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**Feeding China:
The Experience since 1949**

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FEEDING CHINA: THE EXPERIENCE SINCE 1949

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Feeding China: The Experience since 1949*

China's approach to feeding its 22 per cent of the world population has varied considerably during the 36 years of the People's Republic, and so have the results. In the late 1970s its leadership began repudiating much of the country's earlier experience. While food policy since 1978 has moved along new paths, there are nevertheless close links between recent accomplishments and the earlier record.

The purpose of this paper is to survey the experience of food policy under the People's Republic in a comprehensive manner and in historical context. The first two sections present background information on China's agricultural economy and a chronology of important institutional developments since 1949. Section 3 then discusses food supply and nutrition in terms of national averages. The fourth section takes up in some detail the famine of 1959-62, and this is followed in section 5 by a general discussion of food policy problems before the reforms that began in the late 1970s. Issues of regional and personal distribution of food are examined in the sixth section. Finally, there is a brief summary and conclusion.

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1. Background Features. The central fact of the Chinese food supply situation is the relative scarcity of arable land. John Lossing Buck [1956:165] estimated in the 1930s that about 362,000 square miles were under cultivation in the eight agricultural areas of China, which would make the cultivated area only about 10 per cent of a gross land area of about 3.7 million square miles. Dominated by arid grasslands in the northwest, high plateaus and massive mountain ranges in the west, and uneven hills in the south and southwest, the topography of China begrudges its people good farm land.

What there is of it is limited almost entirely to five specific areas (Geography of China, 1972:6-9): (1) the Northeast or Heilongjiang Plain, which is China's principal producer of gaoliang (sorghum) and soybeans; (2) the North China Plain, earliest and largest of China's farm regions, dominated by the Yellow River and producing winter wheat, gaoliang, maize and cotton; (3) the Middle and Lower Changjiang (Yangtze) Plain, a major rice area; (4) the Chengdu Plain, a fertile rice-growing basin in western Sichuan; and (5) various South China valleys (especially the Pearl River Delta of southern Guangdong) that are ribbons of rice and subtropical cultivation amidst the prevailing hills.

This physical geography explains why 90 per cent of China's population lives on only one-sixth of the total land area. In fact, the last four of these regions account for about three-quarters of the population.

Official figures for cultivated acreage indicate a reduction from 108 million hectares in 1952 to 99.5 million in 1979 (Zhongguo Jingji

Nianjian, 1981:VI-9).¹ The downward trend is explained by the fact that the 17 million ha. known to have been reclaimed between the late 1950s and late 1970s were more than offset by some 27 million ha. abandoned to new housing, factories and road construction (Lardy 1983:3). Moreover, the lost acreage was on the average more fertile than the marginal land brought under cultivation.

Arable land per capita thus declined by half between the early years of the PRC and the late 1970s, when it came to 0.1 ha. Table 1 shows China's arable land-to-population ratio in comparison with that of several other countries. It is evident that China ranks lower in the amount of land available to its farm population than in its overall land availability.

Table 1. Arable land per capita, mid-1970s: international comparison

	<u>Arable land per cap</u> (hectares)	<u>Arable land per</u> <u>farm population (ha)</u>
China	0.10	0.12
World	0.38	1.82
Asia (exc. China)	0.24	0.44
S. Korea	0.07	0.15
India	0.27	0.44
Japan	0.05	0.27
U.S.	0.97	27.50

Source: Perkins and Yusuf (1984:52).

¹ The statistical authorities warn that actual cultivated acreage in the early 1980s probably exceeded official estimates by as much as one-quarter to one-third. See World Bank (1985:28).

Tables 2 and 3 look somewhat more closely at physical conditions.

From the former it can be seen that the ratio of sown to cultivated area yields a multiple cropping index of about 1.4. This was pushed past the point of negative marginal returns in some areas in the late 1960s and

Table 2. Relation between land, population, and labour force, 1952-1984

	Population (mill)	Agric labour force (mill)	Arable land (mill ha)	Sown area (mill ha)	Multiple cropping index	Arable land per cap (ha)	Arable land per agric worker (ha)
1952	575	173	107.9	141.3	1.3	0.19	0.62
1957	547	193	111.8	157.2	1.4	0.17	0.58
1965	725	234	103.6	143.3	1.4	0.14	0.44
1975	920	295	99.7	149.5	1.5	0.11	0.34
1984	1035	325	98.4*	144.1	1.4	0.10	0.31

* Estimate for 1983. But see footnote 1, above.

Source: Zhongguo Tongji Nianjian (1985); Lardy (1983a:4.5); Zhongguo nongyede guanghui chengjiu, 1949-1984; World Bank (1985:30).

Table 3. Irrigated area

	<u>Irrigated area (m. ha)</u>		<u>Irrigated area as pct of cultivated area</u>
	<u>Total</u>	<u>Pct power irrigated</u>	
1952	19.96	1.6	18.5
1957	27.34	4.4	24.4
1965	33.06	24.5	31.9
1975	43.30	na	43.4
1979	45.00	56.3	45.2
1984	44.45	56.4	45.2

Source: Zhongguo Tongji Nianjian (1985:41); Perkins and Yusuf (1984:52); World Bank (1985:30).

early 70s; it subsequently declined again. About 45 per cent of China's farmland is irrigated (Table 3), half of this by power machinery. The major increases in irrigated area occurred before 1975. Since 1978 neither total nor power irrigated area has increased significantly (Zhongguo Nongye Guanghui Chengjiu, 1984:26).

2. The Institutional Framework. Most of China's agriculture consisted of peasant smallholdings until 1955. Land reform, which lasted from the late 1940s to 1952, resulted in a fairly even distribution of land holdings. Nevertheless, remaining inequality, together with the great density of farm population, left less than half an acre of farm land per capita for the poorest three deciles of the rural population. The average "poor peasant" farm of 1½ acres in southern Kiangsu Province could provide its owners with only about 1500 kilocalories per day each (Robert Ash, 1976:529). Some leaders, notably Mao Zedong, feared that the evident unviability of poor peasant farms implied that repolarization was inevitable. For that reason, as well as to make surplus extraction easier and to substitute large-scale organization of labour for capital investment, Mao moved quickly in the mid-1950s to collectivize agriculture. Between 1954 and 1956 virtually all of China's more than 100 million farm households joined collectives.² After a breathing period in 1957, the trend of rapid institutional change resumed in 1958 with the "great leap forward" and the formation of "rural people's communes."

The commune underwent several years of adjustment under the trying circumstances of the famine that ended the "leap." By 1962 it had

² At the autumn harvest of 1954 only 2 percent of farm households were in small lower-stage cooperatives (in which land was still owned privately and yielded rent to its owners). By late 1956, 88 percent of households were in larger collectives and private ownership had been abolished. Despite the rapidity of this transition, the myth persists of a golden age of gradual, voluntary formation of cooperatives up to mid-1955.

attained the form that in large part was to last almost two decades. It consisted of three levels of formal organization--the commune level at the top, the production team at the bottom, and between them the production brigade--plus the household economy below. The team consisted of 20 to 30 households and was the "basic accounting unit," meaning that it organized ordinary farm labour and distributed its net income among its members. The brigade distributed important inputs to the teams, including power, irrigation water and the use of larger machines, and ran social services such as health clinics and primary schools. It was composed of an average of 7 or 8 teams. Brigades also had militia units, which were often thrown into construction projects.

The commune level, made up of 8-12 brigades, ran larger-scale enterprises, including small industries, and some operated hospitals and secondary schools. The commune was the basic level of state government in the countryside and it accordingly had governmental institutions such as People's Bank branches, tax collection and grain management offices and supply and marketing cooperatives.

The household economy remained a crucial part of agricultural organization for most of the duration of the commune. Private plots and family sideline production provided a large share of cash income and of vegetables and other subsidiary foods.

This quadrupartite division of labour was convenient for organizing production and capital construction work (such as water conservancy projects) at whichever level was called for by the required scale of work. It also facilitated the transmission of technological innovations from central research institutes to the villages.

Income was distributed in this system according to the number of "workpoints" earned in labour. Two basic methods of workpoint assignment were used: one based on evaluating the worker, the other the task. In the first, the individual was given a workpoint rating based on strength and skill (and later, on political "attitude") and then earned that rating by putting in a full day's work. In the second, each task was rated and workers earned points by carrying out tasks. When the harvest was in, the team's net income--after deductions of anticipated production costs, agricultural tax, and contributions to an accumulation fund for capital purchases and a welfare fund to help indigent members--was divided by the total number of workpoints accumulated to derive the money value of a workpoint, and income was distributed accordingly. During the year, grain was usually made available on a per capita basis to member households; the money value of this grain was deducted at the time of distribution. This was an important factor in bringing about a relatively equal income distribution within individual teams and in putting a floor under rural income (see sec. 6).

Neither workpoint system replicated the incentive furnished by the problem of survival itself in private farming. Both presented problems of allocative efficiency, for there was no immediate individual payoff for doing the right thing at the right time (as opposed to doing the task that brought the highest workpoints). Both also presented incentive problems, per se, for they lengthened considerably the link between work and income, while putting a big premium on the values of cooperation and collective solidarity. The effectiveness of both systems thus depended heavily upon the strength of these values in a particular team, which in turn depended on the quality of team

leadership and on the general social and political environment that shaped and limited team operations. In retrospect, the deterioration of that environment in the decade beginning with the Cultural Revolution (1966-69) doomed whatever chance the Chinese form of collective farming might have had to take advantage of its inherent strengths (e.g., in "farmland capital construction") and achieve a high per capita rate of growth.

From the viewpoint of the reform government that came to power after 1978, the commune system suffered from a fatal flaw: because the commune itself was both the lowest level of state administration and the highest level of collective organization, it lent itself to government dictation to the farmers as if the production teams were state farms. Autocratic and sometimes corrupt behavior by shielded state cadres, as well as compromise of the teams' collective autonomy in matters of production (e.g., decisions about what to plant) and distribution (e.g., putting arbitrary caps on distributed income) were quite common and are blamed for destroying the initiative of the farmers under the commune system. The egalitarian quality of intra-team distribution is also faulted, but it is difficult to know what to make of this criticism in view of the obvious link between the incentive implications of a given distribution and the fairness of the surrounding environment.

Starting about 1978 the government encouraged and then required the dissolution of the commune system in favor of a "household responsibility system" (HRS), in which land was contracted out to individual households. The system of HRS that came to predominate allowed the household to keep all produce above an amount due to the "collective" for meeting its tax and quota sales obligations and contributing to its

accumulation and welfare fund. Workpoints thus were abolished, as was collective organization of much ordinary farm work. Some farm tasks, however, such as planting and harvesting, are often still done collectively (Bernstein, 1986), as are capital construction projects, irrigation management, and other infrastructural work.³

The term "quota sales" in the preceding paragraph refers to an essential institution in China's food supply system from the mid-1950s until 1985. Farmers or their collectives in areas producing more than their subsistence needs of grains and some other crops were obligated to sell a portion of the surplus to the state at below-market "quota prices." The sales obligation was calculated as a fraction of "normal yield" and was kept constant for several years as an incentive to improve yields. The treatment of above-quota output varied over time: in recent years it was divided into two categories, one of which would bring "above-quota" prices and the other still higher "negotiated" prices from the state. The state also undertook to resell grain at quota prices to grain deficient areas. Standards for rural grain distribution varied by region. In the cities, however, grain was strictly rationed; besides stretching tight supplies, urban rationing was a crucial element in the control of rural-urban migration.

In 1985 the state abolished the mandatory quota system. Now farmers contract their sales to the state and sell surplus on the open market. This change was carried out under conditions of relative grain

³ On the post-1978 reforms see, inter alia, Bernstein (1984B; 1986); Domes (1982); Khan and Lee (1983); Lin (1983); Shue (1984); Watson (1983); Zweig (1982).

abundance. Total grain purchases had risen more than proportionally with the rapid post-reform increases in output, going from 51 MMT in 1978 to 117 MMT in 1984 (Stat. Yearbook of China, 1985:480).⁴ Since the state makes losses on its grain trade as a means of subsidizing urban consumption, this development entailed a growing financial burden (see sec. 6 below).

The immediate effect of the shift from mandatory quotas to contract purchases was to lighten this burden by relieving the state of the obligation to purchase at premium prices all above-quota grain offered it. In 1985 the state purchased only 75 MMT of rice, wheat and corn (Erisman, 1986:20). Peasants must now dispose of extra grain on the open market and the state will intervene only if the market price falls below a set trigger level. Grain production responded in 1985 with the first decline in several years, a sharp fall of 28 MMT, or 7 per cent.⁵

Aside from lightening the state's burden, it is unclear how much the contract system differs from the previous quota system. In some areas, local cadres assign "contractual obligations" as they once

⁴ Data are in "trade grain", i.e., rice and millet are measured in husked form, other grains in unprocessed form.

⁵ While bad weather also affected the grain crop in 1985, policies, including the sudden disappearance of market security for grain producers and a structure of relative prices that distinctly favors industry, trade and sideline activity over crop growing, probably played a major role. CIA analysts argue that "much of the decrease in grain production in 1985 probably can be attributed to the new rural policies" (Central Intelligence Agency, 1986:9). However, given severe storage and disposal problems that occurred in 1984 and the underdevelopment of a grain-using animal husbandry industry, reducing grain production was quite a rational course of action for the farmers to take.

assigned quotas, whereas in others more genuine negotiations occur (Oi 1986). Since the state continues to set "quota" and "above-quota" prices (70 per cent of contract sales are supposed to take place at the latter price) and purchase targets, the system clearly embodies a mix of plan and market elements.

3. National Food Supply and Nutrition. Since 1950 foodgrains (which in Chinese statistics include soybeans, tubers at 5-to-1 weight ratio, and pulses) have supplied some 86-89 per cent of available energy and 80-85 per cent of available protein (Piazza, 1983:17-8). The grain harvest has thus been a major determinant of the overall food situation.

Foodgrain output from 1952 to 1985 is shown in Table 4.⁶ Over the entire period aggregate grain production increased about 1½ times, for an average annual growth rate of 2.8 per cent. From 1957 to 1977, however, the growth rate was only 1.8 per cent, while it rose to 3.9 per

⁶ A word needs to be said about the accuracy of Chinese official statistics. Checks of internal consistency and other considerations have convinced most independent scholars that government statistics during most of the post-1949 years have been accurate expressions of what the Chinese government believed to be true. The community of foreign scholars has generally found them usable on this basis (see Eckstein, 1980). The government has often not released information available to it: there have been periods, especially during the Great Leap Forward, when politically motivated distortion of information has occurred; the bases and/or definitions of statistics are frequently not made clear; capacity to collect and process accurate information has fluctuated quite sharply, and methods (e.g., sampling methods) are sometimes flawed. Thus, to say that deliberate falsification has rarely occurred is not to confirm the accuracy of official information. The problems of using such information, however, and the need for suitable caution are generally well known to and accepted by students of the Chinese economy.

cent during 1978-85. On a per capita basis, food production averaged 0.4 per cent growth over the entire period. The two decades 1956-77 saw only a 0.2 per cent growth rate, but since 1978 it has averaged 2.6 per cent. Both production and consumption per capita fluctuated substantially from year to year, although the use of stocks and imports and the treatment of commercial uses of foodgrain as a residual reduced fluctuations in consumption relative to those in production (see Fig. 1).⁷ It is also apparent that annual variability in consumption was greater during 1958-73 than in the years of relative normalcy that preceded and followed that turbulent period.

Estimates of the average daily per capita availabilities of energy, protein and fat between 1952 and 1982 are shown in Table 5 and Figs. 2 and 3. Energy availability has trended upward with per capita grain production, and has been subject to similar fluctuations. Estimates have been made of per capita requirements of energy and protein in China for 1953 and 1979.⁸ Energy availability in 1953 fell short of estimated requirements (put at 2,023 kcal) by 5 per cent. In 1979 availability exceeded the higher requirements of that year (2185 kcal) by 18 per cent.

⁷ Figures are located in an Appendix at the end of the paper.

⁸ See World Bank (1984:169-72). The estimates use WHO/FAO standards and data on age specific average body weights, age distribution and assumptions about activity levels.

Table 4. Aggregate and per capita foodgrain production

1952-1984		
<u>Year</u>	<u>Aggregate output (MMT)</u>	<u>Per capita output (kg)</u>
1952	163.92	288.00
1953	166.83	287.00
1954	169.52	285.00
1955	183.94	302.00
1956	192.75	310.00
1957	195.05	306.00
1958	200.00	306.00
1959	170.00	255.00
1960	143.50	215.00
1961	147.50	223.00
1962	160.00	240.50
1963	170.00	249.00
1964	187.50	269.00
1965	194.53	272.00
1966	214.00	291.00
1967	217.82	289.00
1968	209.06	270.00
1969	210.97	265.00
1970	239.96	293.00
1971	250.14	297.00
1972	240.48	279.00
1973	264.94	300.50
1974	275.27	305.50
1975	284.52	310.50
1976	286.31	307.50
1977	282.73	299.50
1978	304.77	318.50
1979	332.12	342.50
1980	320.56	326.50
1981	325.02	327.00
1982	354.50	351.50
1983	387.28	379.50
1984	407.31	395.50
1985	378.98	362.18

Source: Statistical Yearbook of China (1983; 1985); State Statistical Bureau (1986:27, 33).

Table 5. Daily per capita availability of energy, protein and fat, 1952-1982

Year	Total Energy (kcal)	Annual change in energy (pct)	Total Protein (g)	Total Fat (g)
52	1861		51	24
53	1879	1.0	50	23
54	1895	0.9	50	24
55	2005	5.8	53	25
56	2051	2.3	53	24
57	2045	-0.3	55	24
58	2053	0.4	54	26
59	1722	-16.1	46	22
60	1453 (1875)	-15.6	39	16
61	1558	7.2	43	16
62	1660	6.5	45	17
63	1776	7.0	46	19
64	1934	8.9	50	22
65	1967	1.7	53	22
66	2078	5.6	53	23
67	2042	-1.7	52	23
68	1931	-5.4	49	22
69	1881	-2.6	48	22
70	2076 (2131)	10.4	52	23
71	2082	0.3	51	23
72	2006	-3.7	49	24
73	2160	7.7	53	25
74	2194	1.6	54	24
75	2210	0.7	55	24
76	2220	0.5	56	24
77	2236	0.7	56	25
78	2360	5.5	58	25
79	2562	8.6	65	31
80	2487 (2611)	-2.9	64	32
81	2517 (2650)	1.2	65	33
82	2729	8.4	68	38

Source: World Bank (1984:164), based on methodology of Piazza (1983). The source notes that figures in parentheses show estimates of energy availability based only upon a 20 per cent wastage rate for grain, as assumed by the Chinese government. The World Bank estimates are based on commodity specific deductions for seed, feed, waste and manufacturing use.

Protein availability appears to have exceeded safe requirements substantially throughout the entire period. However, Piazza (1983: 23-7) provides alternative estimates that take into account protein quality (which determines the degree of absorption and utilization of amino acids). Much protein consumed in China is derived from grain and is of low quality. Accordingly, Piazza's estimates of "net protein utilization" fall significantly short of requirements in 1950, 1951 and the years 1960-62. Shortfalls might have been greater in those years and might have existed in other years when energy availability did not meet requirements; under such circumstances protein sources may be utilized by the body for energy rather than for protein (Piazza, 1983:23, 27).⁹ Lardy (1983:156) believes that average protein availability must have been lower in 1976-78 than in 1957 because of the marked decline in per capita soybean production between those two dates; and that this presented a serious nutritional problem in rural areas:

Widespread anemia among children has been attributed by Chinese medical sources to protein deficiency in the diet, because anemia is widespread except in the traditional soybean-growing areas of the Northeast (Lardy, 1983:156).¹⁰

Evidence of secular improvements in nutrition up to the early 1980s is limited. One of China's most noteworthy accomplishments, namely the

⁹ On the other hand, Piazza's estimates ignore protein complementarity, and thus understate to some degree the quality of protein consumption (p. 27).

¹⁰ Lardy (Ibid) reports an experiment in which the incidence of anemia among children in one region was rapidly and sharply reduced by adding a small amount of beans to their diet.

steady rise in estimated life expectancy at birth¹¹ from 34 years in 1952 to 69 years in 1982 (World Bank, 1984:113), was influenced by many factors besides nutrition. There were marked gains between 1957 and 1977 in height-for-age of school-age children in some urban and prosperous suburban areas, notably suburban Shanghai, Beijing and Guangzhou (Canton), but hardly any longitudinal data are available from areas more representative of the conditions of most Chinese (Jamison and Trowbridge, 1984; World Bank, 1984:19-20).

Anthropometric surveys from 1975 and 1979 reveal evidence of little malnutrition in urban areas but a continuing problem in rural ones. There is also considerable regional variation in the incidence of malnutrition. The 1979 survey of 16 provinces and centrally-administered municipalities found that a national average of 2.6 per cent of urban and 12.7 per cent of rural 7-year old boys were stunted.¹² Provincial rural rates (not including suburbs of municipalities) ranged up to 37.1 per cent in Sichuan. In seeking to explain these results, World Bank analysts argue that diarrheal diseases remain much more prevalent in rural than urban areas, and they also cite urban-rural differences in the quantity and quality of the diet (World Bank, 1984:31). No significant difference in incidence of stunting was found between males and females (World Bank, 1984:30, 32).

¹¹ This "steady" rise was interrupted by the famine of 1959-62. Life expectancy fell from 38 years in 1957 to 25 in 1960, according to World Bank estimates, before resuming its upward trend.

¹² However, the rural figure is biased downward because it includes suburban areas of major cities.

As a result of the agricultural reforms beginning in 1978, including rises in farm prices, encouragement of trade and diversification, and longterm household contracting of production, per capita consumption of food began to increase at rates well above previously, as is shown in Table 6. Grain consumption per capita grew by almost 4 per cent between

Table 6. Per capita consumption, various foods, selected years, 1952-1984
(kg)

Year	Grain	Edible oil	Pork	Beef, mutton	Poultry	Fresh eggs	Aquatic products
1952	197.67	2.05	5.92	0.92	0.43	1.02	2.67
1957	203.06	2.42	5.08	1.11	0.50	2.51	2.34
1962	164.63	1.09	2.22	0.79	0.38	1.53	2.96
1965	182.84	1.72	6.29	1.02	0.36	2.84	3.33
1970	187.22	1.61	6.02	0.82	0.32	2.64	2.94
1975	190.52	1.73	7.63	0.72	0.35	3.26	3.26
1976	190.28	1.60	7.38	0.66	0.35	3.52	3.52
1977	192.07	1.56	7.25	0.71	0.36	3.70	3.23
1978	195.46	1.60	7.67	0.75	0.44	3.94	3.50
1979	207.03	1.96	9.66	0.82	0.57	4.15	3.22
1980	213.81	2.30	11.16	0.83	0.80	4.54	3.41
1981	219.18	2.94	11.08	0.85	0.83	4.87	3.57
1982	225.46	3.54	11.76	1.03	1.02	5.05	3.85
1983	232.23	4.03	12.35	1.11	1.18	5.92	4.02
1984	251.34	4.70	13.02	1.25	1.35	7.81	4.36
<u>Av. annual growth rate (%)</u>							
1952-57	0.6	3.4	-3.0	3.8	0.03	19.7	26.6
1965-77	0.4	-0.8	1.2	-3.0	0	2.2	0
1977-84	3.9	17.3	8.7	8.6	21.5	11.6	4.5

N.B. Grain is measured in "trade grain." "Edible oil" refers to vegetable oil and includes the oil equivalent of oil-bearing crops. Source: Stat. Yearbook of China (1985:576).

1977 and 1984, compared with prior longterm rates of well under 1 per cent. Although absolute consumption levels of meat, fish, eggs and other noncereals are still very low, their differentially high growth rates over the most recent period suggest that the Chinese diet has finally begun to escape from its overwhelming dependence on cereals.

4. The Famine of 1959-62: Extent and Measurement. Fluctuations around the trend in food supply have created periods of extreme national shortage. The most serious such event was the famine of 1959-62, perhaps the greatest famine on record in terms of scale of loss of life. After rising by 2.6 per cent in 1958, foodgrain output fell sharply for the following two years to reach a 1960 nadir some 29 per cent below the '58 peak (Table 4). The average per capita level of grain consumption in the countryside fell from 204 kg. in 1957 to only 154 kg. in 1961 and one estimate of national average per capita daily caloric intake in the latter year put it at only 1453 calories (Table 6).¹³

Chinese reports at the time mentioned the existence of malnutrition, "serious famine" and even "starvation" (Walker, 1977:559) but did not report the magnitude of loss of life. More recent foreign analyses based upon newly released mortality and fertility statistics for the years in question (see Table 7) as well as the population age distribution emerging from the 1964 and 1982 censuses, suggest an appalling loss (Aird, 1980, 1982; Ashton, et al., 1984; Coale, 1981, 1984; Sun Yefang, 1981). The increases in official mortality rates alone during 1959-61 imply excess deaths above the "normal" level (defined as the 1957 mortality rate) numbering over 15 million. One

¹³ The method of estimation used by the Chinese government yields a higher calorie intake of 1875 kcal. for 1960 (see note to Table 5). Ashton, et al (1984:622) put it at 1535 kcal. for that year.

estimate, that of Ashton, et al. (1984), is almost twice this figure.¹⁴ There remain many unanswered questions about the sources and quality of the statistics, which describe a period in which the statistical system itself was in disarray.¹⁵ At this point no exact estimate of famine mortality can be accepted with confidence, but available information leaves little doubt that it was very large.

Both natural conditions and sociopolitical factors contributed to the situation, although their relative shares of the blame cannot be assessed with confidence. Natural disasters were widespread, especially in 1960 (Freeberne, 1962), but state policy undoubtedly contributed to the shortages, doing both short- and long-run damage to agriculture, as well as complicating and delaying relief measures. Construction of dams and reservoirs without prior assessment of their impact on the water table led to salinization and alkalinization of the soil. Such damage is not easily reversed and helps to explain why the

¹⁴ This estimate, of 29.5 million premature deaths, also has problems associated with it. It results in part from an unrealistically low estimate of "normal" deaths obtained by applying normal infant mortality rates to the abnormally small number of births that took place during the crisis. Furthermore, the ratio of child to adult mortality fluctuates in ways that are hard to explain. Unreported deaths are also assumed to fluctuate sharply--from 28 to 47 percent of actual deaths during the famine years.

¹⁵ The fact that the regime which released these figures had an interest in discrediting its predecessor has led some to discount the figures themselves. My own view is that to have manufactured such enormous mortality statistics in order to attack the previous government would have been political overkill. To say that the figures were unlikely to have been deliberately inflated, however, is not to say that they are necessarily accurate. The fact is, nothing concrete is known about how they were arrived at.

collective grain output of the three North China plain provinces of Honan, Hebei and Shandong did not regain its previous peak level until the late 1960s (Walker, 1977: 558). Innovations such as deep ploughing and close planting, promoted by the center beyond the bounds of rationality, also reduced output, as did the excessive drain of labour out of agriculture and into small-scale industry and transport. The military organization of farm production and confiscation of peasants' personal property, especially in the earlier part of the Leap; the elimination in many places of farmers' private plots; the over-centralized and redistributive character of the early communes; and the adoption of a public dining hall system featuring free food, all harmed peasant incentives.

Great Leap policies not only helped create the crisis but also caused costly delays in responding to it. The politically-motivated exaggeration of harvest size and destruction of objective reporting systems kept the leadership in the dark about real supply conditions: "Leaders believed in 1959-60 that they had 100 MMT more grain than they actually did" (Bernstein, 1984A:13). Some local cadres, their reputations dependent upon meeting impossibly high output commitments, failed to seek relief or even sealed their localities to keep news of real conditions from getting out.

Excessive procurement of grain was a prime contributor to shortages in the countryside (Bernstein, 1984a; Lardy, 1983). Under the mistaken

Table 7. Demographic crisis and state procurement of foodgrains, 1955-1965

	Crude birth rate	Crude death rate	Natural increase rate	Grain output	State procurement		% of output procured	
					Total	Net	Total	Net
1955	32.60	12.28	20.32	183.9	50.7	36.2	27.6	19.7
1956	31.90	11.40	20.50	192.7	45.4	28.7	23.6	14.9
1957	34.03	10.80	23.23	195.0	48.0	33.9	24.6	17.4
1958	29.22	11.98	17.24	200.0	58.8	41.7	29.4	20.9
1959	24.78	14.59	10.19	170.0	67.4	47.6	39.7	28.0
1960	20.86	25.43	-4.57	143.5	51.1	30.9	35.6	21.5
1961	18.02	14.24	3.78	147.5	40.5	25.8	27.4	17.5
1962	37.01	10.02	26.99	160.0	38.1	25.7	23.8	16.1
1963	43.37	10.04	33.33	170.0	44.0	28.9	25.9	17.0
1964	39.14	11.50	27.64	187.5	47.4	31.8	25.3	17.0
1965	37.88	9.50	28.38	194.5	48.7	33.6	25.0	17.3

Source: Zhongguo Tongji Nianjian (1984:83, 370). 'Net' procurement refers to gross procurement minus resales to deficit areas in the countryside.

belief that harvests had broken all records, the government in 1958, '59 and '60 procured 22 per cent, 40 per cent and 6 per cent, respectively, more than in 1957 (Table 7). In 1957 gross procurement had come to 24.6 per cent of the harvest; by 1959 it had gone up to 39.7 per cent and in the year of greatest crisis, 1960, it was 35.6 per cent of output. Even after resales to deficit rural areas it remained a full 10 per centage points higher in 1959 and 4 points higher in 1960 than in 1957. Rural areas were the chief sufferers: as Table 8 and Fig. 4 show, government efforts to keep the cities adequately supplied succeeded in suppressing rural per capita grain supplies well below urban, where they stayed right up to the 1980s.¹⁶ Substantial

¹⁶ Zhongguo Maoyi... (1984:27). Zhongguo Tongji Nianjian (1983:509) shows urban-rural differentials in calorie consumption ranging from 380 to 490 kcal per day for every year from 1978 to 1982, whereas Fig. 4 indicates that rural inhabitants had a growing advantage in grain consumption from 1980 on. It is likely that city dwellers maintained their superiority with respect to nongrain foods, however.

grain imports, designed to supply the coastal cities and relieve pressure on the countryside, finally began in 1961, two years late.¹⁷

Party and government decisions worsened the crisis in more general ways, as well. Thus, Mao was in the process of moderating the policies of the Great Leap in 1959 when the popular defense minister and veteran revolutionary, Peng Dehuai, criticized them and thus indirectly challenged Mao's leadership at a meeting of the Party Central Committee. The purge of Peng Dehuai resulted in a resurrection of the excessive policies he had attacked, which must have deepened and prolonged the famine. Moreover, as Mao himself later

Table 8. Annual per capita grain supply and daily food energy
1957-64

<u>Year</u>	<u>Annual Average Per</u> <u>Capita Consumption</u> <u>of Grain (kg.)</u>	
	<u>National (Rural)</u>	
1957	203	(204)
1958	198	(201)
1959	187	(183)
1960	164	(156)
1961	159	(154)
1962	165	(161)
1963	165	(160)
1964	182	(178)

Sources: Zhongguo Maoyi . . . (1984:27). Data are in "trade grain" and labeled "pingjun meiren shenghuo xiaofei liang" (average per capita amount of consumption).

¹⁷ These imports, together with reduced procurement pressure on the countryside and the belated organization of relief measures--including stringent conservation measures, emergency food growing campaigns and vigorous redistribution to affected regions--probably provide a sufficient explanation for the fall in mortality after 1960 despite continued low levels of consumption and energy intake through 1963. Note also that the energy (Table 5) and per capita grain consumption (Table 8) series are from different sources; there is no immediate explanation for the fact that the former rises from 1960 to 1961 while the latter falls.

acknowledged, preoccupation from late 1959 with the growing polemic with the Soviet Union slowed the leadership's perception of and response to the domestic crisis (Bernstein, 1984a:31; McFarquhar, 1983, parts 3 and 4).¹⁸

In the 1959-61 famine, then, there was a complementarity between shortfalls in supply, on the one hand, and deprivation of food entitlements, on the other. Policy was itself partly responsible for the fall in supply, as well as for the allocation of the resulting burden. The process of depriving those affected of their entitlements began with the wrecking of the food production system during the Great Leap Forward; continued with the abandonment of objective statistical reporting, which prevented remedial measures (including imports) from being undertaken until quite late; and ended with the state's over-procurement of grain to protect the cities and the leadership's preoccupation with domestic and foreign political matters.

Ordinarily, one would expect that in times of scarcity a greater-than-normal proportion of food output would be eaten, as waste and nonfood uses of grain are reduced and stocks consumed. Fig. 5 plots the regression of consumption on (half-year lagged) production (both

¹⁸ Much in the above paragraphs on the famine is taken from Riskin (1987:Ch. 6).

per capita).¹⁹ The bad years, 1960-62, are above the line as expected, but very close to it, while 1959 (probably because of the exceptionally large fraction of waste in the 1958 output) lies virtually on the line. More unexpectedly, other bad years, such as 1968, 1969, 1972 and 1977 (see Fig. 1) show consumption well below the line.

Part of the explanation may lie in a pronounced downward time trend through the 1970s--not captured in Fig. 5--in the fraction of lagged per capita production consumed. Fig. 6 shows this trend, and the fluctuations of the annual observations around it. The crisis years now emerge starkly, the fraction of output consumed rising well above the trend line. For subsequent bad years, especially 1968 and 1972, however, the unexpected of Fig. 5 is accentuated, for these observations lie well below the trend line.

This suggests that stocks were not used very effectively to even out consumption over the harvest cycle during the chaotic period 1966-76, despite substantial annual food imports. Consumption seems to have been cut back at the first signs of an impending poor harvest. It then recovered whether the next harvest was better or not (in the latter event, 1969 being a case in point, presumably because stocks

¹⁹ The regression is of consumption on the average of current and previous year's output (since much of consumption is of the previous year's harvest):

$$C_t = a + \frac{1}{2}b(P_t + P_{t-1}),$$

where C = annual foodgrain consumption per capita, P = annual foodgrain production per capita, and t = year. The results are as follows: constant (a) = 36.19; production coefficient (b) = 0.53; R² = 0.89.

had been drawn down). We know that the capacity of the government to redistribute food spatially declined over the 1960s and 70s (see sec. 6 below); it seems that its ability to redistribute temporally may also have suffered.

5. Problems of food policy before the reform. Chinese statistics show that per capita grain production levels of 1956-58 were not attained again until 1973 (see Table 4), and per capita grain "livelihood consumption"²⁰ levels of 1956 were equalled again only in 1979 (Zhongguo Maoyi..., 1984:27). World Bank estimates of per capita calorie consumption find the 1958 level being matched in 1970 (Table 5). Although discussion of the standards and criteria that must lie behind evaluation--especially in comparative context--is beyond the scope of this paper, it is hard to avoid the conclusion that the record of China's food provision up to the end of the 1970s suffered in some respects from deeply flawed policies (and, during the height of the factional strife throughout the 1966-76 decade, by the absence of coherent policy).

This impression is strengthened by the great success of agriculture in the years since 1977. Between that year and 1984, per capita foodgrain output increased by 31 per cent (Table 4) while other sectors of agriculture were growing even more quickly. It is widely believed that the basis for this rapid advance was laid in the 1960s

²⁰ As measured in "trade grain." "Livelihood consumption" probably excludes grain consumed in the form of meat.

and 70s by such improvements as the extension of irrigated area, the adoption of improved varieties of wheat, rice and other grains, the development of chemical fertilizer and pesticide industries, the leveling and terracing of fields via winter "farmland capital construction" work.

These positive developments of the collective era were prevented from bearing fruit in growing per capita supplies of food by policies that weakened farm incentives. The speed with which output bounded forward when incentives were restored implies that resources already in place were being productively reallocated.

Chief among the negative policies pre-1978 was that of local foodgrain self-sufficiency. Government policy strongly encouraged all regions to be self-sufficient in grains, including those with a long history of specialization in raising economic crops or livestock or in other nongrain activities. Because the state monopolized the grain trade and could withhold grain from areas that resisted abandoning their specialties, the localities had no choice but to comply. The result was that grain basket areas were deprived of their markets, while nongrain regions produced grain inefficiently.

Both objective circumstance and ideological predilection contributed to the policy of foodgrain self-sufficiency. Through much of the period in question, China's leaders felt threatened, first from the US, which was at war with Vietnam on China's border, then from the USSR. Local self-sufficiency was seen as part of a strategy of defense in depth against a threat from abroad. In addition, however, it seems that Mao Zedong and his followers in the leadership were

intent on developing a form of economic organization that would minimize the bureaucratic hierarchies and rigidities associated with central administrative planning, yet without developing the role of the market as a substitute. As part of this quest, Mao had waged political war on the planning system and its upholders in the Party and government, largely disabling it by the 1970s. The state in the end had neither the capacity nor the will to implement the complex redistribution of goods that would have been necessary had regional specialization and division of labour been encouraged. Local food self-sufficiency was, in the end, a principle dictated by necessity.²¹

The maintenance of low purchase prices for farm products was another policy that hurt production incentives. Table 9 shows official estimates of the commodity terms of trade between agriculture and industry from the 1930s until 1979. It is acknowledged in China that a "scissors gap" has existed since the early days of the PRC and has functioned as a virtual tax on agriculture (the actual tax having declined in importance since the early 1950s). Table 9 appears to show the gap narrowing substantially between the 1950s and late 70s. Yet, despite the fact that one yuan of agricultural earnings apparently purchased 74 per cent more industrial goods in 1978 than in 1951, there were renewed complaints in the late 1970s that the scissors gap remained wide, and some even claimed it had widened, creating difficulties for the farmers and depressing their living standards.

²¹ This thesis is argued in detail in Riskin (1987).

The explanation for this apparent anomaly may lie in flaws in the price indexes used in Table 9. The industrial index seems to be composed of the prices of traditional goods, such as kerosene, salt, sugar and matches, and to omit highly priced modern producer goods, such as farm chemicals and machinery (Yang and Li, 1980:207). Prices of the latter kinds of goods were very high in China relative to their international levels. A kilogram of rice exchanged in China for less than half the amount of fertilizer it could command on the world market, and it took five or six times as much rice to purchase a tractor of given horsepower in China as in Japan (Ibid.). These prices imposed heavy burdens on farmers who were increasingly dependent on modern inputs to overcome diminishing returns to scarce land. A national survey found that between 1962 and 1976 production costs per hectare for six grain crops grew by 305 yuan, exceeding the gain in

Table 9. Terms of trade between agriculture and industry, 1930-36 to 1979
(official estimates)

1950 = 100				
Year	Agricultural prices	Industrial prices	Terms of trade (1)/(2)	Terms of trade (1936=100)
Av. 1930-36	49.6	37.6	131.9	100.0
1944	—	—	50.1	38.0
1948	—	—	79.1	60.0
1951	119.6	110.2	108.5	82.3
1952	121.6	109.7	110.8	84.0
1957	146.2	112.1	130.4	98.9
1962	193.4	126.6	152.8	115.8
1965	185.1	118.4	156.3	118.5
1975	208.7	109.6	190.4	144.4
1978	207.3	109.8	188.8	143.1
1979	265.5	109.9	241.6	183.1

Notes: Reprinted from Riskin (1987:Table 10.11), where sources are given. "Agricultural prices" are "purchase prices of agricultural and subsidiary products" and "industrial prices" are "retail prices of industrial goods in the countryside."

output value per hectare of Y249, and causing net income per hectare to fall (Yang and Li, 1980:207-8).

Farm prices also fared poorly against those of industrial consumer goods. A sample of the low exchange rate of rice against various consumer goods, relative to Hong Kong prices, is given in Table 10. Low farm prices not only hurt production incentives; they also contributed to the urban-rural gap in income and entitlement to food over much of the period (Fig. 4).

In 1978, the Central Committee raised farm prices sharply. Grain quota purchase prices were increased by 20 per cent, beginning with the summer harvest of 1979, and an additional 50 per cent premium was set for above-quota sales. Purchase prices of cotton, oil-bearing crops, sugar and other farm and sideline products were also raised. The average price increase for all agricultural purchases was about 22

Table 10. Terms of trade between rice and selected industrial goods, Guangzhou and Hong Kong, mid-1970s

	No. of kg of husked, polished rice required to buy one unit in		Ratio: Guangzhou/ Hong Kong
	Guangzhou	Hong Kong	
Portable radio (Guangzhou)	14	6	2.3
Thermos bottle (Guangzhou)	15.5	3.5	4.4
Sewing machine (Shanghai)	616.5	124	5.0
Bicycle (Shanghai)	582	110.5	5.3
Camera (Shanghai)	462.5	59	7.8
Alarm clock (Shanghai)	75.5	7.5	10.1

N.B. Cities in parenthesis indicate place of manufacture. Data refer to identical brands sold in Guangzhou and Hong Kong.

Source: J. C. Liu (1980:5-6).

per cent (Cheng Zhiping, 1983:19). Smaller price hikes followed in subsequent years, and the proportion of state purchases at above-quota and negotiated prices also rose from negligible levels in 1977 to reach 60 per cent in 1981 (Travers, 1984: 242). The resulting average purchase price increases in the years 1980-84 for farm and subsidiary goods were as follows (Zhongguo Tongji Nianjian, 1984:425; State Statistical Bureau, 1985:VI):

1980	7.1%
1981	5.9%
1982	2.2%
1983	4.4%
1984	4.0%

However, industrial prices also rose during the first half of the 1980s (Lardy, 1983:192); agricultural means of production sold by state commercial organs rose 18 per cent between 1978 and 1984 (Stat. Yearbook of China, 1985:533). It is thus unclear in what direction the commodity terms of trade moved after 1980.

However, farm purchasing power might better be gauged by either the single factoral or the income terms of trade.²² Farm output and labour productivity both grew rapidly between 1978 and 1984. Their

²² The commodity terms of trade index, N , is here simply P_a/P_i (where P_a and P_i are price indexes for agricultural and industrial goods). The single factoral terms of trade, here $N \times Z_a$ (where Z_a is an index of farm labour productivity), measures changes in the command over industrial goods of a unit of agricultural labour. The income terms of trade, here $N \times Q_a$ (where Q_a is an index of agricultural output), measures changes in agriculture's overall access to industrial goods.

growth must have outpaced any conceivable decline in agriculture's commodity terms of trade, as farmers used their new freedom to select more profitable output mixes, and as the new incentives spurred them to greater effort and efficiency. Agriculture's income and single factoral terms of trade must therefore have improved, and with them farmers' access to industrial goods.²³

Linked to the abandoned policies of grain self-sufficiency and low farm prices was that of state dictation to the communes. Nominally, the communes and their sub-units were collectively owned, and policy should have been made by their members. The team leaders, in particular, were not state cadres but were paid out of team income. Like other commune cadres but more so, they owed their success not only to the ability to satisfy higher authorities, but also to their rapport with the villagers. The degree to which rural leaders exercised development initiative and also protected their constituents from the more arbitrary demands of the higher levels has probably been underestimated in recent indictments of the commune system.

However, it is also true that the ambiguous identity of the commune, which was the lowest level of state administration as well as a collective economic organization, facilitated the practice of the government issuing direct orders to the farmers. In the 1960s and 70s this became common. Cropping patterns, technological choices and income distribution all became subject to government determination. Not only did the workpoint system tend to produce a highly even intra-

²³ I am indebted to Keith Griffin for this point.

village distribution to minimize the social friction that differentiation would produce, but caps were put on personal income as a matter of state policy. Thus, even solidary collectives with relatively equal distribution could not hope to raise personal incomes commensurately with productivity.

Rhetorically, the post-78 reforms were committed to respect peasant and collective autonomy. The abandonment of the commune institution was justified because it removed the state from direct political control of farm production activities. The substitute xiang or township government is a purely political body. The death of the commune also meant the weakening of the structures of egalitarian distribution in the countryside. Individual household farming, under the encouragement of state policy favoring "letting some get rich first," has encouraged those with superior skills, labour power or political access to forge ahead of their less well endowed neighbors. Collective autonomy and individual differentiation are two quite separate issues; China seems to have moved between the extremes of closely controlled collectives and peasant individualism, bypassing autonomous collectives.²⁴

²⁴ This sentence oversimplifies a complex situation. Bernstein (1986:2) brought back from his field study of rural structural reform a dominant impression that "party, government and collective economic organizations continue to play a major role in the rural economy and indeed, in the ongoing reform process."

6. Distribution of Food. Rationing, an ethic of relative equality as well as frugality, and powerful state organization have been credited with stretching meager food supplies over China's enormous population so that the most extreme deprivation to be found in many other poor countries was on the whole avoided most of the time (the major exception, of course, being 1959-61). Impressive statistics on life expectancy and infant mortality are consistent with this picture, and it is not contradicted by the observations of international observers.

The subject of food distribution is a good deal more complex than this, however, and the record has also varied substantially over time. The question of urban-rural differentials in food availability has already been touched on. This section will discuss the inter-provincial and inter-personal dimensions of the Chinese approach to distribution.

a. Variations by province. Published reports in China in the late 1970s and early 80s stated that in 1978 100 million peasants had yearly per capita grain rations of less than 150 kg. (Jiang et. al., 1980:53); if ration is interpreted to mean consumption (it is probably lower than consumption),²⁵ this implies a daily intake of only 1500 calories (Lardy, 1982:161 n.9). Such widespread want of food is not known to have existed in the 1950s. If in fact it was a new phenomenon, food

²⁵ The term "rations" (kouliang) is used in the source. "Rations" are usually lower than total grain consumption (see Walker, 1982:578-82). The calorie figure in the text might thus underestimate actual consumption in the affected regions.

distribution must have become more erratic²⁶ between that decade and the 1970s, since average per capita food availability (i.e., output plus imports) did not decrease. Indeed, the state's capacity to redistribute grain, especially between surplus and deficit provinces, may well have declined.

Inter-provincial transfers of food are in the first instance a function of the overall "commercialization rate," meaning the fraction of total output extracted from the producer by means of tax, quota sales or market sales. Of this fraction, most is redistributed within the province of origin, but a portion crosses provincial boundaries to feed major cities and deficit provinces and for export abroad.

Free market sales of basic foodgrains were illegal from the mid-1950s until the late 70s; during that period virtually all "marketed" grain (except an indeterminate amount that entered the black market) was procured by the government through tax and purchase quotas. From the late 70s on, however, grain was increasingly available on the free market. Total purchases (including tax extraction, and measured in trade grain) rose from 51 million metric tons in calendar 1978 to 117 MMT in 1984 (Statistical Yearbook of China, 1985:480); although a growing portion of this took the form of direct sales by farmers to the

²⁶ Not necessarily more unequal. Declining ability to supply enough food to particular deficit regions can be compatible with growing average equality (as measured, e.g., by the coefficient of variation of provincial per capita consumption). This indeed is what seems to have happened, as the text below argues.

nonagricultural population,²⁷ the great bulk was bought by the state, which was accordingly subject to a growing financial and logistical burden. In 1985, the state shed its role of guaranteed buyer of last resort, limiting its purchase to 75 MMT of rice, wheat and corn, and the rest of the surplus was sold on the market (Erisman, 1986:20).

The declining role of the state in redistributing foodgrain is pictured in Table 11. Total tax plus purchases declined as a fraction of grain output from 25-30 percent in the 1950s to only 20-21 percent in the 70s (col. 5). Out of this, an average of 18 percent of total output was kept during the First Plan Period of 1953-57 to feed the cities and build up stocks. This category had slipped to about 16 percent during the 1962-77 period (col. 6). The last column shows what was resold to deficit areas of the countryside. Never a large share of output, it nevertheless fell from an average of 8.6 percent during the First Plan period to 5.7 percent during the years 1966-76. If indeed 100 to 150 million people were unable to provide themselves with sufficient food, the small fractions of the harvest available for state relief would not seem to have been enough to meet the need.

²⁷ Chinese grain trade statistics are ambiguous as to coverage. They explicitly include the agricultural tax, purchases by state commercial, industrial and other departments, and direct purchases by the nonagricultural population from peasants. They appear to exclude direct market transactions within agriculture, e.g., market purchases by nongrain growing farmers.

Table 11. Foodgrain procurement, 1952-84
(Unprocessed grain)

Grain year ^a	(1) Output (MMT)	(3) Marketing ^b		(4) Ann incr in mktg	(5) Gross mktg ratio (2)/(1)	(6) Net mktg ratio (3)/(1)	(7)
		Total (MMT)	Net ^c (MMT)				Proportion of output resold to countryside (5)-(6)
1952	163.92	33.3	28.19		0.20	0.17	0.03
1953	166.83	47.5	35.89	42.7	0.28	0.22	0.07
1954	169.52	51.8	31.59	9.2	0.31	0.19	0.12
1955	183.94	50.7	36.18	- 2.1	0.28	0.20	0.08
1956	192.75	45.4	28.70	-10.5	0.24	0.15	0.09
1957	195.05	48.0	33.87	5.7	0.25	0.17	0.07
1958	200.00	58.8	41.73	22.3	0.29	0.21	0.09
1959	170.00	67.4	47.57	14.7	0.40	0.28	0.12
1960	143.50	51.1	30.90	-24.3	0.36	0.22	0.14
1961	147.50	40.5	25.81	-20.7	0.27	0.17	0.10
1962	160.00	38.2	25.72	- 5.7	0.24	0.16	0.08
1963	170.00	44.0	28.92	15.2	0.26	0.17	0.09
1964	187.50	47.4	31.85	7.9	0.25	0.17	0.08
1965	194.53	48.7	33.60	2.7	0.25	0.17	0.08
1966	214.00	51.6	38.24	5.9	0.24	0.18	0.06
1967	217.82	49.4	37.74	- 4.3	0.23	0.17	0.05
1968	209.06	48.7	37.87	- 1.4	0.23	0.18	0.05
1969	210.97	46.7	33.83	- 4.1	0.22	0.16	0.06
1970	239.96	54.4	42.02	16.6	0.23	0.18	0.05
1971	250.14	53.0	39.82	- 2.6	0.21	0.16	0.05
1972	240.48	48.3	33.92	- 8.9	0.20	0.14	0.06
1973	264.94	56.1	41.01	16.2	0.21	0.15	0.06
1974	275.27	58.1	43.98	3.5	0.21	0.16	0.05
1975	284.52	60.9	43.98	4.8	0.21	0.15	0.06
1976	286.31	58.3	40.72	- 4.3	0.20	0.14	0.06
1977	282.73	56.6	37.56	- 2.8	0.20	0.13	0.07
1978	304.77	61.7	42.71	9.1	0.20	0.14	0.06
1979	332.12	72.0	51.70	16.6	0.22	0.16	0.06
1980	320.56	73.0	47.97	1.4	0.23	0.15	0.08
1981	325.02	78.5	48.77	7.5	0.24	0.15	0.09
1982	354.50	91.9	52.02	17.0	0.26	0.15	0.11
1983	387.28	119.9	85.27	30.5	0.31	0.22	0.09
1984	407.31	141.7	94.61	18.2	0.35	0.23	0.12

^a The grain year runs from April 1 to the following March 31.

^b "Marketing" includes tax procurements, state quota purchases and above-quota purchases and free market sales.

^c "Net" refers to total marketing less state resales to the countryside.

Source: Zhongguo Tongji Nianjian (1983:393); Statistical Yearbook of China (1985:482).

In the 1950s, vigorous government commerce in grain played a role in evening out provincial consumption. Table 12 gives K. Walker's estimates of the provincial distributions of per capita net output and consumption for the First Plan period. Output varied from Hebei's 195 kg. to Heilongjiang's 766, a range of 3.9. The coefficient of variation was 35 percent. After state redistribution, the range for consumption was reduced to 2.2 and the coefficient of variation to 20 percent.

Table 13, cols. 1 and 2 present the provincial distributions for 1979 of per capita "availabilities" of grain and total energy. Unfortunately, these estimates unlike Walker's do not take into account inter-provincial (or international) trade; to the degree that trade redistributed food among provinces, therefore, the term "availability" is a misnomer.

Grain imports (shown in Table 14 and Fig. 7, along with exports) have gone chiefly to feed the coastal cities, especially Beijing, Tianjin and Shanghai.²⁸ Their omission therefore has minor impact on the distribution. As for inter-provincial trade, this has been declining since the 1950s. The number of provinces that shipped grain out declined from 15 in 1965 to 8 in 1978 (Piazza, 1983:41). Inter-provincial cereal exports appear to have dropped from 7.85 MMT in 1953 (5.5 percent of national output) to 4.7 MMT in 1965 (2.8 percent of

²⁸ Omitting the effects of trade, therefore, causes consumption in these cities to be grossly underestimated; they have therefore been left out of Table 13. These three municipalities have the status of provinces. They are therefore not part of other provinces and their omission does not distort the other figures.

Table 12. Walker's estimates of provincial rural per capita net grain production and consumption

	(Averages for 1953-57)	
	Net output per capita (kg)	Grain consumption per capita (kg)
<u>Northeast</u>		
Liaoning	348	297
Jilin	562	355
Heilongjiang	756	424
<u>North</u>		
Hebei	195	195
Shanxi	254	196
Inner Mongolia	433	249
<u>East</u>		
Jiangsu	291	230
Zhejiang	338	271
Anhui	313	262
Fujian	307	259
Jiangxi	375	278
Shandong	233	210
<u>Central South</u>		
Henan	233	204
Hubei	343	297
Hunan	307	258
Guangdong	327	276
Guangxi	294	254
<u>Southwest</u>		
Sichuan	294	240
Guizhou	277	213
Yunnan	296	247
<u>Northwest</u>		
Shaanxi	282	229
Gansu	269	217
Qinghai	267	233
Xinjiang	271	227
Avg	327.71	255.04
Range	3.9	2.2
Coeff. of var	35%	20%

Source: Walker (1984a:107). Estimates of consumption are based on production and procurement data, and are net of estimated seed and livestock feed uses as well as of loss from storage. Tibet is omitted.

output); in 1978 they were only 2.05 MMT (less than 1 percent of output), of which all but about 0.325 MMT were destined for export abroad (Lardy, 1982b). This trend was closely connected to the grain self-sufficiency policy, the reasons for which were discussed in sec. 5 above. In short, for both ideological and practical reasons, and because Mao's assault on the central planning structure effectively disabled it, the central government largely abandoned the business of shipping grain between provinces.

If the state had only a minimal effect on the provincial distribution of grain in 1979, then the range (1.94) and coefficient of variation (18.2 per cent) of provincial grain "availability" shown in Table 13 represent fairly well the distribution of provincial per capita consumption even after state intervention.²⁹ Both of these measures are slightly below their 1950s level for grain consumption (Table 12).

On average, then, it seems that the inter-provincial grain distribution became more equal.³⁰ But this was due not to improved mechanisms for state distribution of output but rather to the leveling of provincial per capita output, itself: while average output was about the same in 1979 as in the 1950s, the coefficient of variation declined by almost a half between the two periods (Tables 12 and 13). In this case, the leveling was mostly downward, with high producers, such as

²⁹ Table 13 also gives provincial figures for per capita energy availability and grain output. As can be seen, the magnitudes of relative variation are closely similar for all three variables.

³⁰ This conclusion is tentative because the data for the two periods are not strictly comparable, while the differences between the two ranges and coefficients of variation may be too small to be of much significance.

Heilongjiang, Jilin and Inner Mongolia declining and no provinces rising to take their place. The net result of increasingly equal provincial per capita output, on the one hand, and declining state involvement with inter-provincial distribution, on the other, was a somewhat greater equality of provincial per capita consumption. Such a rise in equality, however, was not necessarily inconsistent with the growth of underfed regional populations, as claimed by the government in the late 1970s.

In 1979, to increase per capita energy availability to Piazza's standard of sufficiency (2160 kcal per day) in the 10 provinces which fell short of that standard (Table 13, col. 2), and to bring Beijing, Shanghai and Tianjin up to the national average of 2600 kcal from their own production of foodgrain, would have required a total of 10 MMT of unprocessed wheat (Piazza, 1983:43). This amount is approximately equal to China's net grain import in 1979. Even without inter-provincial redistribution, therefore, China could have met minimum standards in all provinces (disregarding problems of intra-provincial distribution) on the basis of local production plus imports. It is likely, however, that imports served rather to raise urban standards well above the national average, and that poor provinces such as Guizhou, Gansu, Yunnan and Qinghai were left short.

The picture changed greatly in 1984 (Table 13, col. 6). The average provincial output per capita was substantially above that of the 50s. While the coefficient of variation rose above that of 1979, it remained below the 1950s level; moreover, every province but one (Guangxi) experienced growth in per capita output between 1979 and 1984.

Table 13. Per capita food supply by province, 1979 and 1984

	1979			1984		
	(1) Grain "availability" (kg)	(2) Energy (kcal)	(3) Grain output per cap (kg)	(4) Total Output of grains (MNT)	(5) Population (mill)	(6) Grain output per cap (kg)
Northeast						
Liaoning	186.11	2139	338	14.25	36.55	380.15
Jilin	222.69	2475	408	16.38	22.84	715.41
Heilongjiang	259.59	2888	462	17.57	32.95	533.23
North						
Hebei	205.38	2313	325	18.78	54.87	340.81
Shanxi	184.40	2041	294	8.72	26.00	335.38
Inner Mongolia	153.00	1882	253	5.95	19.85	295.50
East						
Jiangsu	255.38	2888	402	33.54	61.71	543.43
Zhejiang	249.22	2863	393	18.17	39.93	455.05
Anhui	205.62	2394	315	22.03	51.03	431.61
Fujian	182.96	2318	308	8.51	26.77	317.71
Jiangxi	241.90	2735	379	15.49	34.21	452.79
Shandong	203.91	2549	330	30.40	76.37	398.06
Central South						
Henan	182.33	2106	292	28.94	76.46	379.43
Hubei	243.25	2758	368	22.63	48.75	464.11
Hunan	254.76	2906	411	26.13	55.61	469.88
Guangdong	183.55	2313	303	19.73	61.56	319.90
Guangxi	202.93	2434	331	12.13	38.06	313.71
Southwest						
Sichuan	194.85	2364	321	40.80	101.12	403.43
Guizhou	134.05	1577	234	7.58	29.32	258.53
Yunnan	149.95	1758	269	10.05	33.62	298.93
Tibet	154.45	1926	232	0.50	1.97	251.27
Northwest						
Shaanxi	197.22	2190	293	10.24	29.66	345.08
Gansu	152.21	1722	251	5.40	20.16	267.61
Qinghai	147.04	1865	238	1.01	4.02	251.24
Ningxia	181.13	1995	315	1.54	4.06	379.31
Xinjiang	197.45	2228	306	4.97	13.44	369.79
Central cities						
Beijing				2.18	9.47	229.67
Shanghai				2.53	12.05	209.54
Tianjin				1.32	7.99	164.58
Average	197.40	2293.38	321.96		38.50	384.21
Stand dev	35.90	381.97	59.19			104.08
Coeff of var	18.2%	16.7%	18.4%			27.1%
Max	259.59	2906	462			715.41
Min	134.05	1577	232			251.24
Range	1.94	1.84	1.99			2.85

Sources and Notes to Table 13:

Col. 1: Piazza (1983:115). Provincial grain output net of processing, waste, seed use, and other non-human food end uses. Figures exclude interprovincial and international trade in grains.

Col. 2: World Bank (1984:166. Figures exclude interprovincial and international trade.

Col. 3: Walker (1984a:169). Refers to average for 1978-80. Figure for Tibet estimated from output given in Zhongguo Nongye Nianjian (1980:55) and provincial population given in Zhongguo baike nianjian (1980:114).

Col. 4-5: Zhongguo Tongji Zhaiyao (1985: 19,38).

Col. 6: col. 4 divided by col. 5.

Table 14. Foodgrain imports and exports, 1952-1984
(Millions of metric tons)

<u>Year</u>	<u>Imports</u>	<u>Exports</u>	<u>Year</u>	<u>Imports</u>	<u>Exports</u>
1950	0.06	1.23	1968	4.60	2.60
1951	0.00	1.97	1969	3.79	2.24
1952	0.00	1.53	1970	5.36	2.12
1953	0.01	1.83	1971	3.17	2.62
1954	0.03	1.71	1972	4.76	2.93
1955	0.18	2.23	1973	8.13	3.89
1956	0.15	2.67	1974	8.12	3.64
1957	0.17	2.09	1975	3.74	2.81
1958	0.22	2.88	1976	2.37	1.76
1959	0.00	4.16	1977	7.34	1.67
1960	0.07	2.72	1978	8.83	1.88
1961	5.81	1.35	1979	12.36	1.65
1962	4.92	1.03	1980	13.43	1.62
1963	5.95	1.49	1981	14.31	1.26
1964	6.57	1.82	1982	16.12	1.25
1965	6.41	2.42	1983	13.44	1.96
1966	6.44	2.89	1984	10.45	3.57
1967	4.70	2.99	1985	5.40	9.00

Source: Zhongguo Tongji Nianjian (1983:422,438); Stat. Yearbook of China (1985:510,517). 1985 figures are preliminary estimates from CIA (1986).

In addition, the proportion of the much larger harvest resold to deficit areas of the countryside also rose--from 7 percent of national output in 1979 to 12 percent in 1984 (Table 11, col. 7). Thus, the increase in provincial inequality in per capita production would seem to be a small price to pay for advance along a wide front and the redistribution of greater surpluses. Indeed, if a combination of state commercial organs and the market can handle the task of supplying grain deficit regions, then the goal of provincial specialization and division of labor would seem more effective in feeding China than that of provincial grain self-sufficiency.

b. Personal Distribution. There are no published data on personal distribution of food, or of cereal, as far as I am aware. Income data have been used by the World Bank to construct estimates of the distribution of personal income in urban and in rural China. Their estimate of the Gini coefficient for the rural income distribution in 1982 is 0.225, well below the Ginis of other South Asian countries (0.30-0.35). Substantial remaining inequality is largely inter-regional. The Bank characterizes urban inequality as "uniquely low...with virtually no extreme poverty in urban areas" (World Bank, 1985, Main Report: 29); the estimated Gini coefficient for 1981 is 0.16 (World Bank, 1981: 59).³¹ One can infer similar degrees of equality in distribution of food entitlements, but direct data are lacking.

³¹ China's overall distribution is less impressive than ~~that of~~ either of these components, however, because of the remaining sizeable urban-rural gap.

This discussion is therefore confined to the changing methods, with their implications for the personal distribution, by which individuals have gained entitlement to food. In the villages, before the return of family farming (practices after the reforms are discussed below), peasants received rations in two basic ways (see below). They paid an agricultural tax, largely in grain, and were obliged to sell to the state quotas (and above-quota amounts) that were calculated on output above a subsistence ration. The state undertook to resell grain at quota prices to food deficit localities. Because most redistribution in recent years has been intra-provincial (and of this much may have been confined within smaller administrative units, such as the district), the guaranteed minimum consumption standard has varied geographically, a common figure being 200 unprocessed kg. in rice regions (providing about 1,400 kcal and 25 grams of protein) and 150 kg. elsewhere (if wheat this would provide about 1250 kcal and 35 grams of protein) (World Bank, 1984:80).

Land reform and collectivization in the 1950s probably resulted in a marked gain in equality of food distribution in rural areas, both among regions and among individuals within a locality because these institutional changes eliminated property income, the largest source of intra-regional income inequality, and established institutions for food redistribution. The policies of the 1960s and 70s, on the other hand, may have increased disparities among localities³² while maintaining (and possibly increasing) equality of distribution within localities.

³² However, the discussion of section (a) above concluded that disparities among provinces seems to have further narrowed on average, but not to the benefit of at least some poor regions.

There were two basic methods of grain distribution to members of a production team. First, grain was distributed on a per capita basis according to the age and sex of each family member. This grain (called "basic grain") was debited to the family's account with the collective, and in principle had to be paid for at the post-harvest settling of accounts. Second, grain distribution was tied to workpoint earnings, and thus to earning power. A small amount of grain might also be distributed in exchange for household manure.

The relative importance of basic grain and workpoint grain in total grain distribution varied greatly among localities. Villages stressing basic grain tended to have more equal food distribution and greater security for their poor members. In practice, going into debt to the collective for basic grain and postponing repayment was one method by which families in difficult circumstances could survive. Villages where workpoint grain was stressed in order to promote work incentives tended to have less equal distribution. "The proportion of basic or work-point grain is then a matter of intense and volatile debate, with local systems changing with the current political wind and with the changing needs and desires of team members and their leaders" (Parish and Whyte, 1978:66)³³ The Cultural Revolution of the late 1960s brought about a move to equal distribution, the reaction of the early 1970s a return to more workpoint grain. Parish and Whyte (1978:69-70) found a link between village affluence and reliance on "basic grain." In their

³³ This discussion of rural distribution depends heavily on Parish and Whyte (1978) in its depiction of the pre-1978 situation. See below for discussion of the changes brought about by household contracting.

sample of villages, higher income, consumption and land-labor ratios were associated with greater willingness to share food equally.

Basic and workpoint grain seem to have disappeared as a result of the reforms. Now, grain-growing households keep the excess of their output above what is due in tax, contracted sales (formerly quota sales) and contribution to the collective accumulation and welfare funds. Nongrain-growing households commonly are allotted "ration land" (kouliang tian), on which to grow food for their own needs, in addition to their contract land (Bernstein, 1986). Presumably, households unable to grow enough food must buy it with their earnings on the open market, unless they are "five guarantee" or "hardship" households that qualify for public assistance.

The rural elderly do not have access to a government pension system, as do full-status workers and staff in state enterprises. In the villages grown children (sons, in practice, since daughters marry out of the village) are expected to care for their aged parents. Those without grown sons to support them may become "five guarantee households" (guaranteed food, clothing, housing, medical care and burial expenses by their collective). The collective usually tries to provide them with sideline employment and a plot of land as means of supplementing their incomes.

In the 37 Guangdong production teams studied by Parish and Whyte in the 1970s, only 1.24 persons per team, or 6 percent of all people over age 60, received five-guarantee help. This system persists into the post-reform era: a Shandong village of 283 households visited in 1985 by T. Bernstein had three five-guarantee households. Each got 200 kg.

of grain, 200 yuan in cash, free medical care and 500 yuan for funeral expenses (Bernstein, 1986:16).

Assistance has been available through various channels to ordinary households in difficulty because of injury, illness or simply lack of labor power. The team or village might provide extra employment to the children or elderly in the family, make available low-cost loans or direct grants, or permit a household to overdraw indefinitely on its grain account. Much help has also taken the more traditional form of informal assistance based on kinship (Parish and Whyte, 76-77).

With the transformation of the old commune system and the adoption of household farming, collective welfare services broke down in some places. Beggars, some of them peasant migrants, again appeared at railroad stations and thoroughfares. The government has put renewed stress on helping poor areas and households. Bernstein (1986:16) was told that 5 to 6 percent of households in Anhui province were classified as hardship cases eligible to receive assistance. The approach taken was to help such households achieve self-sufficiency and avoid longterm dependence on welfare. Policies include reduction or remittance of taxes, provision of low-interest loans, priority in purchasing output and in supplying improved seed and other farm inputs, subsidies to buy such inputs, and provision of technical education and advice (FBIS, 7 January 1985:K17).³⁴ Cadres in some areas have taken it upon themselves

³⁴ Curiously, the Minister of Civil Affairs, discussing aid to the poor in January 1985, "pledged" that "his ministry would continue to raise money to support the poorer peasants," making it sound much like a private charitable organization rather than one funded by the state budget.

to help indigent families work out plans to overcome their problems (Hinton, 1983:22; Beijing Rev. 3, 1981 and 5, 1982; Jing Wei, 1983: 20-21). A good deal of pressure seems to have been put on the new village entrepreneurs to develop their philanthropic impulses, and stories abound of the emerging elite privately building old-age homes, establishing local schools, or subsidizing the electrification of their village.³⁵ Chinese commentators point out that, even amidst the general advance of recent years, "comparatively speaking, poverty-stricken 'pockets' exist everywhere. In the whole nation, there are tens of millions of people whose problems regarding food and clothing have not been completely solved" (Renmin Ribao, 8 Feb. 1986, tr. FBIS 24 Feb. 1986, p. K16). But detailed statistics on the extent of the problem have not been published.

In urban areas, formal rationing of cereals and edible vegetable oils has existed since 1955. A grain ration schedule from Chengdu, in

³⁵ A recent article on combatting poverty in China's richest county, Wuxi (Jiangsu Province), captures the flavor of current policy:

In the work to help poor households, the county adopted a method of state subsidies, collective assistance, and mutual help among the masses in order to collect funds through various channels. . . . The county's civil affairs, grain, and supply and marketing departments also did what they could to make things easy for this work in financial affairs and material supply as well as in production and sales. . . (V)arious areas have . . . adopted various measures such as giving priority to poor households to work in the town and township enterprises or in initiating social welfare work. . . . At the same time, they also enthusiastically encourage all kinds of specialized households to encourage poor households and to let the rich help the poor (Guangming Ribao (Beijing), 8 February, 1986, tr. FBIS, 24 Feb 1986, p. k17).

Sichuan Province, is given in Table 15.³⁶ Rationing has undoubtedly served to equalize food distribution within urban areas. With grain relatively scarce during much of China's recent history, urban rationing also served to assure a stable and equitable supply for city residents. Under more recent conditions of relative grain abundance and a growing free market in grain, and given the unusual degree of income equality in urban China, urban rationing may have lost much of its rationale. It may also have contributed to exacerbating the urban-rural gap by safeguarding the urban population's access to relatively stable supplies of cheap grain while giving rise to wider annual fluctuations in per capita supplies in the countryside.

Table 15. Grain rations, Chengdu, 1982
(kg/month)

<u>Category</u>	<u>Ration</u>
Age below 1 year	4.0
1 year	5.5
2 years	6.5
3 years	7.5
4 years	8.5
5 years	9.0
6 years	10.0
7 years	10.5
8 years	11.0
9 years	12.0
10 years	12.5
Senior middle school students	16.0
University students	17.2
"Ordinary persons"	13.5
Office worker	14
Manual laborer	22.5-25

Source: World Bank (1984:168)

³⁶ Rations vary somewhat by location. Thus, a male office worker in Beijing was entitled to 34 kg. rather than 28, a female office worker to 30 rather than 28. The vegetable oil and sugar rations in all three locations noted by the World Bank were 0.5 kg. each.

Certainly, the state subsidy of urban grain consumption, occasioned by the rising spread between state purchase and sales prices since the mid-1960s, has been a significant contributor to the urban-rural income differential. State losses from this spread averaged 4 billion yuan per year between 1974 and 1978. They came to almost 2 percent of national income in the latter year or over 179 yuan per state employee (almost 30 percent of the average annual wage) (Lardy, 1983:193). Moreover, as farm procurement prices were raised after 1978 and the state bought increasing percentages of the harvest at above-quota and high negotiated prices, the subsidy of urban consumption grew rapidly. Lardy estimates that all urban food subsidies in 1981 (including those on imported grain and on nonstaple foods) amounted to 6.4 percent of official national income (roughly net domestic material product), or 30.5 percent of the total wage bill of state workers, or one quarter of revenue of all levels of government (1983:194-5). These large subsidies were available to only 16-17 percent of the population. Their contribution to government budget deficits in the late 70s and early 80s were a principal reason for the decontrol of nonstaple food prices in 1985 and the switch from mandatory quotas to contract purchases from the peasants.

7. Conclusion. Certain points in this broad survey deserve a summary reprise.

(1) The discussion of institutional development found that the rural collective institutions in place until the end of the 1970s played

a role in bringing about the growth of food production and, through relatively egalitarian distribution methods within collectives, in ensuring the adequacy of food consumption of poor members. However, the "workpoint" system of distribution was bound to lose its motivational efficacy as the national political atmosphere became fractious and national policies toward the countryside became increasingly inequitable. Rural communes also suffered from the propensity of the Party and government to administer them as if they were state institutions, and to adopt policies, such as those of low farm prices and local foodgrain self-sufficiency, that imposed hardships on both advanced and backward regions.

(2) Average per capita food energy availability fluctuated around a flat trend for two decades after 1952, then began rising. China did not exceed the peak 1950s level of average calorie consumption until the early 1970s. Foodgrain production per capita exceeded the 1956-58 level only in 1973. From 1978 to 1984, grain consumption per capita grew quite rapidly, and the diet began to diversify as a result of differentially high growth rates of meat, dairy and aquatic products.

(3) Available evidence indicates that the famine which occurred in 1959-61 was of calamitous proportions. Official government mortality statistics imply a total excess mortality of more than 15 million during those years, and some Western estimates run considerably higher. However, many questions remain about the famine itself and the statistics concerning it, and no precise estimate of mortality can be made with confidence. State policy contributed to the severity and duration of the crisis in both direct and indirect ways. In this famine, the

deprivation of food entitlements began with the destructive effects of state policy on food production, itself; later, mistaken distribution policies (such as over-procurement of grain from the peasants) contributed to the disaster.

(4) The rapid advances in food production and consumption since 1978 owe much to the elimination of negative incentive policies in place earlier, and of the institutional framework supporting such policies. At the same time, these advances are also due to infrastructural developments and the equalization of access to land that occurred during the era of collective agriculture.

(5) Malnutrition appears to be only a slight problem in urban China, but may be a much more substantial one in the countryside, where it is also subject to great regional variation.

(6) Food distribution has developed differently, according to which of its several dimensions is examined. Average variation among provinces in per capita grain consumption declined between the 1950s and the 1970s, but in a manner that apparently permitted the growth of large underfed regional populations--not a happy result of greater equality. Conversely, general but differentially rapid growth after 1978, together with a more vigorous government redistributive role, seems to have significantly reduced regional insufficiency of food supply.

With respect to the personal distribution of food, very low Gini coefficients in the early 1980s for urban and rural income distributions, taken separately, may imply similarly great equality in food availability, but direct data are lacking. The elimination of the collective system of distribution in the countryside, and the erosion of

collective welfare institutions that accompanied the reversion to household farming, created new hardships for some households ill-equipped to cope with the new conditions. The Chinese government has stressed the need to provide aid in such cases, but the extent and degree of success of its assistance programs is not yet known.

Space does not permit an exploration of many other issues relevant to China's food situation, e.g., the record of state investment in agriculture; the government's plans for price reform; the unexpectedly sharp inflation in nonstaple food prices brought about by decontrol in 1985; the expressed plan drastically to reduce the fraction of the labor force in agriculture by the end of the century; the intent to adopt and popularize Western types of processing and fast food services. Through these various issues runs the basic question--still far from solution--of how to combine planning and state control with family farming and a free market. In the urban industrial sector a viable plan-market mix is even farther from achievement; yet agriculture depends increasingly on industry for inputs and on the cities for markets. Despite the success of recent reforms, China's food problem is far from solved.³⁷

What is notable about China's experience is its extraordinary range. When Mao Zedong was the pre-eminent force in the country, he had

³⁷ Grain output in 1986 is expected to fall short of the 1984 record harvest for the second year in a row. While this in itself is not serious (storage facilities were inadequate to cope with the 1984 harvest and growers had great difficulty selling their crop), recent visitors to China report a continuing concern with assuring adequate food production and distribution in an increasingly marketized environment.

and used the authority to implement unprecedented experiments in organization and distribution. At the same time, the existence of major differences within the leadership has meant that economic policy, including food policy, changed dramatically when the balance of power within the Party shifted. As a result, a great variety of organizational and institutional forms have been tried in the quest for growth and equity. After early progress there was an extended period in which improvements in the quantity and quality of diet were not forthcoming, and the population at times paid a very high price for ill-considered experiments. The record of the last eight years, however, gives reason to hope that the most successful of the many policies tried over more than three decades can be combined to promote socialist development without "socialist Darwinism."

APPENDIX

Figures 1 - 7

Fig. 1. Cereal production & consumption

per capita, 1952-1984

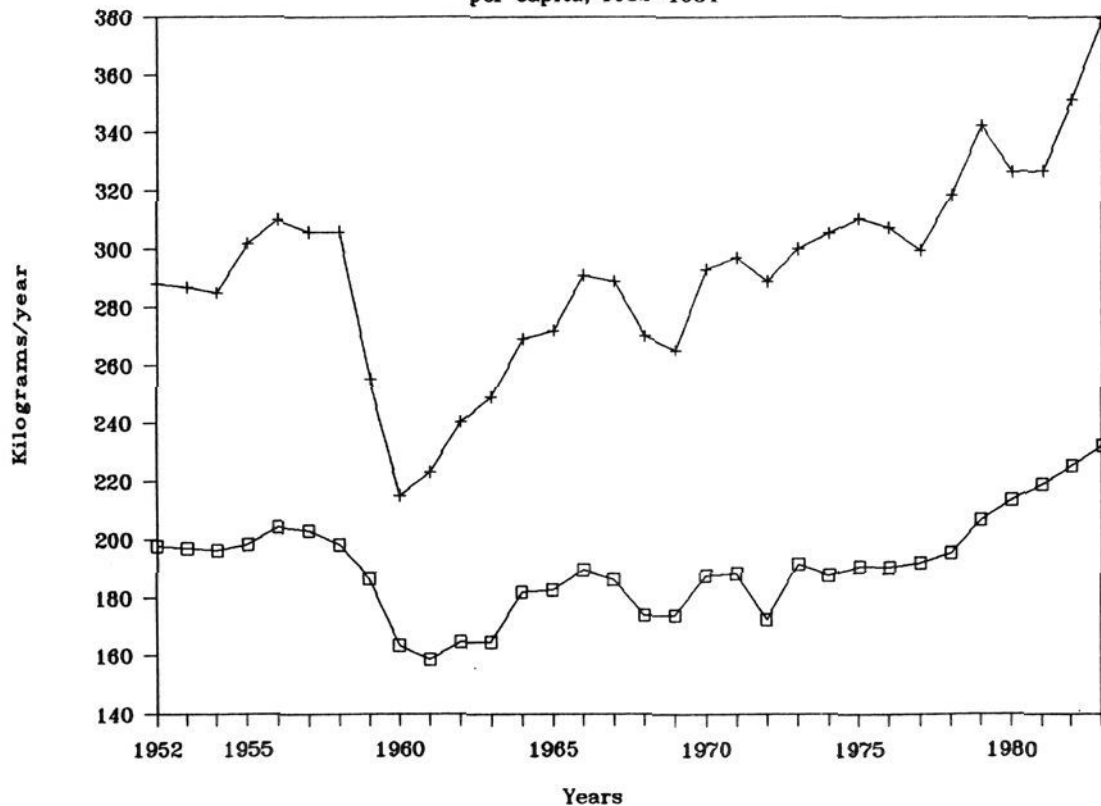


Fig. 2. Daily per cap energy available

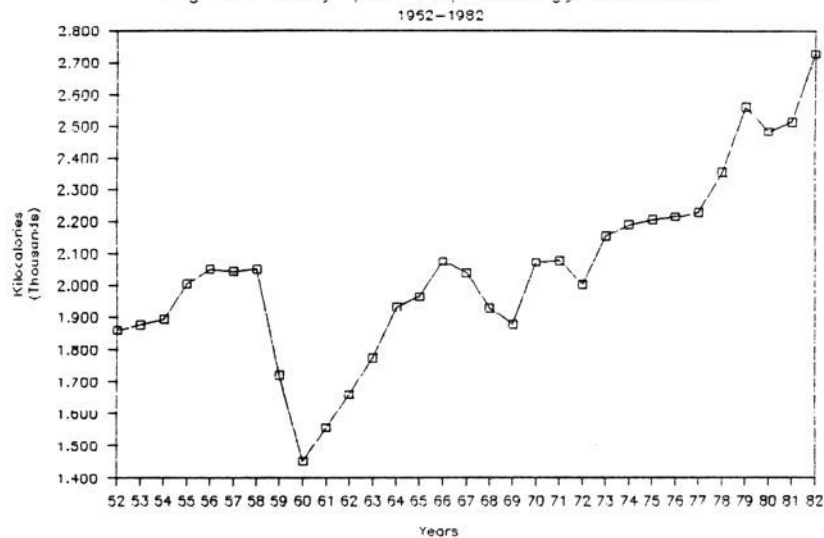


Fig. 3. Daily protein and fat

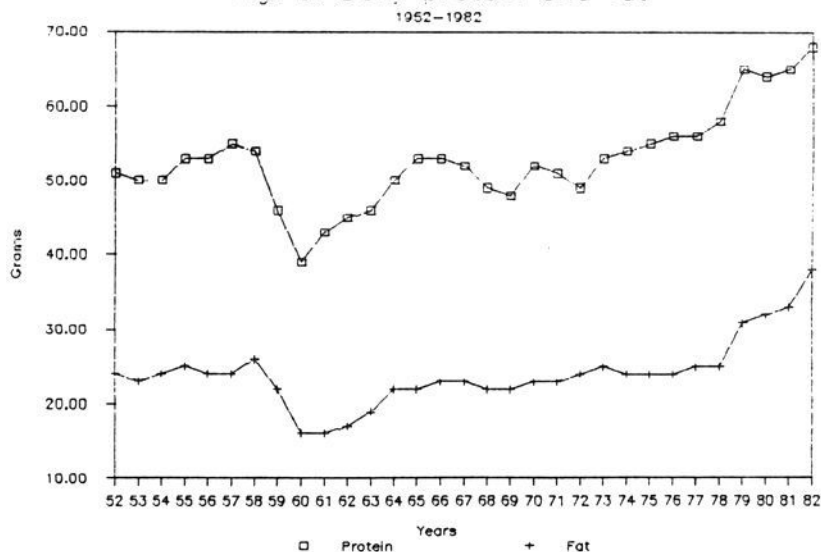


Fig. 4

Grain Consumption, per cap

Urban v. Rural areas, 1952-1983

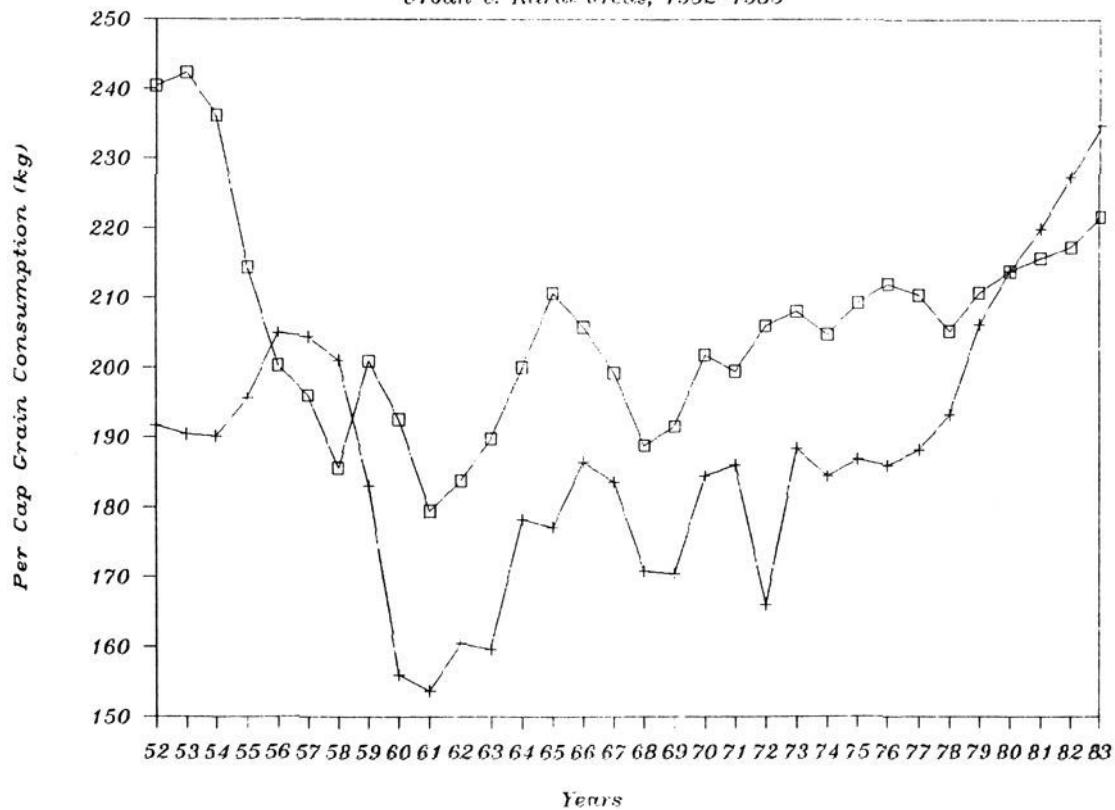


Fig. 5. Grain Production & Consumption

1953 - 1984

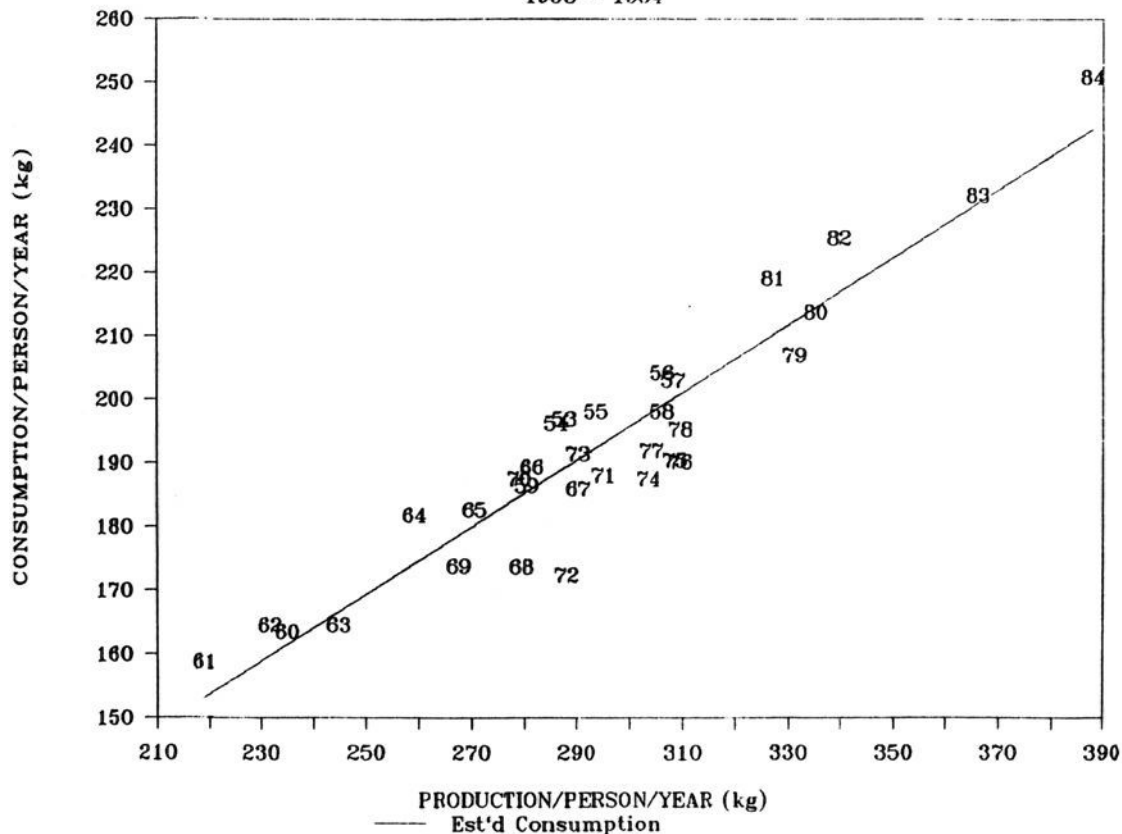


Fig. 6. Grain: consump p.c./prod. p.c.

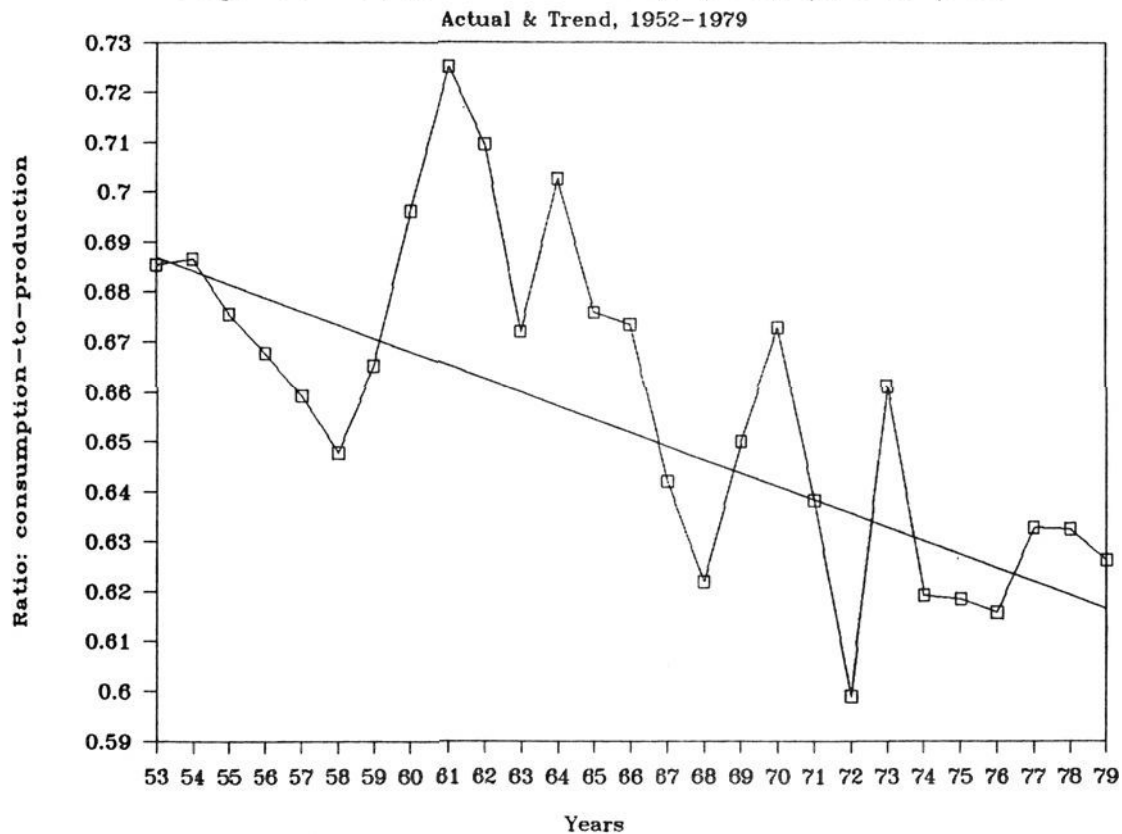
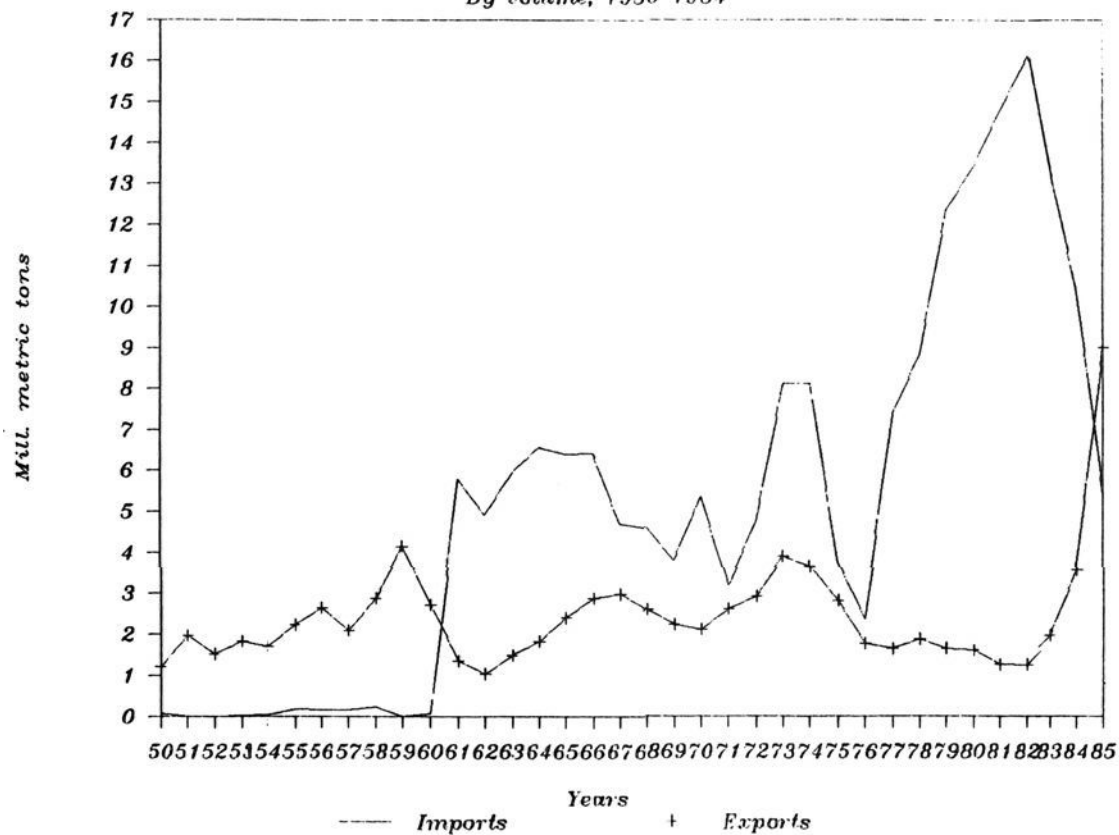


Fig. 7. Foodgrain Imports & Exports

By volume, 1950-1984



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