Comment

A Note on the Causal Factors of China's Famine in 1959–1961

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I. Lost Population, Extra Deaths, and Lost Births Caused by the Famine

In a famine year, the negative impact on population growth can be measured by the number of extra deaths caused by hunger and the number of lost births caused by reduced fertility. Let ED_t and LB_t be the number of extra deaths and the number of lost births, respectively, in year t. Then

$$ED_t = POP_{t-1}(ADR_t - EDR_t) \quad (1)$$

and

$$LB_t = POP_{t-1}(ABR_t - EBR_t), \quad (2)$$

where POP_{t-1} is the total population in the previous year; ADR_t and EDR_t are, respectively, the actual and expected death rates in year t; and ABR_t and EBR_t are, respectively, the actual and expected birth rates in year t. Expected death and birth rates are those that would have prevailed if there had been no famine. In other words, the difference between ADR_t and EDR_t is an increased death rate caused by starvation rather than natural wastage. The difference between ABR_t and EBR_t is a lost birth rate caused by lost fertility as a result of famine.

The data and estimation of the expected growth rate, death rate, and birth rate for the famine period 1959–61 are available from the author on request. The actual growth, death, and birth rates are

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TABLE 1

ESTIMATES OF LOST POPULATION, EXTRA DEATHS, AND LOST BIRTHS, 1959–61

Estimates	1959	1960	1961	Total
		A. Lost Population		
Actual population (millions)	672.070	662.070	658.590	...
Expected growth rate (%)	2.403	2.403	2.403	...
Expected population (millions)	675.800	688.220	677.980	...
Expected losses (millions)	−3.730	−26.150	−19.390	−49.270
		B. Lost Births		
Actual birth rate (%)	2.994	1.621	1.297	...
Expected birth rate (%)	3.512	3.512	3.512	...
Lost birth rate (%)	−.518	−1.891	−2.215	...
Lost births (millions)	−3.420	−12.710	−14.660	−30.790
		C. Extra Deaths		
Actual death rate (%)	1.155	3.109	1.823	...
Expected death rate (%)	1.109	1.109	1.109	...
Increased death rate (%)	.046	2.000	.714	...
Extra deaths (millions)	.300	13.440	4.740	18.480

SOURCE.—State Statistical Bureau (1991), pp. 79–80.

NOTE.—The expected population in year t is the actual population in the previous year multiplied by the expected growth rate. The expected loss of population is the actual population minus the expected population. The lost birth rate is the actual birth rate minus the expected birth rate. Lost births are the product of the actual population in the previous year by the lost birth rate. The increased death rate is the actual death rate minus the expected death rate. Extra deaths are the product of the actual population in the previous year multiplied by the increased death rate.

taken from the State Statistical Bureau (1991). Table 1 presents the estimated lost population, extra deaths, and lost births.

In total, there were 18.48 million extra deaths and 30.79 million lost births in 1959–61. The estimated extra deaths were similar to the estimates made by Peng (1987) and Chang and Wen (1997), but much less than that by Ashton et al. (1984) and quoted in Lin (1990). The estimated lost births were similar to the estimates made by Ashton et al. About 73 percent of the extra deaths took place in 1960 alone. The number of extra deaths in 1959 was only 310,000. Contrary to the claims of Ashton et al. (1984) and Chang and Wen (1997), the death toll in 1958 should be negligible.

II. The Causal Factors of Famine

The great famine in China cannot be explained by a simple hypothesis of a nonrepetitive game as proposed by Lin (1990). The famine was an evolutionary process activated and escalated by six interrelated causal factors. The first three factors—namely, poor weather, wrong policies, and low production incentives—caused a sudden re-

duction in domestic food production. The last three factors—namely, the near absence of a statistical and monitoring system, the inability to import grains, and international isolation—led to the failure to respond to a food shortage. The interaction of these factors, reinforced by three major political events, caused a prolonged and massive famine unprecedented in world history.

A. Reduced Domestic Food Production

Grain production dropped by 15 percent in 1959 from its peak of 200 million tons in 1958. It declined by another 15 percent in 1960 and stayed flat in 1961 (State Statistical Bureau 1991).

Contrary to Lin's indictment, poor weather was an important factor responsible for the poor harvest in 1959 and much more so in the following two years. The average proportion of sown area hit by natural disasters in 1959–61 more than doubled that in 1949–66, with 1959–61 excluded (Lin 1990, table 3). Ceteris paribus, this should explain a large proportion of the total loss of grain production in this period.

Also contrary to Lin's argument, wrong policies did play an important role in depressing food production. At the beginning of 1958, farmers were forced to transplant rice seedlings with an unbelievably high density as a means of raising yield. In the meantime, millions of farmers were forced to make steel and engage in other industrial activities at the expense of food production. The leadership mistakenly believed that high planting density could raise yield. As a result, the sown area was reduced by 4.5 percent in 1958 and another 9.08 percent in 1959 (Lin 1990, p. 1238, n. 8).

Poor weather and reduced acreage alone left little room for other factors to explain the sudden drop in grain production in 1959. In 1960 and 1961, a further decline in grain output was accelerated by an unusually high proportion of sown area hit by natural disaster. The average proportion of sown areas hit by natural disasters was 15.3 percent in 1960 and 18.6 percent in 1961, compared to an average of 6.6 percent for the period 1949–66 (with 1959–61 excluded). Poor weather was a much more important factor responsible for a reduction in output in 1960–61 than in 1959. Although sown acreage rose by 5.52 percent in 1960 from 1959, total grain output dropped by 15.59 percent, implying that the average yield in 1960 was more than 21 percent less than in 1959.

According to Lin's hypothesis, production incentives in 1960 must have been roughly the same as in 1959 because in both years farmers did not have rights to withdraw from the commune. Hence, the sharp reduction in yield in 1960 must have been largely attributable

to poor weather. The situation in 1961 was similar to that in 1960. Although total grain output in 1961 was slightly higher than in 1960, it was still about 30 percent lower than the 1958 level. Therefore, Lin's criticisms of Eckstein (1966), Lardy (1978), Perkins and Yusuf (1984), and others were contradictory to the facts he quotes as empirical evidence to support such criticisms.

B. Failure to Respond to the Food Shortage

A large reduction in the production of domestic grain should not have led to a long-lasting famine and severe mortality had the government reacted promptly to the food shortage from the end of 1958. There were three main factors responsible for the government's failure to respond to the food shortage: a near absence of a statistical reporting and monitoring system, the inability to import grains, and international isolation.

C. Political Struggles Reinforced the Causal Factors for Famine

There were a number of violent political events from 1949 to 1978. Three major events occurred before and during the famine period: the antirightist movement in 1957, the Great Leap Forward movement (the commune movement was a principal part of it) from 1958, and the antireactionary movement after the severance of relations with the USSR in 1960. The antirightist movement aimed to eliminate any resistance from academia and the intellectuals who dared to question any wrongdoing by the party leadership. The commune movement reduced work incentives, created conditions for wrongdoing and irrational production decisions, and set up communal kitchens, depleting all available food stock within a short period of time. Breaking up the relationship with the USSR, China became totally isolated from the international community. In addition, China was forced to export large quantities of grain in 1959 and 1960 to pay back debts owed to the USSR at the time when domestic food production reached crisis levels.

III. Conclusions

This note estimates the loss of population and decomposes it into extra deaths and lost births caused by the famine in 1959–61. The famine was an evolutionary process caused by a complicated set of factors and three major political struggles. A sharp decline in domestic food production by 15 percent in 1959 and another 15 percent

in 1960–61 was due to poor weather, irrational policies, and low incentives. Contrary to Lin's hypothesis, it is argued that poor weather and wrong policies played the most important role in reducing grain production. My analysis supports the arguments by Eckstein (1966), Lardy (1978), and others. The incentive issue was important but not dominant. Furthermore, low agricultural productivity was largely due to irrational decisions and wrong policies of the communist leadership rather than the lack of a self-enforcing agreement among the peasants as hypothesized by Lin.

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