubling of fertilizer availability, and significant improvement in the relative income position of farm people."

Collectivization of Soviet Agriculture

In some degree Stalin's decision to collectivize Soviet agriculture, and also decisions to emphasize collective or state farms in Cuba and other countries in the Soviet orbit, can be attributed to the major tenet of Marxian ideology which emphasizes the superiority of large-scale farms.⁸ The immediate precipitating forces for the collectivization drive were related to a crisis in grain supplies for the urban areas, a crisis that Karcz (1969) and Lewin (1968) argue was largely a result of mismanagement, ill-advised policies based on an incorrect analysis of peasant behavior, and neglect of measures that could have fostered increased production. It now seems clear, however, that the principal motive for collectivization was to obtain political control of the countryside and feed the cities. Writing just a decade after the collectivization drive, Maurice Dobb (1948) and Naum Jasny (1949) emphasized that collectivization was motivated primarily by a desire to control the disposition of farm produce in order to insure food supplies for the urban population. There was an obvious political motive in giving priority to provisioning the cities and industrial centers. Forced

⁷ From 1952 to 1976 the annual percentage rates of growth of agricultural output by six-year period, based on three-year averages, centered on the specified year, were (Johnson, 1983, p. 18): 1952–58, 6.7; 1958–64, 1.5; 1964–70, 4.5; 1970–75, 1.6.

⁸ Wittfogel (1971) gives a concise account of the views of Marx, Kautsky, and Lenin concerning the importance of economies of scale in agriculture.

collectivization was also influenced powerfully by the political objective of establishing governmental control over the rural population so that an independent peasant class would not constitute a threat to the regime (Lewin, 1968; Nove, 1971). Hence, many party leaders were determined to eliminate individual peasants—and more especially the kulaks because they were regarded as the chief potential threat to the regime.⁹

Agriculture's Role in the Economic Development of the Soviet Union

Many scholars have argued that the collectivization policy must be assessed as an integral part of the Stalinist strategy of accelerated industrialization with its primary emphasis on heavy industries to produce the means of production that were considered the key to rapid growth. In Abram Bergson's terse phrase, "steel was a final good to Stalin, and bread an intermediate one" (Tang, 1967, p. 1118).

The overriding objective of agricultural strategy, from this point of view, was the extraction of a surplus of food and raw materials to satisfy the requirements of industry and an expanding urban population and to earn foreign exchange to finance essential imports. A corollary of this strategy of surplus extraction was that agriculture should make a maximum contribution to domestic saving; and, therefore, the reverse flow of inputs and consumer goods to agriculture should be held to an absolute minimum.

Two facts that are beyond dispute lend credence to this interpretation. The Soviet Union has been successful in transforming a relatively underdeveloped economy into a modern industrial power. And the exceedingly low prices paid for grain delivered against compulsory quotas and in making payments in kind for the services provided by the Machine Tractor Stations represented a significant flow of resources out of agriculture, a form of forced saving imposed on the rural population.

The fact that rapid industrialization was linked historically with measures that lowered the standard of living of the rural population does not prove, however, that agriculture made a large net contribution to the capital requirements of other sectors. To consider only the surplus that was extracted from agriculture is clearly not sufficient to settle the issue. James R. Millar (1970) has emphasized that the evidence required to estimate the magnitude of the net flow is not available. He suggests, however, that the net capital contribution obtained from agriculture was probably very modest because the reverse flow of resources into agriculture, including the budget grants that financed the Machine Tractor Stations and interest-free

⁹ C. Frederick Starr, a Soviet scholar who has studied that period "has flatly concluded that the problem of grain supply for the cities was a trumped up excuse for what Stalin wanted to do anyway, namely to obtain political control of the country-side" (Johnson, 1988).

capital grants to state farms, may have been nearly as large as the expansion of agriculture's sales to nonagriculture. In the period since Stalin's death in 1953, there has been a large increase in the flow of resources to agriculture. Thus the share of agriculture in total investment rose from 10 percent in 1950 to about 30 percent since the early 1970s (Ofer, 1987, p. 1804). But apart from the two periods, 1952–58 and 1964–70, the results have been disappointing; and there may well have been a net flow of resources into agriculture.

For the Stalin period, the forced procurement policies did insure that urban food shortages did not interfere with the goal of rapid industrialization with priority to heavy industry. Even in years of reduced production, industrial workers were buffered from the effects of a shortfall in farm output because during Stalin's regime farm households had become the residual claimants for available grain supplies. Food supplies for the nonfarm population were assured because compulsory deliveries of grain had become a "First Commandment" during the collectivization drive in the 1930s.

It might be claimed that, in the context of the Stalinist strategy, neglect of agriculture was rational since the overall policies succeeded in transforming a predominantly agrarian society into a modern industrial state. That view is, however, no longer convincing. It should be noted first of all that considerable industrial development had taken place in Russia prior to World War I. A sizable rail network had been built, and the country had small but well-qualified technical, scientific, and statistical cadres so that it is wrong to picture Russia on the eve of the revolution as a country at a very early stage of economic growth.

Both the agricultural and industrial development strategies had shortcomings, however, that have become more apparent over time. With respect to agriculture, Ofer (1987, p. 1803) states in his authoritative survey article that "it is clear that the economic payoff [from bypassing agriculture and forced collectivization] fell far short of expectations in the 1930s and that the Soviet Union is still paying dearly for the decision to collectivize and for the way the decision was implemented." Industrial growth in the Soviet Union was impressive through the 1950s so that there seemed to be some justification for the claim that assigning a low priority to agriculture yielded dividends in rapid industrialization. However, the subsequent decline in the rates of growth of GNP and of the "M sector" (manufacturing, mining, and construction) makes it clear that the Stalinist strategy did not provide a basis for rapid and sustained growth even in the industrial sector. Performance of the "A sector" (agriculture and forestry) was impressive only during the 1950s, but the declining trend is obscured because of the fluctuating influence of the weather. The following tabulation summarizes the annual rates of change in GNP, in sectoral growth rates, and also the estimated rate of change in total factor productivity (Ofer, 1987,

p. 1778-79):

	1928-40	1950-60	1960-70	1970-75	1975-80	1980-85
GNP	5.8	5.7	5.2	3.7	2.6	2.0
A sector	1.6	4.4	2.2	0.9	-0.2	2.0
M sector	9.2	9.6	6.2	5.9	3.2	2.3
Service sector	6.9	4.3	5.3	4.3	3.0	2.1
Total factor productivity	1.7	1.6	1.5	0.0	-0.4	-0.5

It now appears that the impressive growth of industrial output during the earlier periods represented extensive growth based on increased use of capital, labor, and energy and other resources. In addition to the difficulties that were bound to be encountered in sustaining the growth of inputs, the early industrialization drive took place at a time when the dominant technological advance in the world's industrialized countries "was concentrated in heavy industry and machinery, energy, and raw materials" (Ofer, 1987, p. 1823). It appears that this suited the goals and structure of the Soviet system; hence the problems that result from centralized planning and a command economy did not become serious until later.

Adverse Effects of Centralized Planning and Collectivization

Research by western scholars has identified a number of reasons for the secular decline in Soviet growth rates and in the glasnost era Gorbachev as well as Soviet scholars have emphasized some of the same propositions. Ofer (1987, pp. 1814-16) discusses a half dozen significant factors: (1) the fact that the Soviet Union's extensive growth "is by nature exhaustible, as manifested in the unavoidable decline in the growth rate of inputs"; (2) technological change and attempts to increase efficiency have been increasingly disappointing and have failed to replace input growth as a source of increases in output; (3) the "strategy of haste" that has characterized Soviet economic planning has undermined the sustainability of growth and exacerbated the difficulties encountered by the Soviet economy in shifting to an intensive growth path relying on research and development and technological change and a more efficient pattern of investment rather than enlarged use of inputs; (4) the growing complexity of the economy makes it increasingly difficult to translate goals into detailed production plans; (5) expanding military expenditures have adversely affected overall economic growth by absorbing scarce human and material resources; and (6) material incentives have been weakened as a result of the inability of the Soviet economy to fulfill its production targets for consumer goods which are low-priority items whose production is cut first when growth declines.

It now seems clear that the economic as well as the human costs of the Stalinist strategy and collectivization were unnecessarily high. The

most obvious factors to be noted in that regard are the direct effects of compulsory collectivization—a sharp drop in farm output, a large loss of human life in the famine of 1933, and an enormous waste of capital in the form of the draft animals that perished during the early years of the collectivization drive. Handicraft production and small-scale industries were also a casualty of that period, and their destruction accentuated the fall in living standards. The rejection of criteria based on conventional concepts of economic rationality and the heavy reliance on command farming and a campaign approach led to substantial waste and inefficiency. (See especially Nove, 1969, and Karcz, 1969.)

Of greater significance than the costs in terms of static efficiency are the adverse effects of the Soviet strategy on the process of technical change and increases in efficiency over time. Such problems were most obvious in the Stalin period. The refusal for many years to introduce hybrid corn, because of the ideological objections based on Lysenko's Marxist Theory of Plant Genetics, is an extreme example. But other types of problems have undoubtedly had more serious and more persistent effects. In particular the structure of incentives and the limitations on decentralized decision making must have impeded the adoption of a sequence of innovations well adapted to local circumstances. Thus Raup (1972) and others have stressed that the decision-making framework for agricultural management has had the effect of discouraging innovation and specialization.

Those problems first became apparent in agriculture, but the shift of the technological frontier toward an "information-intensive economy" with emphasis on electronics, computers, and communications accentuates the shortcomings of the Soviet system of centralized planning. An observation by Heymann in a 1985 paper (Ofer, 1987, p. 1823) is interesting in calling attention to these problems and in noting that the Gorbachev leadership is aware of them:

Soviet society—as is now beginning to be recognized by the new Gorbachev leadership—is handicapped by a socio-political organization ill suited to the adoption and assimilation of an information-intensive culture: its highly centralized approach to management and decision making; its dearth of reliable data bases and the wall of secrecy with which it surrounds them; the poor quality and availability of its telecommunications links; its discouragement of entrepreneurship and risk taking (uncoordinated small-team, competitive ventures do not exist); its tradition of ignoring the needs and wishes of customers and users; and its abhorrence of the wide-open, chaotic marketplace, where a staggering variety of profit-motivated buyers and sellers contend—these and other features hamper and constrain the society's ability to adjust to and benefit from the information revolution.

The shortcomings of the Soviet system have become increasingly significant for agriculture because of the growing importance of agriculture-industry interactions in a modern economy. Thus the failure to use complementary factors such as tractors of varying size and a variety of well adapted implements has been a serious problem. Frequently, the variety of machinery and other inputs needed has simply not been available because firms manufacturing inputs have lacked the awareness, incentive, and capacity to respond to the diverse needs of farm units. Nove emphasizes that the customer's lack of influence on production is a general weakness of the Soviet system. But unbalanced mechanization and lack of complementary equipment in agriculture are especially severe problems. More generally, "a massive volume of published complaints testifies to the fact that the machines are too often of poor quality, unsuited to local conditions, with insufficient spare parts, while many requests are not met at all" (Nove, 1983, p. 89). Johnson notes an important example of the failure to provide complementary equipment. He reports there is almost no equipment for tractors of 150 to 300 horsepower and concludes that it was "an economic crime to produce enormous tractors without producing the equipment that would permit their efficient use" (Johnson, 1983, p. 53).

It might seem surprising that Soviet farms are very poorly served by all-weather roads. Neglect of investments in infrastructure appears, however, to be a significant consequence of one of the strategic notions that has shaped Soviet investment strategy—the view that concentration of investment in producer-goods industries is the key to rapid growth. This is coupled with a Marxist and Soviet distinction between productive and unproductive investments, with the latter including "all investments in services such as housing, urban infrastructure, and consumer services as well as in public administration, banking and other business services" (Ofer, 1987, p. 1807). Those biases are accentuated by what Ofer refers to as a manifestation of the haste strategy. As a result of these strategic notions, investments in transportation and communications networks and other types of infrastructure are minimized in order to concentrate on real production. That bias is no doubt reinforced by the fact that investment requirements for transport and other types of infrastructure are often very large, and the payoffs are often indirect and slow. Hence, in the short run capital productivity may be higher without such investments—but at the cost of reducing growth rates in the future.

It is apparent from the estimates of total factor productivity on an economy-wide basis presented earlier that there were modest gains in factor productivity until the late 1960s. The record of changes in total factor productivity in the agricultural sector appears to be especially unsatisfactory. Studies by Karcz (1967) and Johnson (1971) of changes in farm output and inputs between the late 1920s and late 1930s point to a decline

in total factor productivity. Inasmuch as that was a turbulent period in Soviet agriculture with the rapid collectivization of virtually the entire farm population, it is not at all surprising that there was a decline in factor productivity. It is more surprising that recent studies by Johnson and by Karen McConnell Brooks focusing on the 1960s and 1970s indicate "that the resources devoted to agriculture in the Soviet Union produce approximately half as much as the same bundle of resources would produce in climatically similar areas in North America" (Johnson, 1983, p. 196; Brooks, 1983). In spite of the very high rate of investment in Soviet agriculture in recent decades the decline in the share of agriculture in its labor force—from 34 to 20 percent between 1965 and 1980—has been considerably less than in the 19 industrial market economies included in the *World Development Report, 1987* where the (weighted) average share declined from 14 to only 7 percent (World Bank, 1987, p. 265).

Continuing Problems and Prospects for Reform

There is great uncertainty about the prospects for significant changes in agricultural policy in the Soviet Union. The emphasis that General Secretary Gorbachev has placed on *perestroika*—a restructuring of the Soviet economy—certainly emphasizes that there is serious concern about the unsatisfactory performance of the Soviet economy. Reporting on a recent 10-day visit to Moscow and Leningrad as a guest of the Soviet Academy of Sciences, Martin Feldstein (1987) asserts that "there is a clear sense of urgency and a desire to see substantial changes in practice by the end of this decade." Although Feldstein is not a Soviet specialist, his observations are perceptive. Moreover, even experts on the Soviet economy such as Marshal Goldman and Gur Ofer have little access to information about decisionmaking in the Soviet Union and often differ sharply in their prognostications of possible future changes in economic policies.¹⁰

In his summary account, Feldstein notes that five principal changes are being proposed: (1) *give enterprises more discretion* by permitting some degree of self-financing and by terminating subsidies to cover operating losses; (2) change the character of central planning by initiating a system of minimum production quotas while permitting firms to determine their own production levels in using their remaining capacity; (3) decontrol prices (although "even ambitious reformers expect to see only 30 percent to 40 percent of prices freed within three years" because of fear of inflation and the bureaucratic reluctance to lose control); (4) create credit markets by a major reform that would enable a national network of local banks to assess

¹⁰ Feldstein's report has the virtue of being very concise and up-to-date. His analysis seems quite consistent with the concluding section of the important survey article by Ofer (1987, pp. 1819-26).

credit risks and loans to enterprises; and (5) develop competition among enterprises in order to provide incentives for efficient production and to curb the rapid price increases and abnormal profits that would result from price decontrol if enterprises continued to be monopoly suppliers.

It is not clear whether the present preoccupation with general economic reforms will increase or diminish the prospects for agricultural reforms. In his broad-ranging book *Perestroika: New Thinking for Our Country and the World*, Gorbachev (1987) barely mentions agriculture. A recent announcement by the State Agro-Industrial Committee indicates that agricultural land (all of which is state owned) will be leased to private individuals and groups for up to 50 years. This would seem to indicate that Stalin's collective system has been abandoned, but there must be doubts about the ability of the present Soviet leadership to overcome the obstacles to implementing such a major reform. The bureaucrats in powerful government ministries and leaders of the large monopoly enterprises are understandably reluctant to give up central planning. In commenting on that announcement, Laird (1988) further emphasizes that if the proposed reforms are implemented, they "inevitably will cause unanticipated problems and significant economic distortions." The fact that price decontrol will cause inflation in an economy in which excess demand has long been suppressed is only one of several problems that Feldstein identifies. And he rightly notes that such problems may "undermine public support for the restructuring, and that the bureaucrats will seize the apparent failures as a basis for reestablishing the old centrally planned economy."

On the other hand, it may well be that significant improvement in the performance of the agricultural sector is not possible except as part of more comprehensive economic reforms. In a perceptive account of what were intended to be significant economic reforms, Gertrude Schroeder (Johnson, 1983, p. 214n) notes that:

A decade of reforming the reforms has not altered the nature of the Soviet economic system in any essential respect. It remains one of rigid, highly centralized planning of production, formal rationing of nearly all producer goods, centrally-fixed prices, and incentives geared to meeting plans. Since these characteristics of the system contain the roots of its difficulties in using resources efficiently and gearing production to customers' wants, it is not surprising that problems have defied solution.

It seems especially clear, for example, that inefficiencies in the supply of inputs to the agricultural sector because of the rigidity of the centrally planned state manufacturing enterprises could only be overcome by reforms along the lines summarized so concisely by Feldstein. It is suggested in the next section that one of the reasons why more significant economic reforms seem to be possible in China is because the modern urban economy subject

to central economic planning is still such a relatively small part of the total economy.

EVOLVING STRATEGIES FOR AGRICULTURAL AND RURAL DEVELOPMENT IN CHINA

It is difficult to summarize the policies and programs carried out in rural China during the four decades since the Communists gained control because of the major policy changes, both gradual and abrupt, that have occurred. It is useful to begin by calling attention to several distinctive features of agricultural and rural development in China. Subsequent sections then discuss China's land reform and its approach to collectivization and finally the reforms of the post-Mao period and future prospects.

Distinctive Features of Rural Development in China

The paradox of rural-urban bias and dualism. It is important to emphasize an apparent paradox in the development strategies pursued by Mao and his colleagues. On the one hand there has been a strong commitment on the part of China's leaders to serve the rural poor and to "see their future and the future of the policies they believe in as being intimately tied to the prosperity of the countryside" (Perkins and Yusuf, 1985, p. 5). On the other hand, however, there was an equally strong commitment to build a modern industrial state that could support modern military forces capable of defending the country against all foreign powers. This led in the 1950s to the adoption of a Stalinist development strategy, with emphasis on steel and machinery, that continued until Mao's death in 1976 despite the rhetoric about taking agriculture as the foundation.

Although Stalin and other Soviet leaders were committed to promoting their industrialization-first policies by extracting resources from agriculture through forced collectivization and by minimizing the reverse flow of resources into agriculture, the pattern of collectivization that was adopted has not been very successful in holding down the agricultural sector's demands on the country's capital resources. But in China the leadership was able to implement a self-reliant strategy for agriculture that achieved expanded agricultural output by labor-using, capital-saving technologies, thereby minimizing the flow of scarce resources into agriculture. Perkins and Yusuf (1985, p. 194) emphasize that "the choice of a self-reliant strategy was deliberate. The government budget directly controlled nearly a third of national product, and industrialization proceeded rapidly throughout the three decades, but these resources were directed mainly toward the machinery and steel sectors, not agriculture."

The version of an industrialization-first strategy pursued in China gave rise to a unique form of urban bias that has resulted in maintaining, to a

remarkable degree, a dual economy. The share of the population in urban areas scarcely increased between 1957 and 1978. Between 1952 and 1957 it rose from 12.5 to 15.4 percent. During the next two decades, the urban share increased only marginally to 17.9 percent. That slight increase in urbanization was the result of a virtual ban by the government on migration from rural to urban areas. The ability of the government to enforce that ban is striking evidence of the regime's organizational capacity to implement government policies. Since that time the controls on migration to urban areas have been relaxed. There was a sizable increase in the urban share from 17.9 to 23.3 percent between 1978 and 1983. The very large reported growth of the urban population from an estimated 241 million in 1983 to 382 million in 1985 or 38 percent of the total population is, however, misleading. In 1984, the Chinese redefined the population to be classified as urban and so a large but unknown part of the reported increase between 1983 and 1985 resulted from this reclassification (Perkins, 1988, p. 639).

The ban on rural-urban migration meant that it was not necessary for the government to resort to a large increase in compulsory grain deliveries to feed a rapidly growing urban population.¹¹ At the same time, the policy of self-reliance for rural areas meant that the agricultural sector had to support a greatly increased rural population. The 57 percent increase in the rural population from 547 million in 1957 to 859 million in 1982 was considerably greater than the 46 percent increase in the urban population which rose from 99 to 145 million; and the absolute increase in the size of the rural population was close to seven times as large. Given the extremely limited scope that existed for enlarging the cultivated area, efforts to increase the per capita income of the rural population faced a severe resource constraint.

In addition, only a small fraction of government investment was allocated to agriculture—14.6 percent of capital construction investment in 1965 compared to 50.8 percent allocated to heavy industry.¹² It is therefore not surprising to find that the increase in value added per capita has been

¹¹ Walker (1984, p. 182) estimates that between 1953–57 and 1977–80 government purchases increased only from 31 to 45 million tons; and grain received by the government as tax payments declined from 19 to a little less than 14 million tons. Government sales in urban areas increased considerably more than the government's gross procurement of domestic grains for two reasons. Government sales of grain in rural areas were reduced from an average of 22.3 million tons in 1953–57 to 15.5 million tons in 1977–80. In addition, net imports of grain averaged close to 9 million tons in the later period whereas there were net exports of 1.9 million during the earlier period. These figures suggest that the quantity of grain available for sale in urban areas increased from about 10 million tons to 40 million tons between 1953–57 and 1977–80.

¹² Perkins and Yusuf (1985, pp. 14, 15) give figures for selected years between 1952 and 1981. The share allocated to heavy industry rose from 34.3 to 51.6

very much greater in the nonagricultural sector than in the agricultural sector. In current prices there was a modest 3.5-fold increase in value added per capita in agriculture between 1949 and 1981 whereas the nonagricultural sector registered nearly a 14-fold increase. That crude comparison is not very illuminating. For one thing, the rapid rise in per capita value added in nonagriculture is in large part a reflection of the concentration of investment in urban industry with a consequent growth in capital intensity and a decline in the share of value added received by urban workers. On the other hand, because the state allocated most of its investment to urban large-scale industry or to related infrastructure, the increase in urban demand for labor was much more rapid than the growth in the urban labor force (which was restricted by the ban on migration). A rapid rise in the capital intensity of urban production provided only part of the solution. In addition, urban industry's increased demand for labor has been met by employing a much higher proportion of urban residents, particularly women. As a result, urban family incomes rose much more rapidly than rural family incomes (Perkins and Yusuf, 1985, pp. 124–28).

Components of rural development. In considering rural development in China, it is particularly important to give attention to components in addition to agricultural development, i.e., increases in agricultural productivity and output. Additional components that merit attention include investments to improve the agricultural infrastructure, expansion of rural education, fostering the growth of rural-based manufacturing activities, and expanding the rural population's access to essential nutrition, health, and family-planning services. In fact, China's considerable success in providing its large rural population with access to basic health services appears to be especially relevant to the concerns of many developing countries where agriculture continues to account for such a large proportion of the population and labor force.

An important motivation for establishing rural communes in China was to facilitate the mobilization of rural labor for infrastructure projects. Of greater significance in enhancing the wellbeing of the rural population, however, were the educational and health-related activities that improved the quality of human resources in rural areas. It is widely believed that, despite the suffering and loss of life during the chaos of the Great Leap Forward, the wellbeing of China's rural population has improved during the past four decades even though there was virtually no increase in per capita food supplies between 1957 and 1977. It is beyond doubt that impressive

percent between 1952 and 1957; 1981 was the only year heavy industry's share fell below 50 percent. Agriculture's share rose sharply from 8.6 percent in 1957 to 21.3 percent in 1962 but was below 10 percent in 1975 and in 1981. It is also to be noted that investment in farm machinery, fertilizers, and other farm inputs typically accounted for only about 10 percent of the investment in heavy industry.

progress has been made in expanding the rural population's access to education and in promoting improvements in health. An attempt to assess briefly the positive achievements of Communist rule in China is inevitably a hazardous enterprise. Many critics of China's Communist regime would dismiss four decades of effort toward human betterment by pointing to the enormous and tragic loss of life during the Great Leap Forward—or perhaps the more recent resort to coercion evident in compulsory sterilization and abortion that have been a part of the draconian (and belated) effort to stabilize the country's population growth rate by the end of the century. At the opposite extreme, there are some who are so anxious to extol the achievements of the PRC that they are unwilling to confront evidence concerning the human costs of the Great Leap or the infringement of human rights resulting from periodic resort to coercive methods to reduce fertility. John Aird, a knowledgeable demographer who has studied China's population for many years, even argues that the willingness of influential outsiders to ignore the evidence of compulsory sterilization and abortion may have contributed to the willingness of China's leaders to condone and even encourage those practices (Aird, 1986, p. 185).

The fact that the record is decidedly mixed should not be allowed to obscure the progress that has been made in rural China in expanding access to education, in improving the health and nutritional status of the population, and in slowing rapid population growth in a country where pressure of population on the limited area of good agricultural land is already a major problem. The per capita availability of tillable land to the country's rural population works out to only 0.12 hectare, even less than in Bangladesh or Egypt where 0.15 hectare per capita is available.

Education and trained leadership. In 1949, only about one-fourth of the country's children of primary school age were enrolled. By 1958, 67 percent of children—an estimated 86 million children in that age group—were enrolled in primary schools. Another 8.5 million children were enrolled in secondary schools, although at that level there was a concentration of schools in large towns and cities so that perhaps only 10 percent of the relevant rural population was enrolled in secondary schools compared to an overall figure of 17 percent (Perkins and Yusuf, 1985, pp. 172-73).

Data from the 1964 and 1982 censuses provide evidence of great expansion of education during the intervening 18 years. Of China's 1964 population of about 700 million, 240 million people had received some form of education, although mostly only primary. By 1982 a little over 600 million out of a total population of one billion had received some education, and 41 percent had gone beyond primary education. In 1964, 32 million had entered junior middle school but not gone beyond; by 1982 the number was 178 million. Particularly striking was the increase from 9 million in 1964 to 66 million in 1982 in the number of children who had attended senior

middle school. Inasmuch as the Cultural Revolution had devastating effects on higher education, it is not surprising that the increase in the population with university education was more limited—from 3 million to 6 million (Banister, 1986, pp. 178–79). In terms of current enrollment it was only in 1981 that college-level enrollment (1.28 million) exceeded the enrollment of 1.23 million in 1962. Enrollment in colleges of agriculture and forestry in 1981 was only about 7 percent of the total (Perkins and Yusuf, 1985, pp. 178, 183).

The capacity of the Communist regime to implement its programs has been enlarged by the expansion of formal education. But especially in the earlier years, it probably depended even more on the availability of cadres, individuals dedicated to the goals of the new regime and of demonstrated ability but who may have had little formal education. Perkins and Yusuf (1985, p. 91) report that: “New cadres were recruited from among peasants and workers who had distinguished themselves in mass campaigns, from among college students who had been trained and indoctrinated, and from among administrators belonging to the old regime who were willing to embrace the Communist value system.” In 1949, the Party had 700 thousand cadres at its disposal, and within three years that number had risen to 2.75 million. It is also noted that “the most trusted cadres were sent to the villages to learn about the problems of the peasants through personal contact and to establish the framework of communication and control, which the regime could then use for the task of development” (Perkins and Yusuf, 1985, p. 92).

Rural health programs. Of the many bold initiatives associated with the Great Leap Forward, the founding of commune health centers during 1958–60 has probably had the most lasting and positive impact. Many of those centers were closed in the early 1960s because of funding problems; but as the rural economy recovered from famine and institutional dislocation, medical facilities were rehabilitated and cost-sharing schemes were devised. With the launching of the Cultural Revolution, the commune-level clinics were upgraded into rural hospitals, and health stations were established at the brigade level. There was a large expansion of paramedics (“barefoot doctors”) who staffed the brigade health centers, and the more affluent production teams had their own paramedics. Costs were held down by an emphasis on immunizations and other preventive public health activities that included promotion of hygiene and environmental sanitation. In addition, the government allocated 60 percent of its health budget to the rural sector and families made a modest contribution to the cost of cooperative medical insurance, thereby making treatment “within the reach of the great mass of rural inhabitants” (Perkins and Yusuf, 1985, p. 141).

The increase in expectation of life at birth since the 1950s has been very great—from about 45 years in the mid-1950s to 65 years in 1982.

That increase has, of course, been mainly a result of very sharp reductions in infant and child mortality. The estimated decline in infant and child mortality rates is remarkable (Ross et al., 1988, pp. 229, 231.):

	<u>1955-60</u>	<u>1960-65</u>	<u>1965-70</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>
Infant mortality (deaths before age one per 1,000 births)	179	121	81	61	41	39
Child mortality between ages one and five (number of children per 1,000 that reach age one who die before age 5)	77	47	36	23	17	16

The large increase in life expectancy and greatly improved prospects for infant and child survival have been the result of widespread access to health services, improvements in food intake and nutrition, and a sharp reduction in fertility during the past two decades. Attention is given in the next section to China's population policies and family-planning program before turning to an examination of changes in infant and child mortality, food intake, and nutritional status.

Family planning. One of the sharpest shifts in policy in China has related to population. Mao Tse-tung took an explicitly orthodox Marxist view and rejected the views of Malthus as not applying to China's socialist economy. His basic view seems to have been "that China's large population would be an asset because it meant abundant labor and labor was the source of all wealth" (Aird, 1986, p. 187). However, when the results of the 1953 census became available showing a population 100 million larger than expected, that orthodox view was temporarily reversed and a rather tentative family-planning program was initiated in 1956. Little was done, however, because the establishment of rural communes and the Great Leap began in 1958.

It was not until 1962 that a second family-planning program got under way as the serious food crisis resulting from establishing the commune system, with decisionmaking at the commune or brigade level, came to be recognized. That family-planning program was interrupted between 1966 and 1969 because of the political turmoil resulting from the Cultural Revolution. The motivations seem to have varied over time, but since 1969 family-planning efforts have been continued and with increased intensity. Recently considerable emphasis has been placed on the decline in the per capita availability of land, and in 1979 "it was revealed that food grain per

capita had actually decreased since 1957, that food was short in some rural areas, and that for the country as a whole food was still 'a big problem' " (Aird, 1986, p. 188).

Recognition by policymakers of the powerful momentum that characterizes population growth has led to vigorous action to slow it by a policy of one child per family in an attempt to bring the rate of natural increase down to 0.5 percent by 1985 and to zero by 2000. As noted earlier, it seems clear that the central government has encouraged local officials to resort to coercion if necessary to meet these exceedingly demanding targets for reducing the number of births. There has also been extensive use of special benefits for one-child families and penalties on those who exceed that limit. A 1979 article by Chen Muhua, who was vice-premier and director of the State Council Birth Planning Group at the time, stressed that "controlling excessive population growth via a well-run planned-birth program will vastly reduce the population pressure on employment, facilitate the accumulation of capital on the part of the state and the collective, and improve the people's standard of living." Her statement recognized the special difficulty "of controlling population increase in rural villages" but also stressed that the broad coverage and results achieved by China's rural health program would be a favorable factor. Thus she notes explicitly that "it is necessary to manage maternal-and-child-health-care work well, thereby further reducing neonatal and infant mortality, so that when one baby is born, he or she will survive" (Muhua, 1979, pp. 351, 353).

It is certainly unfortunate that a serious and sustained effort to promote family planning was not launched until two decades after the Communist regime achieved complete control of the Mainland. And it is deplorable that the belated efforts since 1969 have found it necessary to condone and encourage coercion in carrying out sterilizations and abortions, including late abortions. Similar reductions in fertility in Taiwan and South Korea were achieved without such measures. For example, the crude birth rate in Taiwan declined from 40 to 23 per thousand between 1960 and 1975 (World Bank, 1978, p. 105). It is estimated that the crude birth rate in China declined from 41 per thousand in 1968 to 21 per thousand in 1982 (Banister, 1986, p. 165). The task in Taiwan was undoubtedly much easier because of more rapid economic and social progress and the greater ease of reaching a smaller and more urbanized population in a much more compact area.

There seems little doubt that dealing with a number of China's development problems will be facilitated by the slowing of the rate of natural increase. The remarkable increase since 1977 in the rate of increase in per capita food production in China, for example, is due in no small measure to the decline in the rate of natural increase from 2.6 to 1.1 percent between 1965 and 1985 (World Bank, 1987, p. 256), although this sudden reduction in fertility will probably not be an unmixed blessing because of

its long-term effects on the age distribution of the population. Experience in other countries, including Costa Rica as well as South Korea and Taiwan, suggests that similar results could have been achieved by encouraging and facilitating family planning without resorting to coercion if China's policymakers had not been so slow to face up to the problem.

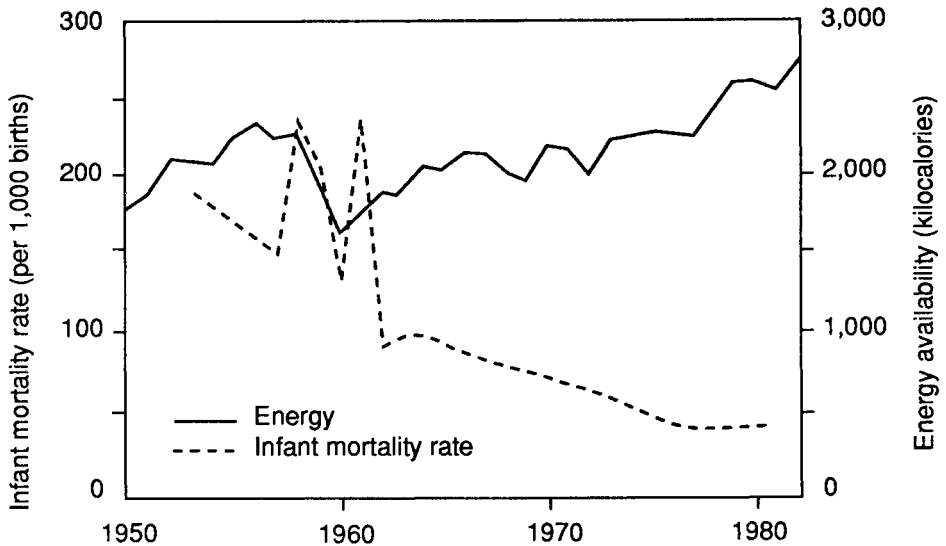
Infant and child mortality, nutrition, and food consumption. It is useful to review the changes in infant and child mortality in China together with the interrelated changes in food intake and nutritional status. The decline in infant mortality has been dramatic, especially when compared to the extremely high levels reached during the food crisis and chaotic conditions associated with the Great Leap Forward. The year-to-year fluctuations in the infant mortality rate (and per capita food energy) between 1957 and 1963 shown in Chart 1 are uncertain, but there is no doubt that the rate was extremely high from 1958 through 1961 or 1962.¹³ The steady decline since the early 1960s is impressive and plausible, given the improvement in rural health services together with the improvements in the per capita availability of food. According to recent estimates published by the World Bank (1987, p. 258), only Sri Lanka among the low-income developing countries had achieved a similarly low infant mortality rate by 1985. It will be seen in the following tabulation that even for the middle-income developing countries their weighted average infant mortality rate was nearly twice as high as in China:

Country/category	Infant mortality rate	
	1965	1985
China	90	35
India	151	89
Other low-income countries	150	112
Middle-income countries	104	68

Evidence from anthropometric surveys makes it clear that there has been significant improvement in the nutritional status of children between the 1950s and 1979. Inasmuch as there was little change in the per capita availability of food energy or protein between the 1950s and 1979, it is likely that improvements in health—principally the reduction in diarrheal infections—was an important factor in the improvement of nutritional status (as indicated by height for age data) and also in the reduction of infant and child mortality. More equal access to available food must also have

¹³ There are considerable differences in the reconstruction of population dynamics for the years 1957 through 1963 by Ashton et al. (1984, p. 618) and by Banister (1986, p. 165); but they agree in pointing to striking improvements in survival rates since 1963.

Chart 1.—Infant Mortality and Per Capita Food Energy, China



Source: Adapted from Dean T. Jamison and A. Piazza, "China's Food and Nutrition Planning," in J.P. Gittinger, J. Leslie, and C. Hoisington, eds., *Food Policy: Integrating Supply, Distribution, and Consumption*, John Hopkins University Press, Baltimore and London.

been an important factor. The data from the 1979 anthropometric survey also indicate that the nutritional status of children in rural areas is inferior to that of children in urban centers and indicate marked regional variation in the extent of malnutrition (Jamison and Piazza, 1987, pp. 478-81). Large subsidies that have held down the price of food for urban consumers, together with the availability of imported food, have no doubt contributed to the superior nutritional status of children in urban areas.

Careful estimates by Walker of changes in per capita grain consumption in rural and urban areas between 1953-57 and 1977-80 are useful for summarizing the major changes affecting food consumption in China (Table 1). Despite the large increase in rural population, increased production combined with enlarged grain imports permitted producers to retain more grain per capita while per-capita supplies for the urban population rose as well. The average figures, of course, obscure large provincial variations that were only partly offset by transfers from surplus to deficit provinces but the number of grain-poor provinces and their population declined between the mid-1950s and the late 1970s and early 1980s although Jamison and Piazza

(1987, p. 476) estimate that the population in grain-poor provinces fell from 220 million to 85 million, and although 1978–80 grain output per head in 11 provinces was below what it had been in 1955–57. The subprovincial variation in grain output is also substantial. Walker (1984, p. 176) cites a 1980 report that “the grain ration of 100 million peasants was below 150 kilograms per year,” and sub-provincial data on per capita income for 1979 also confirm the persistence of a great deal of inequality in rural incomes. Perkins and Yusuf (1985, p. 119) refer to a speech by a Chinese official, Li Xiannian, that refers to “100 million people living at semi-starvation levels” and “tens of millions of people who must rely on government-supplied emergency rations to survive.”

Table 1.—Grain Supplies of the Urban
and Rural Population*
(*Annual averages in kilograms per capita*)

	1953–57	1977–80
Grain per head of rural population:		
Output	343	381
Net procurement	53	54
Retained by peasants	290	327
Grain per head of urban population:		
Net procurement	323	290
Net procurement plus imports or minus exports	300	349

Source: Kenneth R. Walker, *Food Grain Procurement and Consumption in China*, Cambridge University Press, Cambridge, 1984, p. 182.

*Grain includes soybeans and potatoes; 5 kg potatoes is equal to 1 kg grain.

The use of grain as livestock feed is still very limited but the number of pigs rose from just over 100 million in 1952–57 to a little over 300 million in 1978–80, and it is estimated that the percentage of grain output used for feeding livestock rose from less than 6 percent to more than 10 percent (Walker, 1984, pp. 177–78). In view of the similarity in food preferences in China and Taiwan, it is of interest to compare the current situation in China with changes in food consumption in Taiwan between 1969 and 1979. The following estimates by Walker (1984, p. 196) are in kilograms (kg) per capita with the grain figures expressed in unhusked grain equivalent.¹⁴

¹⁴ Walker’s estimates for grain consumption are for 1978–79; many of his estimates are rough and all of them have been rounded in this tabulation.

	Taiwan		China
	1969	1979	1978-80
Grain	249	211	257
Meat	23	40	12
Eggs	4	8	2
Fish	30	38	6
Milk	2	5	1
Edible oil	6	10	2

Jamison and Piazza (1987, p. 484) express concern that in the future "the task of increasing meat production for the majority of Chinese may distract the government from the task of increasing grain consumption for the malnourished."

There is little doubt but that China's concentration on grain consumption contributed to the progress made in reducing serious malnutrition in spite of severe resource constraints. In fact, the same was true of Japan and Taiwan in earlier periods. (See, for example, Kaneda, 1969.) But given the stage of development that China has now reached, it seems questionable whether official policy should give a high priority to resisting the changes in food consumption that are to be expected given the high income elasticity of demand for meat and especially for pork. There are valid health reasons why nutrition education should aim to discourage the high levels of intake of saturated fatty acids that appear to increase vulnerability to heart attacks and other degenerative diseases. It is much less clear, however, whether such concerns justify a continued emphasis on direct controls over agricultural production and a policy of self-sufficiency in food.

Rural industry, commerce, and services. The large and increasing importance of China's widely dispersed small-scale industries represents another significant contrast between rural development in China and in the Soviet Union.¹⁵ There is a long tradition of substantial rural nonfarm activity in China, as in other Asian countries. Even in the early 1950s rural nonfarm activities—construction, marketing, and the manufacture of consumer goods and farm inputs—accounted for about 20 percent of the total value of output in rural areas. With the establishment of rural communes in 1958, there was a rapid but fragile expansion of collective enterprises engaged in nonfarm production, and their number quickly outnumbered traditional units. In fact, excessive diversion of labor to nonfarm activities almost certainly contributed to the disastrous decline in agricultural production during the 1959-62 period.

¹⁵ Perkins and Yusuf (1987, pp. 61-65) provide a concise summary and useful references on this topic. The report by Perkins et al. (1977) of the American Rural Small-scale Industry Delegation is especially interesting, and Travers (1986), Wong (1986), and Dong (1987) provide more recent information.

By 1963 many of the commune enterprises had been abandoned, and for a time the government discouraged further development. Within a few years, however, there was again strong ideological and financial support for collective nonfarm production that led to rapid growth after 1969. The total value of output of commune industry, including enterprises at the level of the brigade and even the production team as well as at commune level, doubled between 1971 and 1975 and again between 1975 and 1979 (Travers, 1986, pp. 378–79). By 1982 commune enterprises accounted for 11 percent of industrial output compared to 3 percent in 1971. Over 90 percent of lime, sand, and gravel and 75 percent of bricks and tiles were being produced by such enterprises, and they also accounted for one-third of the country's hydroelectric capacity and one-sixth of the output of coal (Travers, 1986, p. 381). In the late 1970s small-scale rural plants also accounted for two-thirds of the country's cement production and over half of the production of nitrogen fertilizer.

The small-scale fertilizer plants are of special interest because of the role they have played in making possible remarkably rapid increases in the production and use of chemical fertilizers. By 1979 some 1,533 small-scale plants were producing nearly 4.3 million tons of nitrogen in the form of ammonium bicarbonate, a product that is rarely if ever used in other countries because of its low nitrogen content (17.5 percent) and its volatility that results in considerable loss of nitrogen in storage and application. Many of the less efficient of those plants have been closed down, but the output of ammonium carbonate continued to expand at least until 1982 when it accounted for 53 percent of total nitrogen produced in spite of an 80 percent increase in urea production between 1978 and 1981. Production of urea reached nearly 3.2 million nutrient tons as 13 large-scale plants approached capacity production. Those plants, based on contracts arranged in 1973–74 for imported equipment and technology, use large and efficient centrifugal compressors to produce ammonia from natural gas that is converted to urea, a high-quality fertilizer product containing about 2.5 times as much nitrogen per ton of product as ammonium bicarbonate (Stone, 1986, pp. 466–76). In spite of its disadvantages, ammonium bicarbonate has played an important role in making possible extremely rapid and widespread increases in fertilizer use in China. Moreover, it is reported that significant improvements have been made in the product and in techniques of application. Nevertheless, the government has recently banned construction of new small-scale nitrogen fertilizer plants because of their inefficiency in the use of raw materials and other problems (Stone, 1986, pp. 478, 494–95).

Perkins and Yusuf (1985, p. 63) single out cement as a product that illustrates the advantages of decentralized, small-scale plants for certain types of products. Because of China's weak and expensive rural transport system, the advantages of location are likely to outweigh economies of scale

in decisions about plant location and choice of technique for bulky items of low value per ton. "China is blessed," they note, "with many small outcroppings of limestone and coal that are not usable by large-scale plants because of the high cost of moving such bulky items from so many locations to one distant center." And since there is widely dispersed demand for cement in rural areas for lining canals and other construction, the obvious solution is to build small plants near local outcroppings and sell the output within a 5- or 10-mile radius of each plant.

Another important locational advantage of rural-based industries is the availability of labor that has a low opportunity cost. Travers (1986, p. 385) asserts that in China "the state has assigned non-crop enterprise the particular role of absorbing surplus rural labor." Policymakers are keenly aware that the rural labor force of 333 million in 1982 had increased by 110 million since 1957. The agricultural reforms that provided scope for private initiative under the "household responsibility system" also established the legitimacy of side-line occupations, including private work in manufacturing, construction, transport, commerce, and other services. China's farm population responded quickly to the new opportunities, and between 1978 and 1983 the contribution of those nonfarm sources to a rapidly increasing farm household income rose from 8 to 19 percent. And by the later year, rural nonfarm employment reached 67 million, and employment in collective nonfarm enterprises accounted for less than half of that total.

In the past few years China's rural industries appear to have been by far the most dynamic force in the entire economy. According to one recent report, output from rural industry increased by 266 percent between 1982 and 1986 and nonfarm rural employment reached 120 million (*The Economist*, 1987, p. 10). The same survey article also emphasizes the complexity of the evolving system, noting that China has neither a planned nor a market economy but one dominated by "a system of bargaining between factory managers and government officials at every level of the bureaucracy" (p. 15). In a recent essay on "Ownership and Control in Chinese Industry: The Maoist Legacy and Prospects for the 1980s," Christine Wong (1986, p. 588) speaks of "this immensely complicated and messy system." She is concerned about excessive influence by local government officials but reports on reform measures that may simplify the ownership and control structure. However, the striking feature of recent developments is the speed with which opportunities have been identified and initiatives taken in spite of the complexity of the system.

Similarities with Rural Development in Japan and Taiwan

Another distinctive feature of rural development in the PRC that sets it apart from the Soviet Union relates to the significant similarities between China's pattern of agricultural and rural development and the patterns of

rural development in Japan and Taiwan as they transformed the structure of their economies. Perkins and Yusuf (1985, p. 61) state that: "One of the unique features of China's efforts to increase agricultural production has been the degree to which required inputs have been supplied by small-scale enterprises located in the countryside near those who use their products." It is probably true that the degree of reliance on small-scale rural enterprises was greater in China than Japan or Taiwan. That applies especially to periods of strong government support for the policy of "walking on two legs" with encouragement for a rural small-scale iron and steel industry and certain other lines of production that were ill-suited to small-scale production because of the importance of economies of scale and inadequate local supplies of essential raw materials.

In a broader view, however, there are notable similarities between current rural industrial development in China and earlier development in Japan and Taiwan during the decades when 40 to 80 percent of their population and labor force were still dependent on agriculture for income and employment. For that earlier period in Japan, Ohkawa (1965, p. 483) makes a distinction between a "modern sector," made up of large-scale enterprises with relatively high capital-labor ratios and wage rates, and a "semi-modern sector" of many small-scale units, using relatively small amounts of capital, and paying wages only a little above the average income of the farm population.

Moreover, similarities in the role of rural-based, small-scale industries appear to be related to basic similarities in agricultural strategies in the three countries despite the obvious differences related to China's emphasis on collectivization. The distinctive feature of the agricultural policies and programs pursued in Japan and Taiwan was that they resulted in a unimodal pattern of agricultural development, characterized by gradual, widespread progressive modernization of the existing small-scale farm units. Except for the short and disastrous experience with large-scale farm units when the rural communes were first established, virtually all of China's farm operational units were quite small even before the post-Mao reforms because the production team, made up of some 30 to 40 families, was the unit of management. It was therefore possible for agricultural output to be expanded by labor-using, capital-saving technologies that relied mainly on yield-increasing, divisible innovations very much like those adopted in Japan and Taiwan. The similarities have, of course, become more obvious since the reforms initiated in 1978 led to the dismantling of the rural communes and renewed emphasis on family farms as key decisionmaking units in agriculture. An emphasis on divisible inputs that can be used efficiently by small-scale farm units is evident in the nature of the technical innovations that have contributed most to increased agricultural production—tremendously rapid expansion since the early 1960s in the use of chemi-

cal fertilizers, the spread of high-yield, fertilizer-responsive varieties of rice and other crops, and improvements in water management. For example, Lardy (1986, p. 331) reports that by 1977 improved high-yield, fertilizer-responsive varieties were being grown on 80 percent of the area devoted to rice. As in Japan and Taiwan, the extension and better control of water has been an extremely important complement to the seed-fertilizer innovations.

Although China's policymakers have at times talked expansively about "complete mechanization of farm activities within a few years," Perkins and Yusuf (1985, pp. 59-60) stress that there is an "air of unreality" about many of the mechanization targets that have been announced. The expansion of mechanization since the early 1960s has been rapid; but of a total of 182 million horsepower of farm machinery available in 1979, engine-powered pumps for irrigation and drainage accounted for a little over 40 percent of the total. And diesel or electric power is so much more efficient than human or animal power in lifting water that it is not so much a substitute as a new technology. Since 1970 there has also been a large expansion of tractors, especially walking tractors. According to Perkins and Yusuf, however, most tractors were being used mainly as substitutes for trucks in transporting farm products and inputs.

It is pertinent to recall that the pattern of agricultural development in Japan and Taiwan during the relevant periods affected the pattern of industrial development in several ways (Johnston and Kilby, 1975). As in all developing countries, the increasing commercialization of farming both encouraged and made possible greater reliance on purchased inputs as well as expanded purchases of manufactured consumer goods. The nature of the growth of farm demand for nonfarm products was, however, influenced strongly by the fact that the increase in farm cash incomes was gradual but widespread. Therefore, the rising rural demand for nonfarm goods and services was in large measure directed toward relatively simple and inexpensive farm implements and consumer goods within the technical capabilities of small-scale rural industries. As a result, the growing commercialization of agriculture led to dynamic interaction between development of agriculture and of rural-based industries. Those positive interactions contributed to rapid growth of nonfarm employment as well as rapid growth of national product because the small-scale, rural-based firms used labor-intensive technologies that economized on requirements for the particularly scarce resources of capital and foreign exchange.

It is interesting to note that in assessing the performance of rural industries in China, Wong (1982, pp. 142-43) found them quite successful in expanding their output of relatively simple items—farm tools, small hand-operated machines like threshers and insecticide sprayers, and small, mechanized machines for processing farm products. Locating such industries in rural areas conserved scarce engineering skills required for more

sophisticated products manufactured in large-scale, urban plants. In addition, the dispersed location of those small-scale farm machinery plants contributed to their flexibility and responsiveness to the location-specific demands of their customers in contrast with the inflexibility of the farm machinery industry in the Soviet Union. She reports, however, that decentralized production of power equipment—small diesel engines and walking tractors, for example—was much less successful. Most of the output of this more sophisticated farm machinery came from a few urban plants, and most of the small-scale units were operating below their break-even points. “Failure was due to the enormous difficulties in coordinating the supply and assembly of the large number of inputs required” (Wong, 1982, p. 143). Rural-based firms in Japan and Taiwan also encountered problems in producing the more sophisticated types of equipment.

There are also significant similarities in the importance that China, Japan, and Taiwan attached to developing the quality of human resources among the rural population by expanding education and access to health services. Still another noteworthy similarity is the priority given to expanding and improving the rural infrastructure, notably irrigation and drainage facilities. Compared to Japan and Taiwan, development of a national transportation system in China seems to have been limited.

LAND REFORM AND COLLECTIVIZATION: TENSIONS BETWEEN EQUITY AND EFFICIENCY

The redistributive land reform carried out in rural areas of China as they came under Communist control had several major objectives. Giving satisfaction to the strong desire of peasant households to own a piece of land was no doubt one objective. For the Communist leaders, however, a particularly important goal was to break the power of the rural gentry that had been the dominant political force in rural China for centuries.

To that end landlords, who constituted roughly 3 or 4 percent of the population, were treated extremely harshly. They lost most of their income and “were reduced to the level of poor peasants when allowed to live at all...” (Perkins and Yusuf, 1985, p. 109). The Communist Party also made special efforts to ensure that most of the land that was redistributed went to the poorest rural families because they were regarded as the natural base of support for the Party. The effect of this initial land reform on income distribution was substantial but difficult to quantify. A recent paper by a Chinese economist, indicates that 70–80 percent of the agricultural land was owned by landlords and rich peasants who made up less than 10 percent of the rural population whereas the poor peasants, rural laborers, and middle peasants who constituted 90 percent of the rural population had only 20–30 percent of the land (Dong, 1987, p. 17), but studies of prewar China

by Ramon Myers and J.L. Buck suggest that land distribution was not as skewed as those figures indicate (Sicular, 1988).

From "Land to the Tiller" to Rural Communes

Between 1950 and 1952 close to half of the country's arable land was redistributed, and some 300 million peasants benefited. The rural poor also benefited from redistribution of animals, tools, cash, and other assets. It has been estimated that the share of rural income received by the lowest 20 percent of the rural population nearly doubled from 6 to 11 percent. It appears that the elimination of large inequalities in the ownership of land and other assets during this period has been mainly responsible for China's relatively equal distribution of income in rural areas. The subsequent collectivization of agriculture appears to have maintained that increased equality in income distribution; but reduction of the regional inequality that has become the principal source of income inequality has been limited (Perkins and Yusuf, 1985, p. 108 and *passim*).

The first steps toward collectivization began as soon as the redistributive land reform was completed. This took the form of establishing mutual aid teams of 8 to 10 families. That step was followed by setting up elementary agricultural producers' cooperatives, and these were followed by the establishment of advanced producers' cooperatives of some 150 to 200 families in which most of the land, implements, and labor was pooled, although some individual ownership rights were retained.

The fact that the land-to-the tiller reform was quickly followed by successive steps toward collectivization was motivated primarily by the political objective of consolidating the Party's control in the countryside. Perkins and Yusuf (1985, p. 75) declare that the need "to prevent the rise of an independent class of wealthy peasants... was widely accepted within the party." It was also commonly believed at that time that socializing agriculture would yield economic benefits as well. In China particular importance was attached to the idea that collectivization would make it easy to mobilize surplus rural labor and thereby increase capital formation and agricultural production.

The decision in 1958 to merge the advanced producers' cooperatives into some 26,000 huge rural communes appears to have been motivated by the same political objective and by the expectation that there would also be economic gains. Strengthening the regime's ability to provision urban centers was also an important consideration. The organizational apparatus associated with the three-tier structure of the communes, organized as they were into brigades and production teams, enhanced the regime's control over economic and social decisions. In addition the scale on which rural labor could be mobilized was greatly increased and tens of billions of man-days were devoted to rural construction projects. The results achieved from

those prodigious efforts appear to have been very disappointing. Mobilizing labor for rural construction projects is an old story in China, and most of the easier sites had already been developed. Moreover, a major source of the significant expansion in China's irrigated area in recent decades was a program for developing tubewells on the North China Plain that dates from 1965. In the case of the efforts to mobilize rural labor, "many projects were carried out on the basis of poorly conceived designs and frequently did as much harm as good" (Perkins and Yusuf, 1985, p. 51). In some instances, ill-advised decisions to enlarge the area under cultivation also had harmful effects. The plowing up of pasture in the North West Region during and after the Great Leap Forward, led to serious soil erosion and a decline in the livestock population (Walker, 1984, pp. 170-77). In line with the usual Marxist-Leninist view, it was widely believed in 1958 that the large operational units established with the creation of the communes would enjoy economies of scale and be able to utilize modern farming technologies more rapidly and more successfully than small peasant farms.¹⁶ It was also expected that they would go beyond the initial land reform in increasing and maintaining income equality among the rural population. Finally, according to the strategic notions held by many committed Marxists, the move from family farms to producers' cooperatives, and then to collective farming by the rural communes was, by definition, progressive and a higher form of development. Just as a producers' cooperative was regarded as superior to privately owned family farms, collective ownership was regarded as a still higher form of ownership, and the pooling of land and resources in a large rural commune was viewed as an advance toward "all-people" or state ownership.

It appears that the optimistic expectations about the economic gains to be realized were so strongly held by Mao and some of his associates that many lower level cadres catered to those expectations by submitting inflated estimates of production, and the resulting breakdown of statistical reporting accounts for the delay in recognizing the disastrous results from the whirlwind establishment of the rural communes in 1958 (Ashton et al., 1984). This is undoubtedly the explanation for excessive extraction of grain from the countryside to feed the urban population and to continue grain exports: China's net grain exports were 4.2 and 2.7 million tons in 1959 and 1960. As a result of "systematic falsification of agricultural production data," it was not known until later that production had fallen to an estimated 165 million tons in 1959 and only 139 million tons in 1960 compared to the 180 million tons of grain produced in 1955 (Jamison and

¹⁶ China has also established some state farms; but as of 1979, they accounted for less than 2 percent of the farm labor force and about 4 percent of the cultivated area. They are important mainly as producers of plantation crops such as rubber and tea (Lardy, 1983, p. 100).

Piazza, 1987, p. 472; Walker, 1984, p. 160). By 1961 the seriousness of the situation was recognized, and 4.5 million tons of grain were imported to supplement domestic production that was still only 143 million tons in that year.

There is no need to trace in detail the various changes affecting the rural communes between the early 1960s and 1978 when the post-Mao reforms began. As noted earlier, drastic changes were made to decentralize decisionmaking and to restore producers' incentives. The number of communes was increased greatly so as to reduce their average size.¹⁷ More important than the reduction in the size of the communes, operational responsibility for farm management was shifted down from the commune to the brigade or, in most cases, the production team of some 30 to 40 farm households. Policies with respect to private plots were liberalized, and rural markets (trade fairs) were again permitted to operate (Perkins and Yusuf, 1985, p. 79).

A secret resolution of the Central Committee of the Chinese Communist Party adopted in December 1962 summarized the painful lessons of the food crisis resulting from the Great Leap in these terms (Walker, 1984, p. 163):

We should obtain agricultural products by economic rather than by administrative means... In this the problem of price is especially important...the real interest of the peasants should be given due consideration... The more agricultural products a region sells to the state, the more industrial products it should receive.

Walker (p. 164) remarks that this "marked the beginning of a new attempt to employ a system of grain administration that embodied the right combination of direct controls and market incentives." During the Cultural Revolution that began in 1966, however, those lessons were largely ignored.

In the terminology of the resolution just quoted there was a shift away from economic means back toward the administrative means that had been relied upon during the Great Leap. Nicholas Lardy (1983) places great emphasis on this choice between economic and administrative means which he characterizes as a choice between indirect and direct planning. Reliance on indirect planning and the use of prices to influence the allocation of resources is not inconsistent with planners formulating output objectives in quantity terms. He emphasizes, however, that "since procurement prices are set with the objective of stimulating the relatively voluntary delivery of these products, peasants are relatively less constrained by indirect than by direct planning." There is little need to examine in detail the reasons

¹⁷ The number of communes had doubled by 1980 when there were about 52,000 communes, 700,000 brigades, and close to 5.2 million production teams (Perkins and Yusuf, 1985, p. 93).

for Mao's preference for direct planning and for reliance on administrative means to implement agricultural policies. Lardy (1983, p. 49) documents Mao's "rejection of international comparative advantage" which he "extended to China's domestic economy as well." This bias which prevailed during much of the pre-1978 period was also influenced by the weakness of China's transportation system; and at times there was emphasis on a military rationale for provincial autarky. It seems clear that policies that discouraged specialization and exchange had adverse effects on resource allocation and productivity. Moreover, many of China's poorest provinces were affected most adversely by the emphasis on regional self-sufficiency; and those areas have benefitted greatly from the reforms that began to be introduced with surprising speed in 1978 and 1979.

Reforms of the Post-Mao Period and Future Prospects

In contrast with the Soviet Union where highly touted agricultural reforms have often had little impact, the reforms carried out in China since the tentative beginning in 1977 have been expanded steadily and had a remarkable impact on production. Under the responsibility system, the production teams were subdivided into smaller units down to the level of the individual household. Those units entered into contracts with the production teams to deliver fixed amounts of specified products or to carry out a particular task such as afforestation (Perkins and Yusuf, 1985, pp. 80-83). Since 1984, the land use rights granted to farm households are often guaranteed for up to 30-50 years in order to strengthen private incentives for investments in land improvement (Lardy, 1986, p. 326). The commune system is now completely gone and has been replaced by town and village administrative units.

The most striking result of the reforms was a doubling of the rate of growth of grain production, but it is clear from Table 2 that acceleration of the growth rate for other products has been considerably greater. Moreover, the upsurge in farm income resulting from accelerated growth of agricultural production has been reinforced by rapid expansion of rural nonfarm employment and income.

It is noteworthy that increases in agricultural output during the 1978-84 period were achieved despite a decline in state budgetary expenditures for agriculture, state investment in agriculture, state bank credit for agricultural loans, and collective investment since 1979 (Lardy, 1986, pp. 328-30). It seems likely that the decline in state budgetary expenditures and in collective outlays has been offset to some extent by increases in private farm investment financed out of the substantial increases in income accruing to farm households, although it is reported that additional income has been allocated primarily to increased consumption and to private investment in housing rather than agricultural investment because of persistent peasant

Table 2.—Comparative Agricultural Performance,
1957–78 and 1978–84
(Average annual growth rates, percent)

	1957–78	1978–84
Grain	2.1	4.9
Soybeans	-1.1	4.2
Cotton	1.3	18.7
Oil-bearing crops	1.0	14.6
Sugarcane	3.4	11.1
Sugar beets	2.8	20.5
Tea	4.2	7.4
Tobacco	7.0	15.2 ^a
Meat ^b	3.7	10.2

Sources: Reproduced from Nicholas Lardy, "Overview: Agricultural Reform and the Rural Economy," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume I*, U.S. Government Printing Office, Washington, D.C., 1986, pp. 326–27; based on State Statistical Bureau, "Chinese Statistical Yearbook 1983," Statistical Publishing House, Peking, 1983, pp. 158–61; "Statistical Yearbook of China 1984," pp. 141–43; "Communiqué on Fulfillment of China's 1984 Economic and Social Development Plan," *Beijing Review*, No. 12, March 25, 1986.

^a1978–83.

^bIncludes pork, beef, and mutton.

uncertainty about continuation of the reform policies. Such uncertainty would have less effect on outlays for current inputs, and there has indeed been a very rapid increase in application of chemical fertilizers from an estimated 65 kg (in nutrient weight) per hectare in 1977 to 178 kg in 1984. Increases of that magnitude, along with some limited improvement in the balance between nitrogen, phosphate, and potash, have undoubtedly been a major source of increases in crop yields and output (Stone, 1986, p. 455; Lardy, 1986, p. 331). In fact, the rapid and large increases in application of chemical fertilizers probably explain much of the doubling of the annual rate of increase in grain yields from 2.6 to 6.1 percent between the 1957–78 and 1978–83 periods (Lardy, 1986, p. 331). The even greater increases in rates of growth of yield levels for other crops point to the importance of additional factors.

There can be little doubt that improved incentives and increases in efficiency resulting from greater latitude for decentralized decisionmaking also contributed to the upsurge in crop yields and output in the post-1978 period. The most significant improvement in incentives was probably

a consequence of the decollectivization, which meant that members of an individual household became the direct beneficiaries of their own hard work and initiative and the quality of their managerial decisions. Higher quota prices and other policy changes that have raised producer prices have also had favorable effects on incentives. Between 1966 and 1983, for example, it is estimated that prices paid to producers for rice and wheat rose by 66 percent, but the effect of that price rise is likely to be of short duration. To avoid a sharp increase in urban food prices, the government provided subsidies on cereals and edible oil that increased five-fold between 1974–78 and 1983. But the 20 billion yuan spent on those subsidies in 1983 was too heavy a fiscal burden; and budgetary outlays for agriculture in 1982 were reduced by nearly one-half (Lardy, 1986, p. 333; see also Johnson, 1987, p. 29).

Perhaps the most important increases in productivity resulted from the jettisoning of the policy of local self-sufficiency, permitting increased specialization and productivity gains from more efficient use of resources. The strengthening of incentives and the greater latitude for individual decisionmakers to perceive and exploit economic opportunities have accelerated the growth of rural farm and nonfarm output because they “have stimulated latent entrepreneurial impulses of a kind that have been very strong in China in the past” (Barnett, 1986, p. 9). This tapping of the energy and enterprise of millions of individuals and households in rural China is a particularly important source of the dynamism evident in recent years because the population held in the countryside by past policies is so large and rural economic activity bulks large in the dual economy created by those policies.

Prospects for continuation of economic reforms in China and the maintenance of high rates of economic growth may be particularly favorable because the rural economy is so large and the rural population has not been bureaucratized in the way China’s urban sector and nearly all of the Soviet Union has been. There is a great deal of energy and dynamism pent up in China’s rural population. In fact, agricultural reforms were initiated first in some of the poorer provinces where the rural population was affected most adversely by direct planning and policies to promote local self-sufficiency. There also seems to be considerable agreement among specialists that it will be difficult to reverse the agricultural reforms because such a large part of the farm population has benefited and would vigorously oppose their abandonment. It needs to be noted, however, that the government has been cutting food subsidy payments mainly by reducing the prices paid to farmers for commodities that it contracts to buy. Lardy (1986, p. 333) reported that a reduction of about a third was expected in the marginal price paid to producers; and he raises the question whether those price changes will affect farm output. In fact, rates of growth in production slowed consid-

erably in 1985, 1986, and 1987, and production of some crops has fallen (Sicular, 1988). Perhaps the extraordinarily rapid increases in the 1978–84 period “should be interpreted as a catching up phase” (Myers, 1985, p. 33). It also seems possible that the slower rate of agricultural growth since 1984 has been influenced by the shift of labor and other resources to more profitable rural nonfarm activities.

LESSONS FROM SOVIET AND CHINESE EXPERIENCE

There are special problems in deriving lessons from the agricultural and rural development experience of the Soviet Union and China. Achieving better understanding of the political economy of development is always complicated by the extent to which decisionmaking takes place within a “black box.” Deriving confident conclusions about the motivations and perceived strategic notions that have guided policymakers in the Soviet Union and China is especially difficult because of the extent to which politics are invisible in a Marxist-Leninist regime. “Members of the leadership do not publicly express their views,” as Dernberger (1986, p. 41) notes with respect to China, “and we are not privy to discussions held at their closed meetings.”

Nevertheless, over the years Soviet and China specialists have arrived at important insights into past policies and outcomes associated with the policies pursued in those countries. The discussion in the sections of this paper that have dealt in turn with future prospects for reform in the Soviet Union and China is of necessity quite speculative.¹⁸ With those qualifications, however, our summary accounts of policies for agricultural and rural development in the two major socialist countries represent, we believe, the consensus view of a large number of able scholars who have been studying the Soviet and Chinese economies over an extended period of time. Particularly for China, during the past decade scholars have had access to a substantial and improved body of statistical information, and analyses of major problems and policies by both Chinese and Russian scholars are much more available than in the past.

The accelerated growth of agricultural production and the dramatic expansion of rural nonfarm enterprises in China following the introduction of drastic reforms in the post-Mao period offer especially valuable evidence of the positive effects of strengthening producer incentives and allowing scope for individual initiative within a framework of decentralized decisionmaking. In earlier years it was widely believed that China had struck a rather

¹⁸ In a penetrating analysis of the reform process in Hungary, Kornai (1986, p. 1734) emphasizes that questions about a reform process and its impact in a socialist economy “cannot be answered by speculation, only by experiences.”

good balance between the growth and equity objectives of agricultural development by decentralizing decisionmaking to the production team. (See, for example, Timmer, 1976.) The optimistic assumption was that peer pressure within a relatively small group of 30 to 40 families would curb the adverse effects on incentives and initiative that result from the problems of communality that plague attempts to pool labor and other resources for group productive activities.¹⁹

A number of factors have contributed to the remarkable expansion of agricultural output in China since 1978, including several years of favorable weather and rapid increase in the use of chemical fertilizers. Most students of Chinese agriculture, however, seem broadly in agreement with the following summary view expressed by Barnett (1986, pp. 7–8):

The effects of the decollectivization that has taken place in China have been extraordinary. Chinese agriculture has grown far more rapidly in recent years than anyone believed possible. There has not only been a great increase in the overall value of agricultural output; a very significant diversification of agricultural production has taken place, with increased attention to crops other than grain and to animal husbandry, fisheries, and other non-crop activities. Moreover, so-called 'sideline' activities have greatly expanded, and there has been a rapid growth of both local industries and commerce in rural areas. During the recent period, agriculture has been the most dynamic sector in the entire Chinese economy—something few would have predicted before the new policies were introduced.

And Barnett emphasizes further that a major cause for this dynamism is the fact that the post-Mao reforms have "helped to release deep-rooted entrepreneurial impulses among China's peasants that long have been suppressed."

In noting that economic reforms in the Soviet Union are bound to give rise to "unanticipated problems and economic dislocations," Feldstein (1987) asserts: "These problems will be increased by the virtually complete lack of enterprise managers who are accustomed to dealing with ordinary business risks and market uncertainties." That will restrict the establishment of new firms and make it more difficult to resolve the inevitable transitional problems.²⁰ Hence, he further notes, there is a risk "that there will

¹⁹ See Johnston and Clark (1982, pp. 181–88) for a fuller discussion of the problems of communality.

²⁰ Ofer (1987, p. 1812) has an excellent discussion of the factors that have had negative effects on technological change and managerial efficiency in the Soviet Union, including the lack of real competition and the bias imposed on managers from above in favor of short-term production.

be insufficient courage to pursue these changes, that inflation and other problems will undermine public support for the restructuring, and that the bureaucrats will seize the apparent failures as a basis for reestablishing the old centrally planned economy.”

Perkins has noted that in China as well bureaucratic opposition must be reckoned with as an obstacle to reform. “A decline in bureaucratic control means a decline in bureaucrats’ power. If the new system makes bureaucratic skills built up over decades obsolete, those being made obsolete will fight reform” (Perkins, 1988, p. 626). But as noted earlier, such opposition is likely to be a more serious obstacle in the Soviet Union where bureaucratic control has been established for a much longer period and is much more comprehensive. Thus academician Vladimir Tikhonov, a chief architect of Gorbachev’s rural perestroika, speaks of “128 million bureaucrats who objectively” are opposed to perestroika (Laird, 1988).

In China, however, with the concentration of population, labor force, and much of economic activity in the countryside, a large majority of its population has not been bureaucratized to any great extent. That is no doubt an important reason why the reform process has gone forward with surprising speed, especially in rural areas. Although the “deep-seated entrepreneurial impulses among China’s peasants” were suppressed to varying degrees over several decades, those impulses were not extinguished and emerged with surprising vigor as the scope for decentralized decisionmaking was enlarged. It is noteworthy that the policy decisions of the Third Plenum of the 12th Central Committee stressed that “our successes in rural reform... provide highly favorable conditions for restructuring China’s entire national economy...” (Dernberger, 1986, p. 39). It is also noteworthy that in China, “Economic reform is accepted and actively supported by all elements of the present leadership and the representatives of the generation most likely to succeed the current leadership group” (Dernberger, 1986, p. 43). Finally, the dramatic increase in per capita incomes has no doubt generated broad support for the reforms. Again that seems especially true of the rural population. Whereas per capita income in urban families increased by 43 percent between 1978 and 1983, the per capita income in rural households doubled over the same period (Dernberger, 1986, p. 37). Progress within the large-scale urban economy has been much more limited, and there is considerable uncertainty as to how far the reforms will go in moving the economy toward a decentralized and flexible planned economy.

An encouraging factor in China is the extent to which the present leadership appears to be prepared to introduce new policies experimentally to support those experiments which succeed, while abandoning those that fail (Barnett, 1986, p. 6; Harding, 1987, p. 87). Recent Communist Party documents and press reports indicate that China’s reformers are redefining their ideology to legitimize the enlarged role for market forces. Thus it

was stressed that China is in the initial immature and imperfect stage of socialism, and this initial stage will last for a long time to come (Tyson, 1987). More recent reports, however, indicate a slowdown in reform in response to "the country's gravest economic crisis in a decade" (Tyson and Tyson, 1988). Steps include a postponement of further price decontrol for at least two years and a pledge by the party's Central Committee to tighten credit and cut state spending on all but the most strategic projects. It is reported that an editorial in the *People's Daily* singled out pervasive corruption and inflation as critical problems that have caused widespread anxiety. This slackening of the pace of reform, however, does not seem to signal a reversal of the reforms that have been introduced. Reforms that have been adopted have reinforced the similarities between China's pattern of agricultural and rural development and the patterns of rural development associated with structural transformation and rapid economic growth in Japan and Taiwan. The suggestion by Perkins (1986) that China may become Asia's next economic giant remains highly speculative but credible.

CITATIONS

- John S. Aird, 1986. "Coersion in Family Planning: Causes, Methods and Consequences," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- Basil Ashton, K. Hill, A. Piazza, and R. Zeitz, 1984. "Famine in China, 1958-1961," *Population and Development Review*, Vol. 10, No. 4, December.
- Judith Banister, 1986. "Implications of China's 1982 Census Results," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- A. Doak Barnett, 1986. "China's Modernization: Development and Reform in the 1980s," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- Merrill K. Bennett, 1954. *The World's Food*, Harper, New York.
- Karen M. Brooks, 1983. "Productivity in Soviet Agriculture," in D. Gale Johnson and Karen M. Brooks, *Prospects for Soviet Agriculture in the 1980s*, Indiana University Press, Bloomington, Indiana.
- Robert F. Dernberger, 1986. "Economic Policy and Reform," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.

- Maurice Dobb, 1948. *Soviet Economic Development Since 1917*, Routledge and K. Paul, London.
- Fureng Dong, 1987. "Rural Reform, Non-Farm Development, and Rural Modernization in China," Economic Development Institute, World Bank, Washington, D.C.
- The Economist*, 1987. "A Survey of China's Economy: A World Turned Upside Down," August 1-7.
- Martin Feldstein, 1987. "Soviet Reforms Mean Business," *Christian Science Monitor*, October 9.
- Mikhail Gorbachev, 1987. *Perestroika: New Thinking for Our Country and the World*, Harper and Row, New York.
- Harry Harding, 1987. *China's Second Revolution: Reform After Mao*, The Brookings Institution, Washington, D.C.
- Dean T. Jamison and A. Piazza, 1987. "China's Food and Nutrition Planning," in J.P. Gittinger, J. Leslie, and C. Hoisington, eds., *Food Policy: Integrating Supply, Distribution, and Consumption*, John Hopkins University Press, Baltimore and London.
- Naum Jasny, 1949. *The Socialized Agriculture of the USSR: Plans and Performance*, Stanford University Press, Stanford.
- D. Gale Johnson, 1971. "Soviet Agriculture Revisited," *American Journal of Agricultural Economics*, Vol. 53, No. 2, May.
- _____, 1983. "Part I: Policies and Performance in Soviet Agriculture" and "Conclusion," in D. Gale Johnson and Karen M. Brooks, *Prospects for Soviet Agriculture in the 1980s*, Indiana University Press, Bloomington, Indiana.
- _____, 1987. "Agricultural Policy Reforms in the USSR and the People's Republic of China," Office of Agricultural Economics Research, University of Chicago, Chicago.
- _____, 1988. Personal communication, July 7.
- Bruce F. Johnston and William C. Clark, 1982. *Redesigning Rural Development: A Strategic Perspective*, Johns Hopkins University Press, Baltimore.
- Bruce F. Johnston and Peter Kilby, 1975. *Agriculture and Structural Transformation: Economic Strategies in Late-Developing Countries*, Oxford University Press, New York.
- Hirimitsu Kaneda, 1969. "Long-Term Changes in Food Consumption Patterns in Japan," in Kazushi Ohkawa, Bruce F. Johnston, and Hirimitsu Kaneda, eds., *Agriculture and Economic Growth: Japan's Experience*, University of Tokyo Press, Tokyo.
- Jerzy F. Karcz, 1967. "Soviet Agriculture: A Balance Sheet," *Studies in the Soviet Union*, Vol. 6, No. 4.
- _____, 1969. "Comparative Study of Transformation of Agriculture in Centrally Planned Economies: The Soviet Union, Eastern Europe, and Mainland China," in Erik Thorbecke, ed., *The Role of Agriculture in Economic Development*, National Bureau of Economic Research, New York.

- Michael Kaser, 1987. "One Economy, Two Systems: Parallels Between Soviet and China Reform," *International Affairs*, Vol. 63, No. 3.
- Janos Kornai, 1986. "The Hungarian Reform Process: Visions, Hopes, and Reality," *Journal of Economic Literature*, Vol. 24, No. 4.
- Roy D. Laird, 1988. "The End of Soviet Collective Farms," *Christian Science Monitor*, October 5.
- Nicholas Lardy, 1983. *Agriculture in China's Modern Economic Development*, Cambridge University Press, Cambridge, Massachusetts.
- _____, 1986. "Overview: Agricultural Reform and the Rural Economy," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- M. Lewin, 1968. *Russian Peasants and Soviet Power: A Study of Collectivization*, Northwestern University Press, Evanston, Illinois.
- Frank Lorimer, 1946. *The Population of the Soviet Union*, Princeton University Press, Princeton.
- James R. Millar, 1970. "Soviet Rapid Development and the Agricultural Surplus Hypothesis," *Soviet Studies*, Vol. 22, No. 1, July.
- Chen Muhua, 1979. "Birth Planning in China," *Family Planning Perspectives*, Vol. 11, No. 6.
- Ramon H. Myers, 1985. "Price Reforms and Property Rights in Communist China Since 1978," *Issues and Studies*, Vol. 21, No. 10.
- Alec Nove, 1969. *The Soviet Economy*, 2nd rev. ed., Praeger, New York.
- _____, 1971. "The Decision to Collectivize," in W.A. Douglas Jackson, ed., *Agrarian Policies and Problems in Communist and Non-Communist Countries*, University of Washington, D.C., Seattle and London.
- _____, 1983. *The Economics of Feasible Socialism*, George Allen and Unwin, London.
- Gur Ofer, 1987. "Soviet Economic Growth: 1928-1985," *Journal of Economic Literature*, Vol. 25, No. 4, December.
- Kazushi Ohkawa, 1965. "Agriculture and Turning-Points in Economic Growth," *Developing Economies*, Vol. 3, No. 4, December.
- Dwight H. Perkins, 1986. *China, Asia's Next Economic Giant?*, University of Washington Press, Seattle and London.
- _____, 1988. "Reforming China's Economic System," *Journal of Economic Literature*, Vol. 26, No. 2.
- Dwight H. Perkins and S. Yusuf, 1985. *Rural Development in China*, Johns Hopkins University Press for the World Bank, Baltimore and London.
- Dwight H. Perkins et al., 1977. *Rural Small-Scale Industry in the People's Republic of China*, University of California Press, Berkeley.
- Philip M. Raup, 1972. "Some Consequences of Data Deficiencies in Soviet Agriculture," in V.G. Treml and J.P. Hardt, eds., *Soviet Economic Statistics*, Duke University Press, North Carolina.

- John A. Ross, M. Rich, J.P. Molzan, and M. Pensak, 1988. *Family Planning and Child Survival: 100 Developing Countries*, Center for Population and Family Health, Columbia University, New York.
- Terry Sicular, 1988. Personal communication, July 15.
- Bruce Stone, 1986. "China's Fertilizer Application in the late 1980s and 1990s: Issues of Growth, Balance, Allocations, Efficiency, and Response," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- Anthony M. Tang, 1967. "Agriculture in the Industrialization of Communist China and the Soviet Union," *Journal of Farm Economics*, Vol. 49, No. 5, December.
- _____, 1984. *An Analytical and Empirical Investigation of Agriculture in Mainland China, 1952-1980*, Chung-Hua Institution for Economic Research, Taipei, Taiwan.
- C. Peter Timmer, 1976. "Food Policy in China," *Food Research Institute Studies*, Vol. 15, No. 1.
- Lee Travers, 1986. "Peasant Non-Agricultural Production in the People's Republic of China," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- Ann Tyson, 1987. "Reformers in China Redefine Ideology to Suit Economic Plans," *Christian Science Monitor*, September 10.
- James L. Tyson and Ann Scott Tyson, 1988. "China Reins in Market Reforms: Move Aims to Head Off Unrest Over Inflation, Corruption," *Christian Science Monitor*, October 3.
- Kenneth R. Walker, 1984. *Food Grain Procurement and Consumption in China*, Cambridge University Press, Cambridge.
- Karl Wittfogel, 1971. "Communist and Non-Communist Agrarian Systems, with Special Reference to the USSR and Communist China: A Comparative Approach," in W.A. Douglas Jackson, ed., *Agrarian Policies and Problems in Non-Communist Countries*, University of Washington Press, Seattle and London.
- Christine P.W. Wong, 1982. "Rural Industrialization in China," in R. Barker and R. Sinha with B. Rose, eds., *The Chinese Agricultural Economy*, Westview Press, Boulder, Colorado.
- _____, 1986. "Ownership and Control in Chinese Industry: The Maoist Legacy and Prospects for the 1980s," in Joint Economic Committee of the Congress, *China's Economy Looks Toward the Year 2000, Volume 1*, U.S. Government Printing Office, Washington, D.C.
- World Bank, 1978. *World Development Report, 1978*, Oxford University Press, New York.
- _____, 1987. *World Development Report, 1987*, Oxford University Press, New York.