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Political elites and hometown favoritism in famine-stricken China

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ABSTRACT

China's Great Leap Famine has remained to this day the severest in human history, and yet few studies have invoked the human factor in explaining its outcome. In sharp contrast to Mao's aggressive extractive policy against the peasantry, the 181 Central Committee (CC) members—the political elite of the Chinese Communist Party—may have alleviated the casualty of this most devastating famine, by arranging more "resale grain" to be shipped to their hometowns. Specifically, having an additional native CC member in a prefecture reduces the excess death of that prefecture by 46,500, accounting for 2.3 percentage points in the death rate when evaluated at the mean. The effect is more pronounced if a CC member worked in the central planning apparatus in charge of grain transfer. Moreover, evidence suggests that the counties with more CC members tended to receive more resale grain, while grain procurement remained affected.

1. Introduction

It was not until recently that "birthplace" or "hometown", as an analytical concept, began receiving serious attention in the political economic analysis of development. For instance, rich evidence has been amassed showing that many dictators around the world have poured disproportionate amounts of resources into their hometowns, in some instances favoring their own ethnic groups, irrespective of what the economic returns were (e.g., Burgess et al., 2015; Franck and Rainer, 2012; Kramon and Posner, 2016). But self-interest is not always the only motivation for hometown or regional favoritism. Using authoritarian Vietnam as an example, Do et al. (2017) find that, upon coming into power public officials in Vietnam allocated more public resources to their hometowns. In this study, we use China's Great Leap Famine (1959-61) to illustrate the role of political elites in shaping its outcome;[1] an effect that arose also out of the presumed compassion of high-level officials for those with whom they share a geographic affinity.

We choose China's Great Leap Famine for examining the potential hometown effects of the political elites not only because it is the "worst famine in human history", but also, given the highly centralized nature of China's authoritarian regime these leaders likely played a pivotal role in resource allocation, and yet only scant attention has been paid to studying the potential influence of key

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[1] With a casualty estimated at 30 million excess deaths and amounted to approximately 5% of the country's population in 1953 and almost half of all famine deaths (70 million) in the 20th century, the Great Leap Famine is indisputably the "worst famine in human history". Demographers define excess death rates as the difference between actual death rates and the rates that would have occurred in accordance with the linear trend calculated using the population data both before and after the Great Chinese Famine. See, among others, Ashton et al. (1984); Banister (1984); Cao (2005); Coale (1981); and Peng (1987).

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political leaders.[2] Yet, anecdotal evidence suggests that political leaders not directly involved in the governance of the provinces may have attempted to save the lives of those sharing their hometown affiliations. For instance, Xi Zhongxun (the father of China's current Party chief Xi Jinping), a native of Shaanxi Province, had allegedly asked the Shaanxi provincial government to "allocate relief grain" to his hometown Fuping County (Lin, 2008). This paper attempts to systematically examine whether political elites ever practiced such favoritism, and if so whether the practice played a role in reducing famine severity in their hometowns.

We choose CC-CCP members as the potential actors for examining the human factor in shaping the famine's outcome because the CC is the supreme ruling nucleus of the Chinese Communist Party (CCP) (Lieberthal, 1995), and as such its members were likely the ones who played a key role in reallocating the relief grain.[3] To examine the association between CC-CCP membership and famine severity in their hometowns, we construct a data set covering 265 prefectures across 18 Chinese provinces.[4] We choose the prefecture over the province to be our unit of analysis mainly because of the enormous variation in the death rates even within a province, not to mention that the Chinese province would be geographically too large for identifying hometown effects. Given that our period of interest is 1959-1961, we focus exclusively on the membership of the Eighth CC, which was first elected in 1956 and later amended in 1958.[5] Out of the 195 members elected, 181 (nearly 93 percent) are included in our sample. Our data set thus consists of 181 CC members in 265 sample prefectures. Our key explanatory variable is the number of CC members in a prefecture.

Our first key finding is that having an additional native member in the CC significantly reduces a prefecture's excess death rate by 43.5 percent when evaluated at the mean (the average excess death rate is 107 per thousand), which equates to as many as 46,500 lives saved. But the effect of CC membership on reducing famine severity is heterogeneous, patterned upon whether a CC member worked in the central or local (provincial) government. The strongest effect, our analysis finds, comes from those who worked in the central planning department, and specifically with duties related to the procurement and resale of grain. This nuanced finding reinforces the anecdotal evidence from Xi Zhongxun (a central government official) that hometown favoritism was initiated by, and effectuated through, political elites not directly involved in governing the provinces, the latter of whom had very different career incentives as others have found (Kung and Chen, 2011). Second, and by recognizing the importance of central planning, we are able to rule out the concern that favoritism was born out of "factional ties", as many of the CC members who worked in central planning were intimately tied to such political elites as Liu Shaoqi and Deng Xiaoping. In fact, we find quite the contrary. As it turned out, the CC members who had close ties with Liu and Deng had significantly higher excess deaths in the prefectures where they originally came from. We conjecture that both Liu and Deng were deeply aware of how unrealistic Mao's ambitions were for the Leap, yet they also knew that any favoritism extended by their subordinates to their hometowns would easily invite political backlash and is thus an outcome these leaders were eager to avoid.

Although the geographic distribution of the CC members might be endogenous, the determinants of the number of CC members are more likely to be orthogonal to famine severity since most of the CC members had left their hometown at a very young age, and were promoted into the CC when they were serving elsewhere (as regulations prohibited them from working in their hometowns). To further ensure that endogeneity is not a major concern, we conduct three additional tests. First, given that those who came from the "revolutionary bases" stood a higher chance of becoming a CC member, we perform a test and are able to rule out the concern that the revolutionary bases may also be a significant determinant of excess death rate. Second, we follow the procedure developed by Oster (2019) in assessing the extent to which our estimation is affected by biases of an omitted variable nature. Given that the lower bound of the CC member's effect is much larger than zero in our analysis, the likelihood that our estimated effect is fully driven by the unobserved factors is small according to Oster's model. Third, we perform a placebo test to examine whether the CC membership of the Seventh (in 1945), Eighth (in 1956), and Ninth (in 1969) National Congresses may also have a significant effect on reducing the famine's severity, and find that only the Eighth National Congress has had a negative and statistically significant effect on the outcome variable of interest, while the other two congresses do not.[6]

Our last contribution lies in providing suggestive evidence regarding the possible channels through which the CC members were able to offer their "distant relatives" more food for their own consumption—the primary reason for a lower excess death rate. We focus on two possible mechanisms related to the grain distribution system—the procurement and resale of grain. The first plausible channel is that the central government may reduce the amount of grain that farmers were required to procure and submit to the state. Alternatively, the provincial government may ship more "resale grain" (*fanxiao liang*) to the hometown prefectures of the CC-CCP members for famine relief, as Xi Zhongxun's famous request amply demonstrates. Based on the analysis of 109 counties in Henan Province—a famine-stricken province for which county-level data are available, we find that CC membership has no significant effect on grain procurement but a significant and positive effect on grain resale; the net effect is a significant reduction in *net* grain procurement (gross procurement minus resale). What we have found is thus consistent with the observation that grain procurement was most likely "institutionally rigid" (Meng, Qian, and Yared, 2015). But the system was not completely inflexible; once they had

[2] An exception is Kung and Chen (2011), who argue that the highly uneven procurement of grain across China during the Leap was patterned upon the differing strengths of the career incentives of Communist Party officials in charge of running the provinces. An inflexibly excessive grain procurement policy is considered a key contributing factor to the Leap's excessive death toll (Meng, Qian and Yared, 2015).

[3] For example, the fewer than 200 members of the CC elected during 1956-58 were appointed to key positions in the Party, the military, and the government, with some of them directly involved in governing the provinces. Kung and Chen (2011) examine the career incentives of these elites who served as the First Provincial Party Secretaries—the de facto local bosses.

[4] Due to data limitations, we are unable to cover all 29 provinces in China (Tibet and Xinjiang are usually excluded in the analysis).

[5] The Eighth Party Congress is the only party congress when voting occurred twice. For details see Kung (2014).

[6] Reverse causality should not be a concern in this context, since the Famine occurred after the Eighth Party Congress (1956-58) when the CC was formed.

fulfilled the procurement obligations, provincial and lower level governments were allowed to redistribute relief grain to their jurisdictions (Li, 2011; Xu and Zhong, 2014).

Our work is clearly related to the importance of national leaders (e.g., Besley, Montalvo and Reynal-Querol, 2011; Jones and Olken, 2005). In the specific Chinese context, our work contributes to understanding the role that political leaders played in determining the severity of the world's most deadly famine under authoritarianism. In sharp contrast to the self-serving provincial officials—some of whom were prepared to sacrifice the lives of their people in pursuit of their own career interests, we show how other similarly high-ranking officials—especially those in charge of grain procurement and resale in the central planning department—had acted in the interest of their "distant relatives". Our analysis reveals how the central planners, having been swept aside by Mao for the allegedly slow progress in China's economic development (Lieberthal and Lampton, 1992), might have leveraged what little power they had left and saved the lives of many of their "distant relatives" out of compassion at a tumultuous time when political uncertainty was high.

In addition, our work also contributes to the small literature on regional favoritism (e.g., Hodler and Raschky, 2014), a literature that has exposed many dictators around the world for pouring disproportionate amounts of resources into their hometowns favoring their own ethnic groups (e.g., Burgess et al., 2015; Franck and Rainer, 2012; Kramon and Posner, 2016). In this case, however, our work is more closely analogous to that of Do et al. (2017), who also found that hometowns were favored on compassionate grounds.

The remainder of this paper is organized as follows. In Section 2 we provide a brief overview of both the literature on the Great Leap Famine during 1959-61 and the geographic distribution of the CC-CCP members of the Eighth National Congress. In Section 3 we test the hypothesis regarding the alleged effect of CC membership on famine severity and deal with the potentially endogenous nature of the explanatory variable by following a procedure designed to evaluate the extent to which an empirical analysis is driven by unobserved variables, and by conducting a test using alternative national congresses as placebos. Section 4 examines a number of CC membership's heterogeneous effects, including whether there may be spillover effects on neighboring prefectures, whereas in Section 5 we examine the two possible channels of hometown favoritism based on the analysis of 109 counties in Henan Province. Section 6 concludes the study.

2. Hometown effect during China's Great Leap Famine

2.1. China's Great Leap Famine, 1959-61

The Communist regime inherited a war-torn and poverty-stricken economy when it took over China in 1949. Mao, the paramount leader at the time, was determined to leapfrog the advanced Western economies within the shortest possible time, by transforming the Chinese economy from its predominantly agrarian nature into a powerful industrial state. With this in mind, and after experimenting with varying levels of agricultural collectivization but remained unsatisfied with their outcomes, he launched the so-called Great Leap Forward, a labor-intensive strategy of expanding both the irrigation acreage and the capacity of steel and iron production by leaps and bounds.[7] Owing to a series of policy blunders, however, the campaign ended in the largest famine ever recorded in human history resulting in some 30 million excess deaths. A number of reasons have been put forward to account for this catastrophe: three consecutive years of bad weather (the Chinese government's official explanation), the collapse of work incentives (Lin, 1990), the waste of a colossal amount of food in communal dining arrangements (Chang and Wen, 1997), and a grain procurement policy discriminating against the peasants (Kung and Lin, 2003; Lin and Yang, 2000). But the fact that grain procurement increased precipitously after 1958 in spite of a sharp reduction in grain output (from 26 percent of total grain output in 1958 to 38 percent in 1959) suggests that it was likely a key determinant (Kung and Lin, 2003; Lin and Yang, 2000). It is to this particular feature of the Leap that our analysis of hometown favoritism turns.

Given that we are interested in using cross-regional variation to test whether a hometown favoritism effect existed during the Great Leap Famine, and in light of the fact that excess deaths did vary substantially within the same province,[8] we construct a prefectural-level data set on population and death rates based on Cao's (2005) estimates.[9] His estimates reveal that approximately 32.5 million people were killed during the Great Leap Famine of 1959-1961, accounting for nearly 5.6 percent of China's total population in 1953. In our sample prefectures, the logged average excess death is 9.17 with a standard deviation of 4.01 (Table 1), which is equivalent to 4.9 percent of a prefecture's total population when evaluated at the mean. To compare variations in the excess death both between and within provinces, we compute two separate measures of standard deviation. The within-province standard deviation for excess death is 2.58, which is similar to the between-province standard deviation of 2.99.

For the famine-stricken provinces, the standard deviation of famine severity across their prefectures is much larger, however. In Sichuan, for instance, the within-province standard deviation is 4.20, which is about 40 percent higher than the between-province

[7] Although Mao would like to see China transformed from a predominantly agrarian economy into an industrial power, it still required large agricultural surpluses to be produced in exchange for foreign currencies via export (so that it could import foreign capital goods), and to feed the increasing number of workers employed in the urban state sector.

[8] For instance, Bramall (2011) shows that, while average crude death rate reached 39 per thousand as a whole in Sichuan Province (a magnitude far exceeding the national average of 17 per thousand), crude death rates at the county level in that province ranged from a low of 8 per thousand to a high of 109 per 1,000.

[9] Cao is a demographic historian who conducted a meticulous survey of local gazetteers and three Chinese censuses (in 1953, 1964 and 1982) to arrive at his estimates of the mortality rates and population figures.

Table 1
Variables definition and data sources.

Variables	Definition	Sources	Obs.	Mean	S.D.
Famine severity	Logged excess deaths during China's Great Famine, 1959-1961.	1	265	9.172	4.010
	Within-province S.D.				2.578
	Between-province S.D.				2.985
	Alternative measure based on Census 1990 (thousand)			84.8	104.5
Central Committee (CC) Members					
CC Membership (1958)	CC members hailing from a prefecture during 1958-1968	2,3	265	0.683	1.992
CC Membership (1945)	CC members hailing from a prefecture during 1945-1955	2,3	265	0.272	1.042
CC Membership (1969)	CC members hailing from a prefecture during 1969-1972	2,3	265	0.989	2.173
Central	Worked in the central			0.491	1.518
Central Planning Department	Worked in the departments of central planning	2,3	265	0.143	0.502
Others in the central	Worked in the central not related with central planning	2,3		0.347	1.161
Local	Worked in the local			0.192	0.643
Politburo Members	Held a position in the Politburo of the CC	2,3	265	0.094	0.447
Military Members	Served in the military	2,3	265	0.211	0.954
Liu Faction	Worked in the same work unit as *Liu Shaoqi*	2,3	265	0.174	0.461
Deng Faction	Worked in the same work unit as *Deng Xiaoping*	2,3	265	0.121	0.477
Lin Faction	Worked in the same work unit as *Lin Biao*	2,3	265	0.177	0.745
Control Variables					
ln (Population in 1953)	Logarithm of a prefecture's population in 1953	3	265	14.052	1.022
Urbanization Rate (%)	Percentage of urban population in 1920	4	265	5.245	9.217
Provincial Capital	Equals 1 if the area is the capital city of a province	4	265	0.068	0.252
Historical Treaty Ports	Equals 1 if the area has historically been a treaty port	4	265	0.136	0.343
Coast	Equals 1 if the area is located on the coast	4	265	0.132	0.339
Changjiang (Yangtze) River	Equals 1 if the area is located along *Changjiang* (Yangtze) River	4	265	0.060	0.239
ln (Crop Suitability: Wheat)	Logarithm of a prefecture's suitability index for wheat cultivation	5	265	1.350	0.296
ln (Crop Suitability: Rice)	Logarithm of a prefecture's suitability index for rice cultivation	5	265	1.018	0.431
ln (Crop Suitability: Maize)	Logarithm of a prefecture's suitability index for maize cultivation	5	265	1.487	0.248
ln (Crop Suitability: Sweet potato)	Logarithm of a prefecture's suitability index for sweet potato cultivation	5	265	1.239	0.341
Share of Revolutionary Bases	No. of towns located in a revolutionary base/ Total no. of towns	6	265	0.148	0.280

Cao, Shuji. (2005). *The Great Famine* [*Da Jihuang*]. Hong Kong: Times International Publisher.
Central Organization Department and the Central Party History Research Center of the CC-CCP. 2004. *A Dictionary of CCP Central Committee Members of Various Plenums, 1921-2003* [*Zhongguogongchandang Lijie Zhongyangweiyuan Dacidian*]. Beijing: Party History Publisher.
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FAO. 2012. *GAZE* (Global AgroEcological Zones). http://fao.org/Ag/AGL/agll/gaez/index.htm.
China Council for the Promotion of Constructing Revolutionary Bases, ed. 1997. *Revolutionary Bases in China* [*Zhongguo Geming Laoqu*]. Beijing: Party History Publisher.

standard deviation of 2.99. These figures suggest that, while for the province as a whole the famine was severe, some prefectures had managed to come through unscathed. This sub-provincial variation in excess death rate during China's Great Leap Famine provides a good opportunity for examining the possible role of political leaders in shaping the famine's outcome. We present in Fig. 1 the variation in excess death in quintiles, with a darker shade of grey indicating a higher death toll.

2.2. Hometown distribution of the members of the Eighth CC

To examine the possible effect of CC membership on famine severity, we construct a data set using the information contained in *A Dictionary of the CCP Central Committee Members of Various Plenums, 1921-2003*, a compendium that enumerates a detailed biography of all CC members beginning from the very first CC established in 1921 to the sixteenth CC inaugurated in late 2002, covering information on their demographics, education, and work experiences. Given our specific interest, we focus specifically on the *birthplace* of these officials, which is denominated at the level of the Chinese county. But since our unit of analysis is the prefecture, we aggregate the pertinent information to the higher—prefectural—level.[10]

Since the period of our interest lies in 1959-1961, we focus mainly on the Eighth CC, which consisted of a total of 195 members. Since data on famine severity are unavailable for a few of the prefectures, we are only able to utilize 181 members (nearly 93 percent) in our analysis. Given the small number of CC members, we use their number as our key explanatory variable. Fig. 1, which shows the geographic distribution of CC membership, reveals the enormous variation that existed across China. Out of the 265 prefectures, for

[10] Although birthplace is different from the Chinese notion of *jiguan* (place of origin), which officially is defined as the place (at the prefecture level) where one's grandfather has lived for a long time. For the majority of CC members the two are essentially the same; only four CC members have a birthplace that is different from their *jiguan*. They are Deng Yingchao, Huang Jing, Ye Fei and Zhou Enlai. This helps to validate the reliability of our data on hometown.

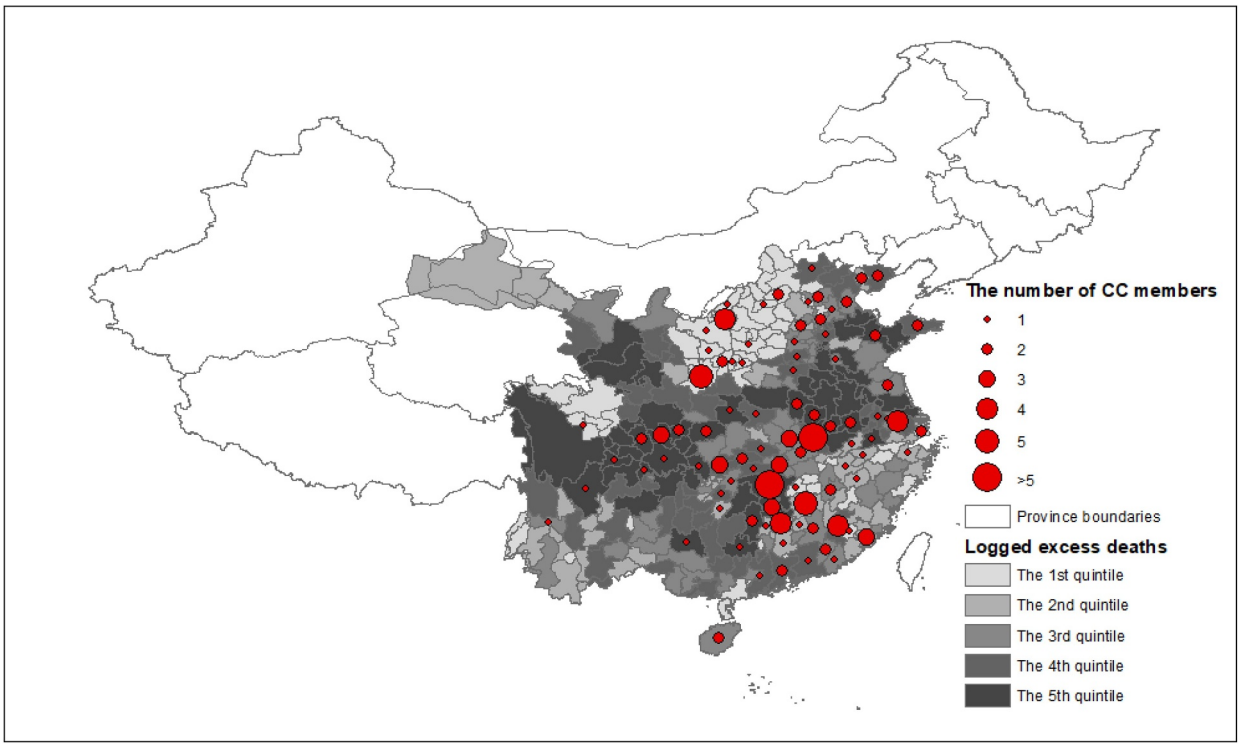

Fig. 1. Geographic Distribution of CC Membership and Famine Severity. *Note*: The different shades of grey reflect the degrees of excess deaths during the Famine period of 1959-1961. Each red circle represents a prefecture; its size is proportional to the number of native CC members. The grey lines delineate the provincial boundaries in 1953. The prefectural boundaries are based on the map of the Qing dynasty in 1820.

instance, only 88 or 33 percent had CC members. On average, there were just 0.683 CC members per prefecture, with a standard deviation of 1.992.

However, because the geographic distribution of the birthplace of CC members is by no means exogenous, we need to examine the potential determinants of the number of CC members, and to check whether they are orthogonal to famine severity. For instance, the two regions that contributed the most to CC membership were the south central (referring collectively to the provinces of Hunan, Hubei, and Jiangxi) and northern regions. Could this pattern of spatial variation be correlated with any of the unobserved determinant(s) of famine severity? To verify, we regress CC membership on the same set of variables employed to account for the cross-prefectural variations in famine severity. Reported in Table B1 of Appendix B, among the list of explanatory variables employed only total population is correlated with the number of CC members (columns (1) and (2)), intuitively because the region with a higher population would have produced more power elites.

We propose that the key determinant of a region's CC membership lies in its *revolutionary history* or specifically whether a region was located in the so-called “revolutionary base” (*geming genjudi*) established by the CCP during 1927-45, as these were areas where some temporary government had been established prior to the Chinese Communist Revolution (c. 1946-49, known popularly as the “War of Liberation”). Our proposition is premised on the consideration that chances were much greater for those born in the revolutionary bases to be recruited by the CCP and to become a member of the power elite than those born in the non-revolutionary areas. This would be especially the case if we take into account the influence of factional politics (more on this below). Indeed, a quick perusal of the birthplace distribution of the CC members at the Eighth Party Congress reveals that a good majority did come from the revolutionary bases. As mentioned earlier, southcentral China had a disproportionate number of natives serving on the CC.

To test our proposition more systematically we employ the *share* of revolutionary bases in a prefecture as our explanatory variable—a variable we construct by dividing the number of towns in a county located in a revolutionary base by the total number of towns in that county. We then sum up the share to the level of a prefecture. Reported in columns (3)-(5) of Table B1 in Appendix B, the results show that a revolutionary base is significantly and positively correlated with the Eighth CC membership with or without the inclusion of additional control variables. In terms of magnitude, compared with a prefecture with no revolutionary base, a “revolutionary” prefecture has about one more CC member (0.932 in column (5)). When we examine the effect of CC membership on famine severity, we will include the *share of revolutionary bases* as an important control variable.

We then examine whether, as a key determinant of CC membership, the share of revolutionary bases is orthogonal to famine severity. To find out we regress logged excess deaths on the same list of CC membership determinants (columns (1) and (2), Table B2), before regressing it on the share of revolutionary bases (columns (3) – (5)). The two are insignificantly correlated, relieving us of the concern.

Table 2
Effect of CC membership on logged excess deaths.

	Logged excess deaths						Excess deaths	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Number of CC Members (1958)	-0.088	-0.432*	-0.350**	-0.380**	-0.372**	-0.361**	-22.066**	-6.482**
	(0.116)	(0.242)	(0.167)	(0.157)	(0.161)	(0.158)	(8.911)	(3.226)
ln (Population in 1953)	Y	Y	Y	Y	Y	Y	Y	Y
Squared ln (Population in 1953)						Y	Y	Y
ln (distance to Changsha)			Y	Y	Y	Y	Y	Y
Coast			Y	Y	Y	Y	Y	Y
Changjiang (Yangtze) River			Y	Y	Y	Y	Y	Y
Share of Revolutionary Bases				Y	Y	Y	Y	Y
Urbanization Rate				Y	Y	Y	Y	Y
Provincial Capital				Y	Y	Y	Y	Y
Historical Treaty Ports				Y	Y	Y	Y	Y
ln (Crop Suitability: Wheat)					Y	Y	Y	Y
ln (Crop Suitability: Rice)					Y	Y	Y	Y
ln (Crop Suitability: Maize)					Y	Y	Y	Y
ln (Crop Suitability: Sweet Potato)					Y	Y	Y	Y
Province Dummies			Y	Y	Y	Y	Y	Y
Observations	265	264	264	264	264	264	264	264
R-squared	0.199	0.205	0.700	0.712	0.722	0.723	0.655	0.830
Lower bound of CC members' effect (Oster 2019)			0.315	0.358	0.347	0.331		

Notes: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

3. The association between CC membership and famine severity

3.1. The effect of CC membership on famine severity

To test our hypothesis regarding the negative effect of CC membership on excess death rate, we regress the logged excess deaths of prefecture i (Y_i), our proxy for famine severity, on the number of CC members (C_i) based on the following specification:

$$Y_i = \rho C_i + Z_i\beta + \varepsilon_i \quad (1)$$

where ρ represents the effect of CC membership and is expected to be negative. Our control variables (Z_i) include the log of population size in 1953 and of urban population in 1920, the log of the suitability of the land for growing wheat, rice, maize and sweet potato, of province dummies, and of a set of dummies indicating whether a prefecture is a provincial capital, a treaty port historically, was situated on the coast, and along the *Changjiang* (Yangtze) River—China's most navigable river. The effects of these control variables are denoted by β. ε_i is the error term.

The results are reported in Table 2. In (column (1)), in which we control only for the log of population (given its significant correlation with excess death as shown in Table B2), we find that, while the two variables are negatively correlated, the effect of CC membership on logged excess deaths is imprecisely estimated. Upon further investigation, the insignificant result is due to one outlying observation – the hometown of Chairman Mao. Because his hometown does not coincide with any of the other prefectures in the sample, the underlying relationship between CC membership and excess death rate is rendered insignificant. In Fig. 2 we compare the relationship between CC membership and famine severity with (the solid line) and without (the dashed line) the inclusion of this outlier to illustrate its effect. While Mao's hometown of Changsha had a disproportionate number of CC members (28 as opposed to an average of 0.683 for each prefecture), the severity of famine in that prefecture remained unusually high. Being close to Mao (geographically and perhaps also personally), and knowing that Mao had devoted immense efforts to making the Leap successful, the CC members in Changsha might have refrained from sending special favors to their hometowns, for fear of being seen as disloyal to Mao.

Given the small number of observations in our study and the vastly diverging tendency associated with this outlying observation, we decide to drop it from our analysis. Reported in column (2) of Table 2, dropping this observation renders the effect of CC membership significantly negative (albeit at the 10 percent level). In terms of magnitude, an additional CC member in a prefecture is now associated with a 43.2 percent decrease in the number of excess deaths. Evaluated at the mean, this is equivalent to 46,500 lives saved or 2.3 percentage points of the death rate. In column (3) we add a set of geographic variables and provincial dummies. While the coefficient is slightly reduced with more control variables added, doing so boosts the level of significance to 5 percent. In light of the significantly negative effect of China's "urban bias" policy on famine severity (Lin and Yang, 2000), we control for urbanization rate (in 1920) in column (4).[11] In addition, we also control for the share of revolutionary bases (a key determinant of CC membership), which is a dummy variable indicating whether a prefecture was a "treaty port" in the last, Qing dynasty and whether it was a designated provincial capital. The reason for including this dummy variable is that due to their special economic and political status, such prefectures were either more favorably endowed or likely received special treatment especially in times of food shortages.

[11] To be sure this is not a conventional proxy for urban bias. We employ it only because data on the share of rural population during the famine period—the conventional proxy—are not available at the prefectural level.

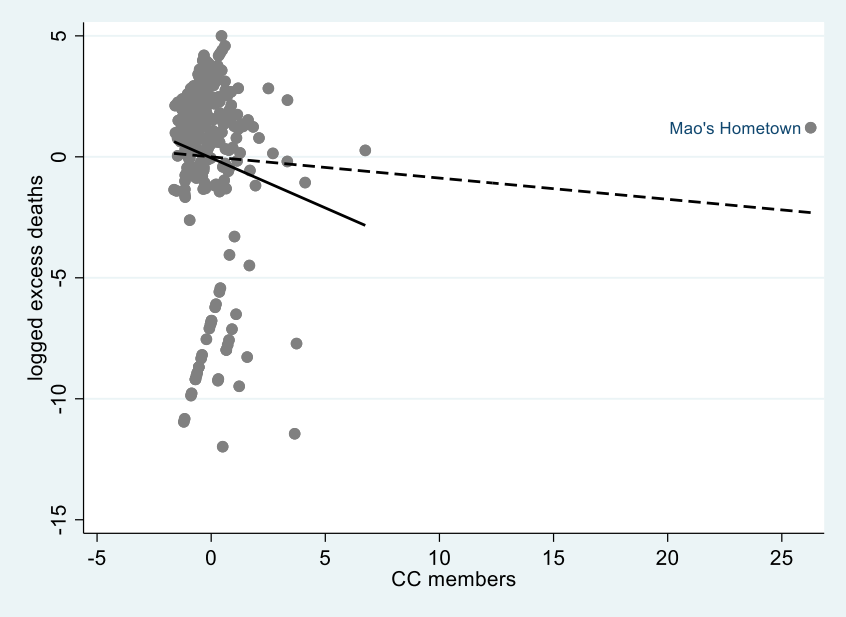

Fig. 2. Correlation between Excess Deaths and CC Membership. Note: The dashed line fits the entire data sample and the solid line fits the sample excluding Mao Zedong's hometown.

Our key explanatory variable remains significant at the 5 percent level and the coefficient increases even further (column (4)). In column (5) we further control for the agricultural suitability of wheat, rice, maize and sweet potato, which arguably serves as a proxy for a prefecture's total agricultural output when interregional trade had already been strictly prohibited following the implementation of the compulsory grain procurement system in the mid-1950s. The result remains nearly unchanged. Finally, to avoid the possible nonlinear effect of population size on excess deaths we include a squared term in column (6) and once again find no change in our estimation. Overall, the effect of CC membership on excess deaths remains significant at the 5 percent level, with the coefficients across a wide range of controls exhibiting a broadly similar magnitude.

To ensure that our results remain robust to our dependent variable without taking natural log, we regress the absolute number of excess deaths on the number of CC members, and confirm that the number of excess deaths is significantly lower in prefectures with more CC members (column (7) of Table 2). To further confirm that our result is reliable, we follow Meng, Qian, and Yared (2015) by estimating the size of the birth cohorts of famine survivors from the 1990 China Population Census as an alternative proxy for famine severity. Specifically, we estimate the size of the cohort born in the famine period based on its trend before the famine, and calculate its difference with the actual cohort size. This estimated cohort size thus captures the decreased fertility and increased child mortality caused by the famine. The average of this alternative measure is 84,800 for each prefecture. Fig. A1 (Appendix A) shows that this estimate is significantly and positively correlated with excess deaths. We then regress famine severity based on the estimated size of the birth cohorts of survivors on the number of CC members, and find that they too are negatively and significantly correlated. An additional CC member is associated with an increase in the cohort size by 6,482 people (column (8)).

3.2. Addressing omitted variable bias

Although we have demonstrated that the effect of the number of CC members on excess deaths remains significant after controlling for a number of important confounders related to geography, economic conditions, crop suitability, province fixed effects, and so forth, our estimates may still be biased by other omitted variables that we are unable to account for. For instance, we cannot rule out entirely the possibility that those who came from the revolutionary bases—a traditional stronghold of the CCP—had had higher odds of becoming a CC member. Likewise, chances were slim that the CCP would assign leaders with more radical disposition to govern regions with a strong revolutionary tradition, and so it was unlikely that these regions would adopt a more extractive grain procurement policy, resulting in lower death rates.

In the absence of a valid instrumental variable, we resort to evaluating how our estimates might be affected by omitted variable bias using the method proposed by Oster (2019), according to which the following equation is formulated for estimating an approximation of the bias-adjusted treatment effect:

$$\rho^* \approx \tilde{\rho} - \delta\frac{R_{\max} - \tilde{R}}{\tilde{R} - \dot{R}}(\dot{\rho} - \tilde{\rho})$$

In the context of our study, ρ^* represents the bias-adjusted effect of CC membership on famine severity, while $\dot{\rho}$ and $\dot{R}$ ($\tilde{\rho}$ and $\tilde{R}$) denote respectively the coefficients of CC membership and an R-squared with the fewest (most) controls. δ measures the importance

of unobserved factors relative to observed factors, and $R_{\max}$ is the R-squared if the regression controls for both sets of factors.

By using the above equation with only the upper bounds of δ and $R_{\max}$, we are able to derive a set of lower bounds for the bias-adjusted effect of CC members (ρ*). Following Oster (2019), we first take 1 as the upper bound of δ and assume $R_{\max} = 1.3\tilde{R}$. Then, based on the above two assumptions, we approximate and report the bias-adjusted effect of CC membership in the last row of Table 2 based on the empirical results in the same table. For instance, based on columns (2) and (6), the lower bound of the bias-adjusted effect of CC membership on the logged excess deaths is 0.331.[12] As the effect of CC membership approaches zero when more variables are controlled for, we can easily check whether the lower bound of ρ sits below zero. It is not, which implies that the likelihood that our estimated effect is fully driven by the unobserved factors is small.

3.3. Placebo test for the effect of CC membership, by Congress

To further mitigate the concern that the effect of CC membership is driven by omitted variables, we conduct a placebo test by examining the effects of the number of CC members separately in 1945, 1958, and 1969. This test is premised on the assumption that, should the selection of CC members in 1956-58 be affected by an omitted variable, the latter should similarly affect the selection of CC members in 1945 and 1969, in which case the number of CC members of the Seventh (1945) or Ninth (1969) National Party Congress should have the same significantly negative effect on the logged excess deaths. But if only CC membership of the Eighth Party Congress has a significant effect on famine severity, it would give us greater confidence in our result.

We report the results in Table 3. To compare the effects of the three CC membership, we begin by controlling only the logged population and the province dummies in columns (1), (3) and (5). While all the coefficients of CC membership are negative, only the 1958 coefficient is statistically significant (column (3)). In columns (2), (4) and (6) we include all the control variables previously employed in the estimation and confirm that only the CC membership of 1958 has a statistically significant effect on logged excess deaths (column (4)). More importantly, its magnitude (-0.361) is much larger than those of the other two (-0.272 in column (2) and -0.084 in column (6), respectively). Together, these findings rule out the possibility that the effect of the Eighth CC membership captures only the effect of the omitted variable, if any. In column (7) we perform a "horserace" by putting all three CC memberships in the same regression and controlling for all the covariates. CC membership of 1945 and 1969 continue to be insignificant, while that of 1958 remains highly significant (at the 5% level), and with an even larger magnitude than before. Now, having an additional native CC member has the effect of reducing excess deaths by up to -52.9 percent—16.8 percentage points higher than the coefficient in column (6) of Table 2.

4. Heterogeneous effects of CC members

4.1. Central versus local

In Communist China, CC members typically assume a number of functional positions in the government, Party, and even the military. Moreover, whereas some hold positions at the provincial (or local) level, others occupy the more strategic ones in the central government and/or Party.[13] This was certainly the case for the Eighth National Congress. Given this multifarious nature of CC members, it raises the important question of what type of CC members—for instance central versus provincial—may play a larger role in producing the kind of hometown effects studied here. This question takes on additional importance in the light of the finding that provincial officials, depending on their rank, had a penchant for behaving radically to advance their own careers, resulting in excess grain procurement during the Leap (Kung and Chen, 2011). Against this background, we examine the potentially heterogeneous effects of the CC members using the following specification:

$$Y_i = \sum_j \theta_j S_i^j + Z_i\beta + \varepsilon_i,$$

where S_i^j represents the number of CC members with a specific functional status j in prefecture i.

As a provincial official would not be assigned to work in his or her hometown because of the institutional rule, the CC members who worked in the central government were likely the ones with incentives to transfer grain back to their hometowns. The result reported in column (1) of Table 4 supports this intuition. An additional CC member in the central government is associated with a 29.2 percent decrease in the number of excess deaths, whereas an additional CC member in the local government has no significant effect. To further check robustness we further divide CC members in the central government into two subcategories depending on whether or not their work was directly related to the procurement and resale of grain, and report the result in column (2).[14] We find that an additional CC member directly involved in grain transfer is now associated with a 84.3 percent decrease in the number of excess deaths (and significant at a 5 percent level), whereas those whose work was unrelated to grain transfer had no significant effect.

[12] Based on the results in columns (2) and (6), the lower bound of the bias-adjusted effect of CC membership is -0.361-((-0.432+0.361)*(0.723*0.3)/(0.723-0.205))=0.331.

[13] Kung and Chen (2011) find that full members of the CC tended to occupy disproportionately more positions in the central government, Party, and the military.

[14] We define a CC member as working in the central planning department only if his/her function in that department is related specifically to the procurement and resale of grain.

Table 3
Placebo tests—comparing the effects of CC membership in 1945, 1958 and 1969.

	Dependent variable: logged excess deaths						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CC Membership (1945)	-0.348	-0.272					0.319
	(0.286)	(0.248)					(0.337)
CC Membership (1958)			-0.319*	-0.361**			-0.529**
			(0.166)	(0.158)			(0.252)
CC Membership (1969)					-0.080	-0.084	0.025
					(0.072)	(0.067)	(0.085)
Additional Control Variables		Y		Y		Y	Y
ln (Population in 1953)	Y	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y	Y
Observations	264	264	264	264	264	264	264
R-squared	0.682	0.718	0.685	0.723	0.681	0.718	0.724

Notes: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; control variables include all variables listed in column (6) of Table 2.

Table 4
Heterogeneous effects of CC membership on logged excess deaths.

	Dependent variable: logged excess deaths					
	(1)	(2)	(3)	(4)	(5)	(6)
Central	-0.292*				-0.519*	
	(0.157)				(0.267)	
Central Planning (Grain- related)		-0.843**	-0.897*	-0.877**		-1.184***
		(0.363)	(0.468)	(0.372)		(0.433)
Others		-0.023	-0.037	-0.069		-0.218
		(0.179)	(0.191)	(0.226)		(0.283)
Local	-0.524	-0.462	-0.473	-0.496	-0.594	-0.529
	(0.350)	(0.364)	(0.373)	(0.391)	(0.454)	(0.461)
Politburo Members			0.130			
			(0.750)			
Military Officers				0.111		
				(0.345)		
Liu's Faction					0.613*	0.617*
					(0.368)	(0.366)
Deng's Faction					0.473	0.590*
					(0.300)	(0.329)
Lin's Faction					-0.422	-0.481
					(0.493)	(0.488)
Control Variables	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y
Observations	264	264	264	264	264	264
R-squared	0.723	0.727	0.727	0.727	0.729	0.733

Notes: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; control variables include all variables listed in column (6) of Table 2.

4.2. Political rank

Given that the political rank of the provincial CC members importantly affects excessive grain procurement (Kung and Chen, 2011; Kung, 2014), we examine the effects of their political ranks and occupational status. We begin by comparing members of the Politburo, who sit near the top of China's pyramidal political hierarchy, with those who had yet to make it into this exclusive, upper-echelon circle. Reported in column (3), the result suggests that differences in the political rank of officials had no significant effect on famine severity. Next we try to gauge the (occupational) effect of the military, but once again we find no significant difference (column (4))—the military CC members did not play an especially significant role in mitigating famine severity in their hometowns. Regardless of how we examine the possible heterogeneous effects of the central government officials, the overall finding that only those CC members who worked in the central planning department—in particular in grain transfer—had a significant effect on lessening the famine severity remains robust.

4.3. Factional ties

Positions related to central planning at the time were more likely occupied by government officials working under Liu Shaoqi and Deng Xiaoping, which, if true, would refute our finding concerning the mitigating role of the central planning officials. To rule out the

concern that we may be capturing the omitted variable of factional ties, we control for their possible effect by constructing measures of factional ties associated with the few most prominent political figures apart from Chairman Mao, and test whether the results would change substantially with the inclusion of these variables. Following Bai and Zhou, 2019, we construct three dummy variables to indicate the particular factions associated with Liu Shaoqi, Deng Xiaoping, and Lin Biao—the other three key political leaders. They are chosen because all three of them had worked in the revolutionary base areas. For instance, Liu and Deng were not only in charge of economic policies during the 1950s, but also corrected Mao's excessive policies of the Great Leap after it was brought to an end, whereas Lin had always supported Mao—both during the Lushan Conference in 1959 and at a meeting attended by 7,000 elite Communist Party members that decisively concluded that the Leap was a policy failure. Insofar as any one CC member who worked in a revolutionary base was associated with any of these three key leaders, that member would be coded as having developed a factional tie with that particular leader.[15] Expressed as the absolute number of CC members in a prefecture, we include these factional tie variables in our regression in columns (5) - (6) of Table 4. The results show that the factional ties with Liu Shaoqi and Deng Xiaoping have a positive and significant effect on logged excess deaths, suggesting that CC members who had close ties with these political leaders did not send more special favors than the members without any factional ties to their hometowns. Perhaps because both Liu and Deng knew Mao and his unrealistic ambitions for the Leap too well, they were fearful that allowing their subordinates to send more grain to their hometowns would draw political backlash. For our purpose, however, what is most important is that even with the inclusion of factional ties in the regressions, the effect of CC members working in the central government remains significant (column (5)), with the effect of those working in central planning more specifically increasing from -0.887 (column (4)) to -1.184 (column (6)).

4.4. Possible externality of CC membership on other prefectures

A related issue concerns the possible spillover effect of CC membership on the regions neighboring the favored hometowns. To the extent that favoritism existed, and that it was occurring through the channel of the political hierarchy, i.e., from the central to the provincial governments, it could create positive externalities for neighboring prefectures within the same province. In contrast, it may well be a zero-sum game in that other prefectures within the same province were sacrificed in favor of the CC members' hometowns, which is highly likely if overall grain output was severely limited. However, a recent study suggests that total agricultural output in 1959 could provide each person with approximately 2,421 calories if it was evenly distributed, which is equivalent to approximately 300% of the calories required to stay alive (Meng, Qian, and Yared 2015). To find out, we first construct and include a variable that measures the total number of CC members ($\sum_j M_i^j$) in all adjacent prefectures within the same province as:

$$y_i = \rho C_i + \theta \sum_j M_i^j + Z_i\beta + \varepsilon_i$$

Reported in columns (1) - (3) of Table 5, we find that this variable is negatively significant, suggesting that these neighboring prefectures have similarly benefited from, rather than suffering from, having an additional CC member in a prefecture within the same province—a result hinting at the overall adequate supply of grain in the country as Meng, Qian, and Yared (2015) argue. The results remain robust when we include the logged total population (columns (2) and (3)) and logged total excess deaths (column (3)) of the neighboring prefectures within the same province. To ensure that this result is not due to spurious association, we include the number of CC members in the adjacent prefectures of neighboring provinces as a placebo test. If our result is robust, only prefectures within the same province would benefit. But if prefectures in the neighboring provinces also benefited from the secret actions of CC members from a different province, we can then conclude that the relationship is spurious. Fig. C1 in Appendix C illustrates how we conduct this test.[16] Reported in columns (4) - (6) of Table 5, the results show that the CC members of a province only benefit the adjacent prefectures within their own province but not those in other provinces, allaying our concern.

5. CC members and grain transfer

Having established the causal effect of CC membership on famine severity we now turn to discuss the possible channels accounting for this relationship. Recall earlier that in China's planned economy farmers must submit a pre-agreed percentage of the grain they produced to the central government via different levels of the local governments (province, prefecture, county, commune and so forth). Each level of the government above that of the commune retained an amount for allocating between its urban and rural residents. In this context, the simplest way for the CC members to help their "distant relatives" obtain more food was simply to reduce the procurement quota so that more grain could be retained in the countryside.[17] But it was not easy to change the procurement quotas once they were decided. First, according to the revised procurement policy that became effective from 1958 onwards,

[15] For each of the three factional tie we code the CC members with a known tie with any of the three as equal to 1, and zero otherwise. We allow CC members with more than a single tie.

[16] The potential spillover effect of CC members in prefecture i is captured by regressing the famine severity in prefecture i on the sum of CC members in prefectures 3-5 in the example (neighboring prefectures in the same province) and those in prefecture i. Doing so captures the effect of CC members in neighboring prefectures on famine severity in prefecture i, which can also be interpreted as the spillover effect of CC members in prefecture i on the famine severity in neighboring prefectures. Refer to Figure C1 in Appendix C for a graphical illustration.

[17] It was not necessary to retain food for the urban residents as they were entitled to a fixed ration every month irrespective of how much grain was left in the countryside, a phenomenon Lin and Yang (2000) refer to as "urban bias".

Table 5
Effect of CC membership on neighboring prefectures within the same Province.

	Dependent variable: logged excess deaths					
	(1)	(2)	(3)	(4)	(5)	(6)
CC Membership (1958)	-0.400**	-0.406**	-0.392**	-0.398**	-0.406**	-0.403**
	(0.166)	(0.162)	(0.166)	(0.167)	(0.168)	(0.162)
Total CC Membership (1958) in Adjacent Prefectures:						
Same Province	-0.055*	-0.067*	-0.055*			
	(0.033)	(0.035)	(0.033)			
Different Province				0.056	0.062	0.046
				(0.043)	(0.045)	(0.045)
ln (Population in 1953)						
Same (Different) Province		Y	Y		Y	Y
Total Excess Death Rate in Adjacent Prefectures						
Same (Different) Province			Y			Y
Control Variables	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y
Observations	264	263	263	264	264	264
R-squared	0.725	0.728	0.739	0.724	0.724	0.733

Notes: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; control variables include all variables listed in column (6) of Table 2. The number of observations in columns (2) and (3) decreases to 263 since one prefecture (today's Hainan) is an island without any adjacent prefectures.

procurement quotas were no longer set on the basis of average output of the past three years, but rather according to the government's predicted output of the subsequent year—a change that allowed for, or perhaps even encouraged, the exaggeration of grain output.[18] Moreover, while under the new policy the provincial governments were allowed to revise the procurement quotas, they could only revise them upward. While the first feature would likely give rise to an inflated grain output, the latter tended to render the procurement policy "inflexible" (to contemporaneous changes in output), and had allegedly led to higher excess death rates (e.g., Meng, Qian, and Yared, 2015).

Because the local governments (province and below) were responsible for distributing grain to their people, they had grain at their disposal; this provided them with both the means and the discretion to distribute grain back to those rural areas under their jurisdiction in the case of grain shortages.[19] Hence, a more plausible channel through which the CC members may have had on excess deaths was through the "resale" of grain (the commodity) to the countryside as an effective measure of poverty relief in the absence of a centrally orchestrated famine relief until 1961.[20] Moreover, as part and parcel of the new procurement policy, it was also stipulated that except for "relatively large famines" (*jiaoda zaihuang*), in which case the central government may suitably intervene, with grain at their disposal local governments were now expected to deal with "famines of manageable magnitudes" (*yiban zaihuang*) themselves. It is in this particular light that resale grain is where the presumed hometown effect of the CC members would more likely lie. In what follows we set out to test these two possible alternatives using Henan Province as a case study.

We focus on Henan Province for two reasons. Foremost is data availability. To test the channel through which the relationship between CC membership and hometown favoritism operates, we need detailed information on both grain procurement and resale. These data are not available at the sub-provincial level in general. Fortunately, detailed data do exist for Henan Province covering its 109 counties for the period 1957-1961. But we choose Henan for another important reason. As one of the three most famine-stricken provinces Henan exhibits wide variations not just in its excess death rate (standard deviation in death rate across its prefectures is 5.994 against the average of 5.28) but also in grain procurement (mean = 56.6 kg, maximum = 261.3 kg, minimum = 4 kg, s.d. = 33 kg) and resale (mean = 26.3 kg, maximum = 119.1 kg, minimum = 1.1 kg, s.d. = 18.5 kg). This makes Henan Province ideal for the analysis in question.

To test the above competing hypothesis we employ per capita grain procurement and resale as the dependent variables (denoted by G_{it}), and regress them on the interaction term between the number of CC members in a county and the famine period dummy as follows:

[18] "Several Stipulations of the State Council on How to Improve the Grain Management System" [*Guowuyuan guanyu gaijin liangshi guanli tizhi de jixiang guiding*], April 1958.

[19] This is what Li (2011, p.162) refers to as "big power lies in the hands of the central government, (but) small (residual) rights are in the hands of the provincial government" (*Daquan zai zhongyang, xiaoquan zai sheng*)". Going by this logic the prefectural government was able to do the same as long as it had surplus in its hands after fulfilling the procurement quota. This may help to explain why different levels of the Chinese government were found to have engaged—often times intensely—in negotiating the size of the procurement quota. See Xu and Zhong (2014) for the bargaining between the prefectural and county governments in Anhui Province, for instance. A similar analysis can be found in Guizhou—a province in southwest China in close proximity to Sichuan (Li 2011).

[20] In principle the resale grain was also designed to facilitate specialization: areas more suitable for animal husbandry and fishery, for instance, should focus on these non-cereal activities in exchange for grain supplied to them (see, for example, Lardy 1983; Walker 1984). However, more often than not resale grain was dispatched for poverty relief.

Table 6
Possible channel(s) for the effect of CC membership: the case of henan counties.

Dependent variable	ln (Procurement Per Capita)	Procurement Per Capita	ln (Resale Per Capita)	Resale Per Capita	Net procurement per capita
	(1)	(2)	(3)	(4)	(5)
GLF * CC Membership (1958)	0.042	-0.002	0.307**	0.010***	-0.012**
	(0.042)	(0.002)	(0.139)	(0.003)	(0.005)
GLF * Controls	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Observations	545	545	541	541	541
R-squared	0.733	0.699	0.522	0.531	0.343
No. of Counties	109	109	109	109	109

Notes: Robust standard errors clustered at the prefecture level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

$$G_{it} = \rho C_i F_t + Z_i F_t \beta + \alpha_i + \nu_{it} \quad (2)$$

where F_t denotes the period 1959-1961. Reported in Table 6, the results show that during the famine counties with a larger number of CC members did not enjoy significantly less grain procurement (columns (1) and (2)) but were allocated significantly more resale grain (columns (3) and (4)). Specifically, having an additional CC member is associated with a 30.7 percent increase in resale grain (column (3)), or an increase in grain resale of up to 10 kilograms per person per year during 1959-61 (unlogged), which is equivalent to 19 days of caloric requirements for a healthy adult laborer or for healthy child development, or 44 days if the purpose is simply to stay alive (column (4)).[21] Overall, an additional CC member would bring about a reduction in the net amount of grain a farmer had to submit (net grain procurement) by about 12 kilograms of grain in a year (column (5)).[22]

The above findings support the hypothesis that famine relief likely occurred via the channel of increased grain resale rather than a reduction in grain procurement—a finding that lends credence to Meng, Qian, and Yared's (2015) claim that the grain procurement policy was “inflexible”. Given that this finding is based on just one province, the evidence must be taken as suggestive rather than conclusive.

6. Conclusion

In terms of casualties China's Great Leap Famine is beyond comparison. While many studies have pointed to the excessiveness of grain procurement as the dominant culprit, few have examined the human factor in what is the deadliest famine in the history of mankind. Using the number of CC members from a prefecture to proxy for the effect of hometown favoritism in a dictatorship regime, we find that these political elites had importantly helped reduce the severity of China's Great Leap Famine, in that prefectures with one or more CC member(s) were much less hard hit than those without any. This particular intervention was unlikely motivated by political considerations; given Mao's powerful endorsement of the Great Leap Forward, any criticism thus ran the political risk of demotion or even outright expulsion from the Party, as is clearly demonstrated by the fate of the then Ministry of Defense, Peng Dehuai, who was first apprehended by Mao during the campaign and eventually persecuted during the Cultural Revolution. Stated differently, career concerns would be more consistent with political acquiescence than with regional favoritism. Hence, to the extent that favoritism was practiced mainly to help “distant relatives” overcome food shortages, the underlying motivation was likely more social than political.

In examining the heterogeneous effect of the CC members, we stumbled upon the unexpected finding of the central planner's role in redistributing the resale grain back to their hometowns. Perhaps an equally unexpected finding is that this intervention by the political elites turned out to be a non-zero-sum game, as even neighboring prefectures not represented by CC members but situated within the same province were able to benefit. Of course, the external validity of our suggestive evidence that hometown favoritism operates through the channel of resale grain will have to await future, more systematic studies.

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[21] The numbers are based on estimates made by Meng, Qian, and Yared (2015). Premised on the official conversion that one kilogram of grain can provide 3,587 calories (China's Ministry of Health and Hygiene), these authors estimate that in 1959 an adult male laborer performing labor-intensive work needed about 1,871 calories per day and so did a child for healthy development, or 804 calories if the purpose is simply to stay alive.

[22] It is perhaps worth noting that Henan Province had only seven CC members, a number lower than the average of 10 for each province (181 CC members/18 provinces).

Appendix A: Prefectural level famine severity

A.1. Prefectural level excess deaths

Information on excess deaths at the prefecture level is provided by Cao (2005). In this appendix, we briefly introduce the method that Cao (2005) employed. Cao's estimates are based primarily on the population censuses of 1953 and 1964 and various county gazetteers.

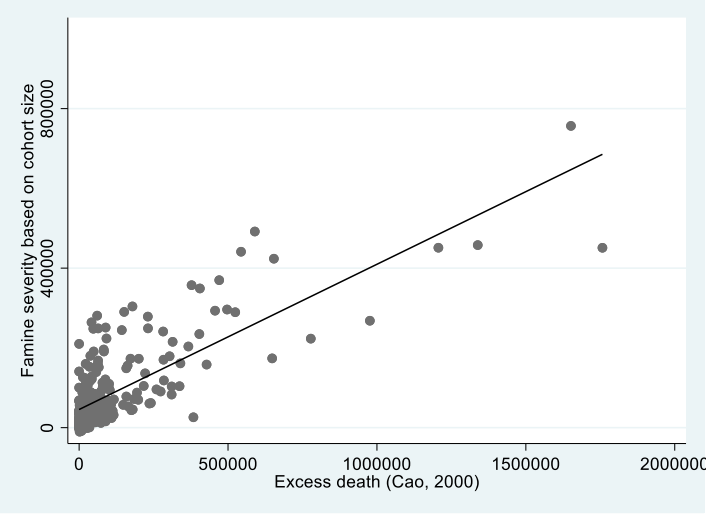

Fig. A1. Reliability of the Alternative Famine Severity Measure.

Cao first makes use of the information on population growth rate reported in the county gazetteers to estimate the population growth rate for each prefecture separately for the 1953-58 (denoted by G^0) and 1961-64 (denoted by G^1) periods. For instance, in Xuzhou prefecture, population growth rate was 23 thousandths during 1953-58 and 25.4 thousandths during 1961-64.

Second, using the population figures in 1953 ($Popu_i^{1953}$, census data) and 1964 ($Popu_i^{1964}$, census data) as the base year, Cao then calculates the total population before ($Popu_i^0$) and after the Great Leap Famine ($Popu_i^1$) as follows:

$$Popu_i^0 = Popu_i^{1953} \times (1 + G_i^0)^{t_0}$$
$$Popu_i^1 = Popu_i^{1964} \times (1 + G_i^1)^{-t_1},$$

in which t_0 represents the period between 1953 and the start date of the GLF, and t_1 the period between the end date of GLF and 1964, respectively. The difference represents a net decrease in the total population:

$$\Delta Popu_i = Popu_i^0 - Popu_i^1 = D_i - B_i,$$

which is also equal to total deaths (D_i) minus total births (B_i) during the famine period. For example, in Xuzhou prefecture the estimated population was 6.28 million in 1958 and 6.02 million in 1961. The net decrease in population is about 265,000.[23]

Third, excess deaths can be estimated by subtracting normal deaths from total deaths—a relationship that can be specified in the following equation:

$$ExDeath_i = Popu_i^0 - Popu_i^1 + B_i - \tilde{D}_i = D_i - \tilde{D}_i,$$

[23] Realistically, Cao (2005) also considers the effect of migration on population change. Information on migrants is available in the county gazetteers. In the case of Xuzhou, net migration was close to zero.

in which $\tilde{D}_i$ denotes the potential normal deaths extrapolated based on the death rate during the non-famine period, on which basis Cao further calculates the difference between the birth rate during the famine period and the death rate in normal times, followed by estimating $B_i - \tilde{D}_i$. Once again, using Xuzhou prefecture as example, the difference estimated this way is about 139,000, with total excess deaths close to 404,000.

A.2. Famine severity based on cohort size

To check the reliability of Cao's data, we follow Meng et al. (2015) in estimating the size of the birth cohort of the survivors from the 1990 China Population Census as an alternative proxy for famine severity. This estimated cohort size captures the decreased fertility and increased child mortality caused by the Great Leap Famine. Specifically, we focus on the cohort size of 1946-50 (denoted by $B_i^{1946-50}$), 1951-55 (denoted by $B_i^{1951-55}$), and 1956-60 (denoted by $B_i^{1956-60}$), assuming the trend of birth cohort size to be linear and then estimating the potential birth cohort size of 1956-60 as $B_i^{1951-55} + (B_i^{1951-55} - B_i^{1946-50})$. The difference between this potential cohort size and the actual one, denoted by $[B_i^{1951-55} + (B_i^{1951-55} - B_i^{1946-50})] - B_i^{1956-60}$, can be used as an alternative measure of famine severity.

We then check the reliability of this measure by examining its correlation with the original measure of famine severity. Fig. A1 shows that they are highly correlated.

Appendix B: The determinants of CC membership and famine severity

Table B1
Determinants of CC membership.

	(1)	(2)	(3)	(4)	(5)
Share of revolutionary bases			1.048***	0.978***	0.932***
			(0.346)	(0.310)	(0.349)
Urbanization Rate (%)	-0.005	-0.005		-0.005	-0.003
	(0.018)	(0.020)		(0.019)	(0.019)
Provincial Capital	0.953	0.899		1.039	0.985
	(1.342)	(1.259)		(1.342)	(1.271)
Historical Treaty Ports	0.844	0.762		0.840	0.767
	(0.934)	(0.952)		(0.934)	(0.954)
Coast	-0.906	-0.623		-0.909	-0.660
	(0.705)	(0.732)		(0.708)	(0.737)
Changjiang (Yangtze) River	-0.089	-0.083		-0.094	-0.028
	(0.930)	(1.013)		(0.919)	(1.013)
ln (Crop Suitability: Wheat)	-0.847*	-0.492		-0.833*	-0.479
	(0.458)	(0.458)		(0.453)	(0.453)
ln (Crop Suitability: Rice)	0.510*	0.129		0.347	0.044
	(0.263)	(0.370)		(0.259)	(0.371)
ln (Crop Suitability: Maize)	0.869**	0.261		0.852**	0.339
	(0.351)	(0.536)		(0.347)	(0.535)
ln (Crop Suitability: Sweet Potato)	0.221	0.002		0.100	-0.074
	(0.294)	(0.330)		(0.288)	(0.325)
ln (Population in 1953)	0.436***	0.545**		0.442***	0.542**
	(0.161)	(0.218)		(0.162)	(0.217)
Province Dummies	N	Y	N	Y	Y
Observations	265	265	265	265	265
R-squared	0.129	0.233	0.022	0.147	0.243

Notes: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table B2
Determinants of logged excess deaths at the prefectural level.

	(1)	(2)	(3)	(4)	(5)
Share of revolutionary bases			0.116	-0.219	0.747
			(0.870)	(0.729)	(0.781)
Urbanization Rate (%)	-0.076**	-0.045		-0.076**	-0.043
	(0.029)	(0.029)		(0.030)	(0.029)
Provincial Capital	-0.335	-0.362		-0.354	-0.294
	(0.875)	(0.518)		(0.886)	(0.526)
Historical Treaty Ports	0.300	-0.160		0.301	-0.156
	(0.500)	(0.477)		(0.503)	(0.474)
Coast	-1.434***	-1.381***		-1.434***	-1.411***
	(0.522)	(0.461)		(0.526)	(0.458)
Changjiang (Yangtze) River	0.008	0.523		0.009	0.567
	(0.393)	(0.551)		(0.389)	(0.561)
ln (Crop Suitability: Wheat)	4.193***	1.720		4.190***	1.731
	(1.194)	(1.116)		(1.199)	(1.101)
ln (Crop Suitability: Rice)	1.795***	-0.263		1.831***	-0.330
	(0.529)	(0.837)		(0.542)	(0.826)
ln (Crop Suitability: Maize)	-4.687***	0.654		-4.683***	0.717
	(0.988)	(1.153)		(0.992)	(1.154)
ln (Crop Suitability: Sweet Potato)	-2.384***	-1.761**		-2.356***	-1.821**
	(0.737)	(0.761)		(0.753)	(0.758)
ln (Population in 1953)	1.720***	1.619***		1.719***	1.617***
	(0.194)	(0.215)		(0.194)	(0.216)
Province Dummies	N	Y	N	Y	Y
Observations	265	265	265	265	265
R-squared	0.367	0.715	0.000	0.367	0.717

Notes: Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Appendix C: Placebo test of CC membership in neighboring prefectures

We use the following graph to illustrate how we conduct the placebo test. Located in province A, prefecture *i* has altogether 8 neighboring prefectures located in three separate provinces. For prefecture *i*, the total number of CC members in prefectures 3, 4, and 5 is the number of CC members in the adjacent prefectures in the same province A, whereas the total number of CC members in prefectures 1, 2, 6, 7, and 8 is the number of CC members in the adjacent prefectures in the other provinces (B and C).

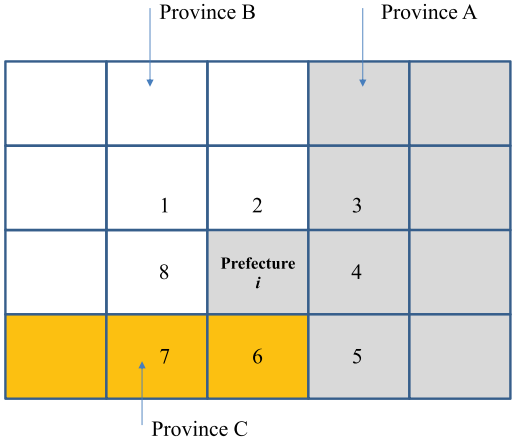

Fig. C1. An Example Illustrating the Definition of CC Membership in Neighboring Prefectures.

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