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SUPPLY AND DEMAND PROJECTIONS CONSOLIDATED

Considering their rather tenuous base, the projections for supply and demand are remarkably close. The high estimates produce a projected demand in 2000 for agricultural products (GVAO) of 257 billion yuan (in 1952 prices), compared to 230 billion yuan for the projected aggregate gross output (Tables 7 and 9). For reasons stated earlier, we do not regard this scenario as probable because it would involve a dramatic swing toward social and political liberalization and toward market economics. The low estimates, which assume a return to Maoist policy, would yield a projected demand for GVAO of 117 billion yuan and a supply of 123 billion yuan. This scenario also is considered unlikely in light of the policies of the post-Mao leadership.

The medium projections are near equilibrium. If the present regime continues on its moderate and pragmatic course without abandoning the command system and the fundamental development strategy, this is the most plausible scenario for the future. It would be likely to bring some improvement in economic performance in agriculture but no breakthroughs. The projected GVAO demand for 2000 is 158 billion yuan, only 4 billion yuan or 2 percent over the projected aggregate supply. Such a gap could be easily met by net grain imports not much larger than the current level of food imports.

A rough balance between supply and demand also is projected for grains. The medium projections call for total direct and indirect demand for grains to reach 538 million metric tons in 2000, compared with total grain output (soybeans excluded and potatoes included at a four-to-one weight ratio) of 524 million metric tons. The deficit of 14 million metric tons would be only about double the current net grain import tonnage and clearly manageable.

The low projections would produce a surplus of 32 million metric tons and the high projections a deficit of 46 million metric tons.

Table 10 presents the 1952-77 rates of supply increase based on exponential growth trends fitted to the estimated data. The supply projections are obtained by simple mechanical extension of the trends to 2000. For demand projections, 1.5 percent for annual population increase and 2.5 percent for annual per capita disposable income growth was used. Income elasticities for commodities are from FAO's recent estimates on the People's Republic (5th run, April 15, 1978). The 1985 and 1990 elasticities were averaged to obtain 0.195 for wheat, 0.265 for

Table 10—Commodity trends and projections by trend extrapolation, to 2000

Commodity	Trend Rate Per Year 1952-77	Supply Projections: Index (1952 = 100)	Supply Projections: Amount	Demand Projections: Annual Increase	Demand Projections: Index (1977 = 100)	Demand Projections: Amount[a]
	(percent)		(million metric tons)	(percent)		(million metric tons)
All grains	2.35	304	471	3.00[b]	197[b]	538[b]
Rice	2.47	322	221	2.16	163	205
Wheat	3.00	413	75	1.98	157	74
Coarse grains	2.28	295	152	2.00	158	120
Tubers	1.30	186	30	1.25	133	35
Pulses	−0.04	98	11	1.97	157	19

[a] These figures were calculated by multiplying the index in the preceding column by 1977 output adjusted for exports or imports.

[b] These figures were taken from medium estimates in Table 8.

rice, 0.200 for coarse grains (corn, millet, sorghum), -0.100 for tubers, and 0.19 for pulses. Such mechanically extrapolated values have little intrinsic worth; they are presented without comment for possible inclusion in IFPRI's global projections.

A study on the scale attempted here obviously cannot answer adequately many questions that will affect development of Chinese agriculture. What is the state of Chinese research in plant and animal breeding? How effective are the personnel, organization, and structure for research and development? What are the water prospects in northern China where moisture is a chronic limiting factor? How do we evaluate the massive scheme to channel the waters of the Yangtse northward? Can the projected 7 percent annual increase in current inputs be realized? Are there enough fertilizer plants in place and in process to meet the implicit chemical fertilizer requirement? How about energy and transport? How are the rice transplanters coming along? How are the water control and farmland capital construction programs going to fare? What are the prospects for fertility rates dipping below 1 percent? The list could be extended indefinitely.

Although the answers to such specific questions are most important to the future, an understanding of the larger picture may be just as useful for long-term forecasting of critical national aggregates. The problem is similar to the distinction between partial and general equilibrium analysis. To study details in isolation is one thing, to evaluate the whole in which all parts interact is quite another.

There is no better summarizer of the whole than the historical record. The Chinese agricultural record for 1952-77 has been documented more completely in this study than ever before. For the first time there is a reasonably complete quantitative record of contemporary Chinese agriculture. That record shows that Chinese agriculture has been able to meet the essential food needs of the Chinese population, nearly one-fourth of mankind, whose annual increment almost equals the entire population of Canada, but at a high cost in resources. The historical record is undoubtedly useful for making projections for the People's Republic because the post-Mao leadership is expected to retain the command economic system and the principles of nation building that the CCP introduced with the First Five-Year Plan. The projections in this study rest on that historical record modified by the implications of the moderate post-Mao policy direction. Some elements of the latter are drawn from the general outline of the new Ten-Year Plan, 1976-85. The projections are based mainly on broad sweeps and tendencies rather than on specifics and details.

Theodore W. Schultz is noted for his special feel for what matters. In a capsule form, his message over the years has read: give the farmer the world over new profitable production possibilities and sufficient incentive, and he will turn sand into gold. The large and growing disparities in income and productivity in world agriculture he attributes not so much to unequal resource endowment as to technological disequilibria among nations. China is a victim of the latter. It has much to gain from a vast technological backlog. All backward, low-income agricultures do. But to utilize it a national government must get on with adaptive research and development, investment in the human agent, and provision of an environment conducive to producer incentive. The problem of control versus incentive comes to the forefront. In China, with its 150 million households in agriculture, 5 million production teams, 500,000 brigades, and 50,000 communes, details have to take care of themselves if Peking is to manage.

This projection study is conditioned by the larger picture. The historical record shows that Chinese agricultural productivity has been declining even though rapidly increasing quantities of modern inputs have been injected since the early 1960s. In this connection, two problems related to the command system should be noted. The first is the difficulty of central planners in coping with dynamic changes in comparative advantage among regions. This has been compounded by transport bottlenecks. During the latter years of Mao's rule, extreme emphasis on self-reliance required localities to further reduce the limited specialization that remained. The Chinese cropping pattern became increasingly different from what it was when commercial orientation was stronger under private farming. The second problem concerns the inflexibility of the boundaries of the collective farms and the government-enforced immobility of farm labor in China. The combination causes unsound resource allocation. As the more

prosperous farms and farm areas forge ahead, thanks to accumulation and through it technical advancement, the poor ones fall further behind, and the twin problems of resource misallocation and weak income distribution worsen. The principle of self-reliance applied to resource supply and employment creation compounds the problem. Transfer of accounting and income distribution from the commune to the team, although conducive to greater incentive on the lower collective level, adds another dimension to the problem.

Although a fuller understanding of falling Chinese agricultural productivity awaits further investigation, there is little doubt that problems arising from the command system had something—perhaps a great deal—to do with it. To this add the negative impact of bottlenecks and disparities in the Chinese economy, afflictions that Peking's present leaders attribute to the Gang of Four.

Expectation of relaxation of the restrictions and increased incentives are the basis for projecting an annual increase in total factor productivity of 0.5 percent, a rise of one percentage point over the historical record. The projected rise was limited by other problems associated with the command system, the bottlenecks in transport and energy, and the loss of skills resulting from missed schooling opportunities during 1966-76. The magnitude of the bottleneck problem was illustrated in the *Beijing Review*, June 29, 1979, page 14, which states that "the capacity of some weak sectors on the trunk railway lines can meet only 50 to 70 percent of requirements" and that "owing to the shortage of electric power, about 20 percent of the nation's productive capacity has not been tapped." Such "disproportionalities," which the article says pervade the entire national economy (in fact, involving all of Mao's "ten major relationships"), have had a negative impact on resource productivity in agriculture in the past. Such impact has also tended to become more pronounced as agriculture's interdependence vis-à-vis the rest of the economy broadened while it modernized. The latter fact in turn places a new burden on the planner in his role as the interindustry resource coordinator. The correction of the existing disproportionalities will require a major effort (and time) by Peking, as government articles on the readjustment theme have amply suggested in recent months.