

# Political Elites and Hometown Favoritism in Famine-Stricken China \*

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Running title: Political Elites and Hometown Favoritism

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\* Acknowledgements suppressed.

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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 shaping its outcome. In sharp contrast to Mao's aggressive extractive policy against the peasantry, the 181 Central Committee 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 Central Committee member in a prefecture reduces the excess death rate of that prefecture by 0.6 percentage points, sparing 6,000 lives. Indeed, over a million lives would have been added to the total excess deaths had favoritism not played a role. Perhaps there was enough grain go around, but we find no evidence of a negative spillover from the represented to the unrepresented prefectures.

**Keywords:** Political Elites, China's Great Leap Famine, Grain Procurement, Grain Resale.

**JEL classifications:** O12, D73, N95

## 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 regional favoritism. Using authoritarian Vietnam as an example, [Do, Nguyen and Tran \(2016\)](#) 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;<sup>1</sup> 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 political leaders.<sup>2</sup> Yet, 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

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<sup>1</sup>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 \(1981\)](#); [Peng \(1987\)](#).

<sup>2</sup>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](#)).

the Shaanxi provincial government to “allocate relief grain” to his hometown Fuping County (Lin 2008). Indeed, for the 1950s we do find a strong, *negative* association between the birthplace of the members of the Central Committee of the Chinese Communist Party’s (CC-CCP)—China’s supreme political organization, and the geographic distribution of the (excess) death rates (Figure 1). Specifically, excess death rates appeared distinctly lower in areas producing proportionately more Central Committee (CC) members. This paper thus attempts to examine whether this negative association is causal, and, if so, the channel(s) through which the political leaders were able to reduce the death rates of those 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 role in reallocating the relief grain.<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup> 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 CC membership ratio of a prefecture, constructed by normalizing the number of CC members in a prefecture to its local population.

Our analysis finds that having an additional native member in the CC per one million

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<sup>3</sup>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.

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

<sup>5</sup>The Eighth Party Congress is the only party congress when voting occurred twice.

people (CC membership ratio) significantly reduces a prefecture’s excess death rate by 0.6 percentage points, which is equivalent to the saving of up to 6,000 lives when evaluated at the mean prefectural population of approximately 1.96 million. Moreover, the lack of any heterogeneous effect of CC membership with respect to political ranks, factional ties, functional specialization, and so forth suggests that it is CC membership rather than other functional positions in the government and/or Party that crucially determined this hometown effect.

To address the concern of omitted variables we perform a placebo test by constructing CC membership ratio for also the Seventh (in 1945) and Ninth (in 1969) National Party’s Congresses, and find that only the Eighth Party Congress has had a negative and statistically significant effect on the outcome variable of interest, while the other two have not.<sup>6</sup> Additionally, we also employ the change in CC membership *ratio* from the Seventh to the Eighth Party Congress to instrument CC membership ratio. The change in CC membership between the two party congresses reflects the change in personnel due to promotion, retirement, and death, and thus should be highly correlated with CC membership ratio in 1956. But it should be orthogonal to the omitted variables because, first, 99 percent of the CC members had left their hometowns in 1945 to fight in the “War of Liberation” against the Nationalist Government, and therefore promotion decisions made during 1945-49 were unlikely correlated with any unobserved hometown characteristics. Moreover, the “rule of avoidance” adopted by the CCP, which effectively prevented senior officials such as the CC-CCP members from working in their home region, served to ensure that the change in personnel during 1949-1956 was free from hometown considerations. The robust instrumented result reaffirms the negative relationship between CC membership ratio and excess death rate.

A second important finding is that the hometown effect thus identified did not produce any significantly negative spillover, contrary to expectation. Due perhaps to the overall adequate supply of grain, even prefectures not represented by the CC members also benefited

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<sup>6</sup>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.

from those that were represented by one or more CC members within the same province. Given that there were altogether 181 CC members, the total number of lives saved as a result of regional favoritism reached 1.08 million (calculated based on 25 million deaths in the 265 sample prefectures), or 4.2 percent of total excess deaths.<sup>7</sup>

Finally, we examine *the mechanism* through which the CC members were able to offer their “distant relatives” more food for consumption—the primary reason for a lower excess death rate. There were two possible mechanisms at the time. First, the central government may reduce the amount of procured grain that farmers were required to 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 poverty relief, as Xi Zhongxun’s famous request amply demonstrates. Indeed, 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 has 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 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 contributes to the understanding of the role that political leaders played in unequivocally the world’s most deadly famine. In particular, we show how high-level officials such as the CC members in a one-man, dictatorial regime acted deliberately in the interest of their “distant relatives” in turbulent times when political uncertainty was extremely high. More generally, our work is clearly related to the importance of national leaders (e.g., Besley, Montalvo and Reynal-Querol, 2011; Jones and Olken, 2005). In addition, our work also contributes to the literature on regional favoritism (e.g., Hodler and Raschky, 2014), a

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<sup>7</sup>This is a lower bound estimate, as we find that prefectures with a CC member conferred a positive externality on those without one within the same province (refer to Section 4.3 for details).

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, Nguyen and Tran \(2016\)](#), 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 respectively conducting a placebo test and using an instrumental variable approach. The crucial issue concerning whether having a native CC member in a prefecture may confer an externality on those without one within the same province is the subject of [Section 4](#), 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, 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.<sup>8</sup> Owing to a series of policy blunders in central planning, however, the campaign

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<sup>8</sup>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

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. It is to this particular feature of the Leap that our analysis of regional 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,<sup>9</sup> we construct a prefectural-level data set on population and death rates based on Cao’s (2005) estimates.<sup>10</sup> 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. The average death rate is 4.92 percent with a standard deviation of 5.84 (Table 1). To compare variations in the death rates both between and within provinces, we compute two separate measures of standard deviation. The within-province standard deviation for excess death is 4.04, which is strikingly similar to the between-province standard deviation of 4.13.

For the famine-stricken provinces, the standard deviation of famine severity across their prefectures is much larger, however. In Anhui and Sichuan, for instance, the within-province standard deviations are 8.3 and 7.0, respectively, which are about twice as large as the between-province standard deviation of 4.1. These figures suggest that, while for the province

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employed in the urban state sector.

<sup>9</sup>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.

<sup>10</sup>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.

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 the overall geographic representation of excess death rate in Figure 1.

## 2.2. Hometown Distribution of the Members of the Eighth CC

To examine the possible effect of CC membership on the excess death rate, 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.<sup>11</sup>

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. But 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. In constructing the key explanatory variable of CC membership ratio we normalize the number of CC members to a prefecture’s population. Figure 1, which shows the geographic distribution of CC membership ratio, reveals the enormous variation that existed across China. Out of the 265 prefectures, for instance, 88 or 33 percent had CC members. On average, there were just 0.408 CC members per million population, with a standard deviation of 1.067.

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<sup>11</sup>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.

### 3. The Association between CC Membership Ratio and Famine Severity

#### 3.1. The Effect of CC Membership Ratio on Famine Severity

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

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

where  $\rho$  represents the effect of CC membership ratio 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 and rice, 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  $\beta$ .  $\varepsilon_i$  is the constant term.

Following [Ansolabehere, Snyder and Ting \(2003\)](#), who employ a per capita measure to examine whether counties in the U.S. with more legislative seats per person received more transfers from the state, we similarly employ a per capita measure in place of the absolute number of CC members to measure the latter’s effect on reducing the excess death rate.<sup>12</sup> Additionally, our choice enables revealing the overall effect of this political intervention and is made based on the assumption that the CC members are more or less equally capable of obtaining grain for redistribution.

The OLS estimates are reported in [Table 2](#). Column (1) first shows that CC member-

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<sup>12</sup>For example, suppose there are three prefectures, the first one with one CC member in a population of 1 million, the second also with one CC member but in a population of 2 million, and the third with two CC members also in a population of 2 million. Assuming that each CC member is able to save up to 10,000 lives, the decrease in the death rate would correspondingly be 1 percent in the first prefecture, 0.5 percent in the second, and 1 percent in the third. In other words, the per capita measure yields a result that is proportional to the CC membership ratio instead of the absolute number of CC members.

ship ratio indeed has a significantly negative effect on excess death rate at the 1% level of significance; having an additional native CC member per one million people has the effect of reducing excess death rate by -0.664 percentage points, which is substantial. In column (2) we control for initial population size (1953), and the effect remains significantly negative, with the magnitude decreasing only trivially from -0.664 (column (1)) to -0.634. This shows that the ratio (per capita) measure is stable to the further inclusion of population (column (2)). Moving beyond existing studies, which focus primarily on examining between-province variations, we control for province fixed effects in column (3). While doing so reduces the coefficient of CC membership ratio to -0.579, it is still significant at the 5% level.

In light of the significantly negative effect of China’s “urban bias” policy on excess death rate, we control for urbanization rate (in 1920) in column (4), and in column (5) we further control for a number of historical-cum-geographical variables.<sup>13</sup> Compared with the estimate in column (3), in both columns (4) and (5) the coefficient of CC membership ratio remains statistically significant and the magnitude does not change much. In column (6) we control for crop suitability, which arguably serves as a suitable proxy for a prefecture’s total agricultural output given that interregional trade was already strictly prohibited after the compulsory grain procurement system was implemented in the mid-1950s. We find the same result here. Importantly, the effect of CC membership ratio remains significant at the 5% level and with a broadly similar magnitude.

To check whether our results may be driven by outliers of our key variables of interest, we drop those prefectures with atypically more CC members, and find that the CC membership ratio remains significantly negative (columns (1) and (2) of Table B1 in Appendix B). And for verification purpose, we employ the log of the excess death rate as the dependent variable and run the regression again,<sup>14</sup> and find that the number of excess deaths is significantly

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<sup>13</sup>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. We check the robustness of this alternative measure in Appendix C and find that it is just as robust.

<sup>14</sup>To deal with observations with a value of zero, we use the sine transformation of  $\ln(D_i + 1)$ , in which  $D_i$  represents the number of excess deaths.

lower in prefectures with a higher CC membership ratio (columns (3) and (4)). We also use the level measure or specifically the absolute number of CC members (columns (5) and (6)) and alternatively the logged number of CC members (columns (7) and (8)) as the explanatory variable. In all cases, the results clearly show that the CC members had the effect of reducing the excess death rate during the famine.

### 3.2. *The Geographic Distribution of CC Membership*

A question of overriding importance is what determined the geographic distribution of the birthplace of CC members in 1958. 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. Might it be possible, for instance, that the variation in question is correlated with any unobserved determinant(s) of famine severity? To verify, we regress CC membership ratio on the same set of variables employed to account for the cross-prefectural variations in excess death rate. Reported in Table B2 of Appendix B, none of the right-hand-side variables are significant (columns (1) and (2)), relieving us of this concern.

We then propose that the key determinant of a region's CC membership ratio 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 (circa 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 (Figure 2). As mentioned earlier,

south-central 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 B2 in Appendix B, the results show that a revolutionary base is significantly and positively correlated with the Eighth CC membership ratio 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 more than one CC member (1.5) for every one million population, and that prefectures with a denser CC membership appear to have fewer excess deaths (Figure 1). In Figure 3 we plot the correlation between excess death and CC membership ratio and confirm the negative relationship exhibited in Figure 1. To alleviate the concern that the result may be driven by a few outliers, we remove these outliers and obtain the same result (the dotted line in Figure 3).

To wrap up our OLS analysis we now include *the share of revolutionary bases* in column (7) of Table 2—the variable we believe is key to determining CC membership ratio in a prefecture. We find that, while this variable is insignificantly correlated with famine severity, CC membership ratio remains consistently significant and is even slightly larger than that in column (6). We report the results of regressing excess death rate on the set of control variables that exclude CC membership ratio in Table B3 of Appendix B. The results are strikingly similar to those in Table 2.

### *3.3. Effects of Political Rank, Functional Status, and Individual Characteristics of CC Members*

In Communist China, CC members also assume other functional positions in the government, including the military. This immediately raises the question of whether it is the CC membership per se or these other functional positions held by members that matter for the hometown effects. To find out, we examine the potential heterogeneous effects of the CC

members in our sample using the following specification:

$$Y_i = \rho C_i + \theta S_i + Z_i \beta + \epsilon_i,$$

where  $S_i$  represents the ratio of CC members with a specific functional status to the total population of a prefecture. Specifically, if it is these functional positions rather than CC membership that is having a significant hometown effect, then  $S_i$  should be significant. To provide a benchmark, we first examine whether the effect of CC membership varies according to political rank by comparing the effects of the (more prestigious) Full Members (FM) and members of the Politburo (PM) with the lower ranked Alternate Members (AM). The FM and members of the PM are the Party’s ruling elites while the AM serve as the reference group. Reported in columns (1) and (4) of Table 3, the results show that the excess death rate is not sensitive to differences in political ranks; the more powerful members do not exhibit a significant effect compared to their less prestigious counterparts on the excess death rate. We then examine whether the famine triggered different responses from those CC members who specialized in economic planning (viz., the government) and those serving in the Party and the military, under the assumption that those serving in the government may well be more sympathetic toward the famine victims. Reported in columns (2)-(3), there is similarly no significant difference in sympathy between the two groups of officials.

Third, we examine whether differences in personal characteristics may have an effect. For instance, one may expect the better educated and/or those with greater “revolutionary credentials” (using participation in the “Long March” as proxy) to be more sympathetic toward their “distant relatives” and hence supplied more grain to them. However, none of these variables reveals any significantly heterogeneous effect (columns (5)).<sup>15</sup> Finally, we try factional ties and obtain the same result (column (6)). The lack of a heterogeneous response along a rich number of dimensions speaks to the severity of the famine, to the extent that

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<sup>15</sup>According to the 1964 Chinese Census, China’s literacy rate was only about 66.4% (Bai and Zhou, 2014).

the sympathy it elicited was likely universal.

#### 4. Robustness Checks

While the OLS results confirm that CC membership ratio has a negative effect on excess death rate, this relationship may be spurious, especially if both the ratio of CC membership and the variation in excess death rate were affected by the same omitted variable. 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. To address this concern, we first conduct a placebo test, followed by the use of an instrumental variable.

##### *4.1. Placebo Test for the Effect of CC Membership Ratio by Congress*

Our placebo 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 CC membership ratio of the Seventh or Ninth National Party Congress should have the same significantly negative effect on the excess death rate. But if only CC membership ratio of the Eighth Party Congress has a significant effect on the excess death rate, it would give us greater confidence in our result.

The pertinent results are presented in Table 4. To compare the effects of the three CC membership densities, we begin by controlling only the province dummies in columns (1), (3) and (5). While all the coefficients of CC membership densities are negative, only the 1958 coefficient is statistically significant (column (3)). More importantly, its magnitude (-0.627) is much larger than those of the other two (-0.193 in column (1) and -0.200 in column (5)),

respectively). Together, these findings rule out the possibility that the effect of the Eighth CC membership ratio captures only the effect of the omitted variable.

In columns (2), (4) and (6) we include all the control variables previously employed in the estimation and confirm that only the CC membership ratio of 1958 has a statistically significant effect on excess death rate (column (4)). In column (7) we perform a “horserace” by putting all three CC membership densities in the same regression and controlling for all the covariates. CC membership densities of 1945 and 1969 continue to be insignificant, while that of 1958 remains highly significant (at the 1% level), and with an even larger magnitude than before. Now, having one more native CC member per million people has the effect of reducing excess death by up to -0.791 percentage points—0.25 percentage points higher than the coefficient in column (7) of Table 2.

#### *4.2. Instrumented Evidence—Change in CC Membership Ratio from 1945 to 1956*

Although our placebo test addresses the concern about omitted variables, a preferred approach is to find an instrumental variable to correct for this potential bias. A valid instrument, in this context, should be one that correlates significantly with CC membership ratio in 1958 but is otherwise orthogonal to famine severity except through the channel of the endogenous variable. To this end, we employ the change in CC membership ratio from the Seventh Party Congress in 1945 to the Eighth Party Congress in 1956, denoted by  $\Delta C_i = C_{i,1956} - C_{i,1945}$ , as our instrumental variable.<sup>16</sup> Clearly, the change in CC membership between the two congresses reflects the change in personnel due to promotion, retirement, and death, and thus should be highly correlated with CC membership ratio in 1958. It is also orthogonal to the omitted variables for two reasons. First, as Appendix E shows, 99 percent of the CC members had already left their hometowns before 1945, suggesting that promotion as it occurred during 1945-1949 was unlikely correlated with unobserved home-

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<sup>16</sup>We employ the change in CC membership ratio between 1945-56 instead of 1945-58 as instrument because of the concern that the change in personnel during 1956-58 might be correlated with the implementation of the Great Leap Forward. Doing so should not affect our empirical strategy because the great majority of CC members in 1958—158 or 87.2 percent—were actually elected in 1956.

town characteristics. Second, to avoid political localism the CCP had since the founding of the People’s Republic adopted what may be regarded as the “rule of avoidance”. This rule forbids appointing officials to govern the region from which they came. As a result, the CC members were unlikely to work in their own hometown, thereby avoiding local favoritism. Thus, as in the case of 1945-49, it is also unlikely for the change in personnel—especially promotion—during 1949-56 to be associated with any unobserved hometown considerations.

In constructing our instrument, we assume that  $C_{i,1956} = \theta + C_{i,1945} + \mu_i$ , i.e., that the CC membership ratio follows a “random walk” with drift in that  $\mu_i$  is a random variable uncorrelated with  $C_{i,1945}$  and  $\theta$  is a constant term. This means that the change in CC membership ratio during 1945-1956 is orthogonal to any hometown (prefecture  $i$ ) characteristics. To prove this, we need to show that the null hypothesis  $\rho = 1$  and  $\text{corr}(C_{i,1945}, \mu_i) = 0$  cannot be rejected. By regressing the CC membership ratio of 1956 on that of 1945, we do find that the pertinent coefficient is indeed insignificantly different from 1 (columns (1) and (2) of Table B4 in Appendix B). We then regress  $C_{i,1956} - C_{i,1945}$  on  $C_{i,1945}$ , and find no significant correlation between the two (column (3)), suggesting that  $\mu_i = C_{i,1956} - C_{i,1945}$  is indeed uncorrelated with  $C_{i,1945}$ . The results remain robust when we replace  $C_{i,1956}$  with  $C_{i,1958}$  (column (4)).

With these underlying motivations in mind we employ the two-stage least squares (2SLS) approach to estimate the following set of equations:

$$\begin{aligned} Y_i &= \rho C_i + Z_i \beta + \varepsilon_i \\ C_i &= \lambda \Delta C_i + Z_i \kappa + \nu_i \end{aligned} \tag{2}$$

where  $Y_i$ ,  $C_i$ ,  $Z_i$  and  $\varepsilon_i$  are the same as previously defined, and  $\nu_i$  is a constant term. Once again, our focus is on  $\rho$ —the effect of CC membership ratio on excess death rate.

Table 5 presents the 2SLS estimates. Column (1) reports the reduced-form result, which shows that the instrument does have a statistically significant and negative correlation with CC membership ratio in 1958. This result remains significant even after including all the

control variables in column (2). Columns (3) and (4) report the IV estimate without any controls; both the first- and second-stage results are significant and with the expected sign. We then add controls to our IV estimates, and find that the coefficient of CC membership ratio is in fact very stable and the magnitude changes only slightly from -0.605 to -0.632 (columns (5) and (6)). The result in column (6) suggests that having an additional native CC member per million locals effectively reduces a prefecture’s excess death rate by 0.6 percentage points during the Famine. Moreover, unlike the baseline estimates, in which the magnitude decreases (from -0.664 to -0.565) with the inclusion of more control variables, the instrumented results are almost unaffected. This finding is also economically meaningful: compared with a prefecture with no CC member, a prefecture with one would be able to save the lives of 6,000 people, reducing the excess death rate by about 6.1 percent when evaluated at the mean prefectural population of 1.96 million.<sup>17</sup> This implies, on the whole, that without the possible intervention of the 181 CC members in redistributing grain to their “distant relatives” over a million lives (specifically 1.08 million) would have been added to the total excess deaths.<sup>18</sup>

A key assumption underlying the validity of our instrument is that the change in the CC membership ratio from 1945 to 1956 is not correlated with any unobserved hometown or prefectural characteristics. This underlying assumption would be violated, however, if some unobserved prefectural characteristics such as a prefecture’s revolutionary history *before* 1945 are correlated with both the change in the CC membership ratio and the death rate. To rule out this possibility, we control for revolutionary history in our regressions using the share of revolutionary bases as proxy (alongside a battery of other controls). As Table 6 shows, revolutionary history is not correlated with either the CC membership ratio in 1958 (in the first stage) or the excess death rate (in the second stage).

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<sup>17</sup>An additional CC member in a prefecture increases the membership ratio by about 0.5 per million population, which is associated with a decrease in excess death rate by 0.3 percent. This is equivalent to approximately 6.1 percent of the average excess death rate (which was 4.917 percent).

<sup>18</sup>This, of course, relies on the assumption that there was no negative “spillover” from one prefecture (the beneficiary) to another within the same province. We validate this assumption in Section 4.3.

One might be equally concerned that if someone received a promotion during 1945-56 thanks to the connections he had cultivated with another person in the same prefecture from which he came, then the same prefectural connection or tie could very well also directly bear upon the excess death rate. While we think that was unlikely, as the majority of the CCP cadres had left their hometowns to fight in the “War of Liberation” (in 1945), we still want to eliminate the possible effect of *factional ties*—ties which may have been established in the revolutionary bases at a time when key political figures of the CCP served as top leaders of each independent revolutionary base—a phenomenon referred to as “mountaintop politics” (Huang, 2000).<sup>19</sup> To do so we construct 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 (2014), we construct three dummy variables to indicate the factions of the three key political leaders, namely Liu Shaoqi, Deng Xiaoping and Lin Biao.<sup>20</sup> As long 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.

Expressed as the number of CC members in a prefecture of a given population (normalized to a million people), we include these factional tie variables in our regression in columns (1) through (4) of Table 6. The OLS estimates show that by itself the factional ties measure does not have a significant effect on the excess death rate. This result does not change fundamentally even after we employ the change in CC membership ratio during 1945-56 as instrument.<sup>21</sup> In fact, the effect of the instrumented CC membership ratio remains very

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<sup>19</sup>“Mountaintop politics” is a term employed to describe the personal bonds and accordingly factional ties established in the so-called “revolutionary base areas” before 1949. They are so called because virtually all of these areas were located in mountainous regions. Geographically isolated from one another and considered the origins of the CCP’s factional ties, these bases were where strong personal bonds were forged between the leaders and their subordinates.

<sup>20</sup>They are chosen because all three of them had worked in the revolutionary base areas. Specifically, 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.

<sup>21</sup>Of the three factional ties, the one associated with Liu Shaoqi (and to a lesser extent Deng Xiaoping) is significant in the first stage (columns (5) and (6) of Table 6), suggesting that some factional ties are indeed

stable throughout the estimations (columns (5)-(8)), with a magnitude ranging narrowly between -0.628 and -0.643, and which is almost identical to the instrumented result without controlling for factional ties (-0.632, column (6) of Table 5).

#### 4.3. Possible Externality of CC Membership on Other Prefectures

A critical issue in relation to the hometown effect concerns whether or not it is a zero-sum game, i.e., whether others were sacrificed in favor of the hometown. This is highly likely if overall grain output is severely limited. According to a recent study, however, total agricultural output in 1959 could provide approximately 2,421 calories for each person if it was evenly distributed, which is equivalent to approximately 300% of the calories required to stay alive (Meng, Qian and Yared, 2015). To verify this empirical issue, we first construct a variable that measures the ratio of the total number of CC members ( $\sum_{j \neq i} M_j$ ) in all other prefectures within the same province (hereafter  $n - 1$  prefectures) to the total population ( $\sum_{j \neq i} Pop_j$ ) in these prefectures, using the following specification:

$$y_i = \rho C_i + \theta \frac{\sum_{j \neq i} M_j}{\sum_{j \neq i} Pop_j} + Z_i \beta + \varepsilon_i$$

Reported in columns (1) and (4) of Table 7, we find that the pertinent coefficient is statistically negatively significant, suggesting that these other prefectures have similarly benefited from, rather than being harmed by, having an additional CC member in a prefecture within the same province—a result that may be due to the overall adequate supply of grain in the country. To further ascertain whether the hometown effect may affect prefectures *adjacent* to the one with a CC member differently from prefectures further away but within the same province, we construct a variable that measures the CC membership ratio for only 

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correlated with CC membership ratio in 1958.

the adjacent prefectures ( $\sum_k M_k / \sum_k Pop_k$ ), as follows:

$$y_i = \rho C_i + \theta \frac{\sum_{j \neq i} M_j}{\sum_{j \neq i} Pop_j} + \phi \frac{\sum_k M_k}{\sum_k Pop_k} + Z_i \beta + \varepsilon_i$$

We find that it does not have a statistically significant effect on the excess death rate, whereas the CC membership ratio in the  $n - 1$  prefectures remains significant (columns (2) and (5)). As an additional check, we further include the average excess death rate in the adjacent prefectures within the same province ( $\sum_k y_k / \sum_k 1$ ), and find robust results (columns (3) and (6)).

## 5. Mechanism

Having established the causal effect of CC membership ratio on famine severity we now turn to explore the possible *mechanism* 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.<sup>22</sup> 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, 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

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<sup>22</sup>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”.

output.<sup>23</sup> 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.<sup>24</sup> 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.<sup>25</sup> 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 behind the causal relationship we need detailed information on both grain pro-

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<sup>23</sup>“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.

<sup>24</sup>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).

<sup>25</sup>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.

curement 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 CC membership ratio and the famine period dummy as follows:

$$G_{it} = \rho C_i F_t + Z_i F_t \beta + \alpha_i + \nu_{it} \quad (3)$$

where  $F_t$  denotes the period 1959-1961. Reported in Table 8, the results show that during the famine counties with a higher ratio 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 one more CC member per million population is associated with a more than three times increase in resale grain (column (3)), or an increase in grain resale of up to 44 kilograms per person per year during 1959-61 (unlogged), which is equivalent to 85 days of caloric requirements for a healthy adult laborer or for healthy child development, or 196 days if the purpose is simply to stay alive (column (4)).<sup>26</sup> 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 65 kilograms of grain in a year (column (5)).<sup>27</sup>

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<sup>26</sup>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.

<sup>27</sup>It is perhaps worth noting that Henan Province had only 7 CC members, a number lower than the average of 10 for each province (181 CC members/18 provinces).

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 gives credence to [Meng, Qian and Yared \(2015\)](#) claim that the grain procurement policy was “inflexible”.

## 6. Conclusion

In terms of casualties China’s Great Leap Famine is beyond comparison. While many studies have now pointed to the excessiveness of grain procurement as the dominant culprit, few have examined the human factor in what is the deadliest famine in human history. Using the CC membership ratio as a measure of the political elites in a one-man, dictatorship regime, we find that these political leaders had importantly helped reduce the severity during China’s Great Leap Famine, in that prefectures with one or more CC member(s) were hit much less severely than those without. This particular intervention was unlikely motivated by political considerations; given that Mao had strongly endorsed the Great Leap Forward, any criticism thus ran the political risk of demotion or even outright expulsion from the Party.<sup>28</sup> In other words, career concerns would be more consistent with political acquiescence than with regional favoritism. Hence, to the extent that the main goal of favoritism was to help alleviate “distant relatives” from food shortages, the concern was likely more social than political.

Perhaps an equally unexpected finding is that this intervention by the political elites was not a zero-sum game. Due perhaps to the overall adequate supply of grain at the time, even prefectures not represented by CC members were able to benefit from those that were within the same province. But even without considering this positive externality, through their timely intervention, the 181 CC members in our sample prefectures were instrumental in saving the lives of over a million (1.08 million to be exact), accounting for 6.1 percent of the total excess deaths. In terms of mechanism, based on a county-level analysis of the

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<sup>28</sup> This 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.

famine-stricken province of Henan, we find that while the CC members were unable to reduce the grain procurement quotas of their provinces, they were able to increase the amount of grain resold to their home counties, thereby reducing the severity of the famine experienced in those counties. Of course, external validity of our finding will have to await future, more systematic studies.

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TABLE 1: Variables Definition and Data Sources

Variables	Definition	Sources	Obs.	Mean	S.D.
Excess Death Rate	Excess death rate during China's Great Famine, 1959-1961 (%). Within-province S.D. Between-province S.D.	1	265	4.917	5.843 4.038 4.126
<i>Central Committee (CC) Members</i> (unit: number per 1,000,000 local population)					
CC Membership Ratio (1958)	CC members hailing from a prefecture during 1958-1968	2,3	265	0.408	1.067
CC Membership Ratio (1945)	CC members hailing from a prefecture during 1945-1955	2,3	265	0.149	0.534
CC Membership Ratio (1969)	CC members hailing from a prefecture during 1969-1972	2,3	265	0.608	1.568
High School or Above	Received education beyond high school	2,3	265	0.255	0.572
Long March Experience	Experienced the Red Army's Long March (1934-1935)	2,3	265	0.147	0.438
Liu-Deng Faction	Worked in the same work unit as <i>Liu Shaoqi</i> and <i>Deng Xiaoping</i>	2,3	265	0.030	0.282
Military Members	Served in the military	2,3	265	0.105	0.39
Full Members	Held full membership on the CC	2,3	265	0.187	0.579
Politburo Members	Held a position in the Politburo of the CC	2,3	265	0.038	0.187
Central Planning Department	Worked in the departments of central planning	2,3	265	0.069	0.351
<i>Control Variables</i>					
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
<i>Changjiang</i> (Yangtze) River	Equals 1 if the area is located along <i>Changjiang</i> (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
Share of Revolutionary Bases	No. of towns in a prefecture located in a revolutionary base/ Total no. of towns in a prefecture	6	265	0.161	0.266

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TABLE 2: Effect of CC Membership Ratio on Famine Severity

	Dependent Variable: Excess Death Rate (%)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CC Membership Ratio (1958)	-0.664*** (0.199)	-0.634*** (0.214)	-0.579** (0.260)	-0.584** (0.257)	-0.584** (0.234)	-0.557** (0.219)	-0.565** (0.236)
Share of Revolutionary Bases							0.114 (1.191)
Urbanization Rate				-0.056*** (0.018)	-0.034** (0.016)	-0.031* (0.016)	-0.031* (0.016)
Provincial Capital					-1.285* (0.739)	-1.204 (0.773)	-1.200 (0.778)
Historical Treaty Ports					-0.860 (0.649)	-1.010 (0.676)	-1.008 (0.679)
Coast					-1.691** (0.766)	-1.144 (0.804)	-1.143 (0.804)
<i>Changjiang</i> (Yangtze) River					-0.833 (1.729)	-0.805 (1.782)	-0.808 (1.790)
ln (Crop Suitability: Wheat)						1.744** (0.854)	1.755** (0.866)
ln (Crop Suitability: Rice)						1.905 (1.325)	1.894 (1.304)
ln (Population in 1953)		0.270 (0.372)	0.505 (0.375)	0.574 (0.376)	0.877** (0.416)	0.686* (0.389)	0.689* (0.388)
Province Dummies			Y	Y	Y	Y	Y
Observations	265	265	265	265	265	265	265
R-squared	0.015	0.017	0.540	0.546	0.559	0.571	0.571

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

TABLE 3: Effects of the CC Membership Ratio Grouped by Political Rank, Functional Status, and Individual Characteristics

	Dependent Variable: Excess Death Rate (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
CC Member Ratio (1958)	-0.638** (0.247)	-0.587*** (0.215)	-0.560** (0.259)	-0.654*** (0.239)	-0.700*** (0.226)	-0.666*** (0.250)
Full Members	0.390 (0.388)			0.494 (0.719)	0.245 (0.779)	0.815 (0.975)
Politburo Members	-1.155 (1.848)			-1.156 (1.895)	-1.397 (1.899)	-1.774 (1.937)
Military Members		0.235 (0.629)		0.159 (0.626)	-0.524 (0.652)	-0.361 (0.654)
Central Planning Dept.			0.026 (0.583)	-0.277 (1.069)	-0.346 (1.169)	0.218 (1.556)
$\geq$ High School					0.270 (0.769)	0.207 (0.822)
Long March					0.931 (0.933)	1.048 (1.004)
Liu's Faction						-1.251 (1.327)
Deng's Faction						0.315 (0.783)
Lin's Faction						-0.793 (1.042)
Control Variables	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y
Observations	265	265	265	265	265	265
R-squared	0.573	0.571	0.571	0.573	0.575	0.578

Notes: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; control variables include all variables listed in column (7) of Table 2.

TABLE 4: Placebo Tests—Comparing the Effects of CC Membership Ratio in 1945, 1958 and 1969

	Dependent Variable: Excess Death Rate (%)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CC Membership Ratio (1945)	-0.193 (0.222)	-0.241 (0.261)					0.504 (0.379)
CC Membership Ratio (1958)			-0.627** (0.284)	-0.565** (0.236)			-0.791*** (0.274)
CC Membership Ratio (1969)					-0.200 (0.222)	-0.111 (0.200)	0.115 (0.139)
Control Variables		Y		Y		Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y	Y
Observations	265	265	265	265	265	265	265
R-squared	0.523	0.563	0.534	0.571	0.525	0.564	0.573

Notes: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; control variables include all variables listed in column (7) of Table 2.

TABLE 5: Instrumental Evidence for the Effect of CC Membership Ratio

	Reduced Form		Two-stage Least Squares			
			First Stage	Second Stage	First Stage	Second Stage
	(1)	(2)	(3)	(4)	(5)	(6)
CC Membership Ratio (1958)				-0.605*** (0.192)		-0.632** (0.250)
Change in CC Membership Ratio from 1945 to 1956	-0.647*** (0.224)	-0.642** (0.264)	1.069*** (0.073)		1.016*** (0.036)	
Control Variables		Y			Y	Y
Province Dummies		Y			Y	Y
Observations	265	265	265	265	265	265
R-squared	0.009	0.570	0.750	0.015	0.788	0.571
F-stat				214.5		795.6

Notes: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; control variables include all variables listed in column (7) of Table 2.

TABLE 6: Robustness Checks—Controlling for Factional Ties

	Dependent Variable: Excess Death Rate (%)							
					Instrumented Results			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	The Second Stage							
CC Membership Ratio (1958)	-0.519*	-0.578**	-0.571**	-0.531*	-0.628**	-0.633**	-0.643**	-0.641**
	(0.297)	(0.244)	(0.246)	(0.301)	(0.258)	(0.250)	(0.259)	(0.264)
Share of Revolutionary Bases	0.121	0.095	0.106	0.071	0.244	0.169	0.200	0.177
	(1.198)	(1.204)	(1.179)	(1.198)	(1.151)	(1.155)	(1.126)	(1.141)
Liu, Shaoqi's Faction	-0.209			-0.327	-0.089			-0.219
	(0.575)			(0.714)	(0.488)			(0.636)
Deng, Xiaoping's Faction		0.158		0.327		0.197		0.343
		(0.352)		(0.573)		(0.337)		(0.548)
Lin, Biao's Faction			0.086	0.144			0.162	0.235
			(0.989)	(1.020)			(0.943)	(0.977)
	The First Stage							
Change in CC Membership Ratio, 1945-1956					0.975***	1.012***	0.995***	0.970***
					(0.030)	(0.030)	(0.035)	(0.036)
Share of Revolutionary Bases					0.130	0.276	0.402	0.101
					(0.091)	(0.264)	(0.321)	(0.099)
Liu, Shaoqi's Faction					0.958***			0.899***
					(0.132)			(0.203)
Deng, Xiaoping's Faction						0.679***		0.138
						(0.171)		(0.169)
Lin, Biao's Faction							0.306	0.106
							(0.199)	(0.122)
Control Variables	Y	Y	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y	Y	Y
Observations	265	265	265	265	265	265	265	265
R-squared	0.571	0.571	0.571	0.572	0.571	0.571	0.571	0.571

Notes: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; control variables include all variables listed in column (7) of Table 2.

TABLE 7: Effect of CC Membership Ratio on Other Prefectures within the Same Province

	Dependent Variable: Excess Death Rate (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
CC Membership Ratio (1958)	-1.010*** (0.170)	-0.993*** (0.185)	-0.933*** (0.160)	-0.897*** (0.199)	-0.899*** (0.197)	-0.915*** (0.187)
CC Membership Ratio (1958) in the other $n - 1$ Prefectures	-12.483*** (2.661)	-12.361*** (2.677)	-12.598*** (2.676)	-11.466*** (3.146)	-11.268*** (3.087)	-11.774*** (3.249)
CC Membership Ratio (1958) in the Adjacent Prefectures (Same Province)		-0.645 (0.678)	-0.484 (0.523)		-0.500 (0.568)	-0.485 (0.503)
Average Excess Death Rate in the Adjacent Prefectures (Same Province)			0.066*** (0.025)			0.058** (0.026)
Control Variables				Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y
Observations	265	264	264	265	264	264
R-squared	0.545	0.547	0.569	0.580	0.581	0.596

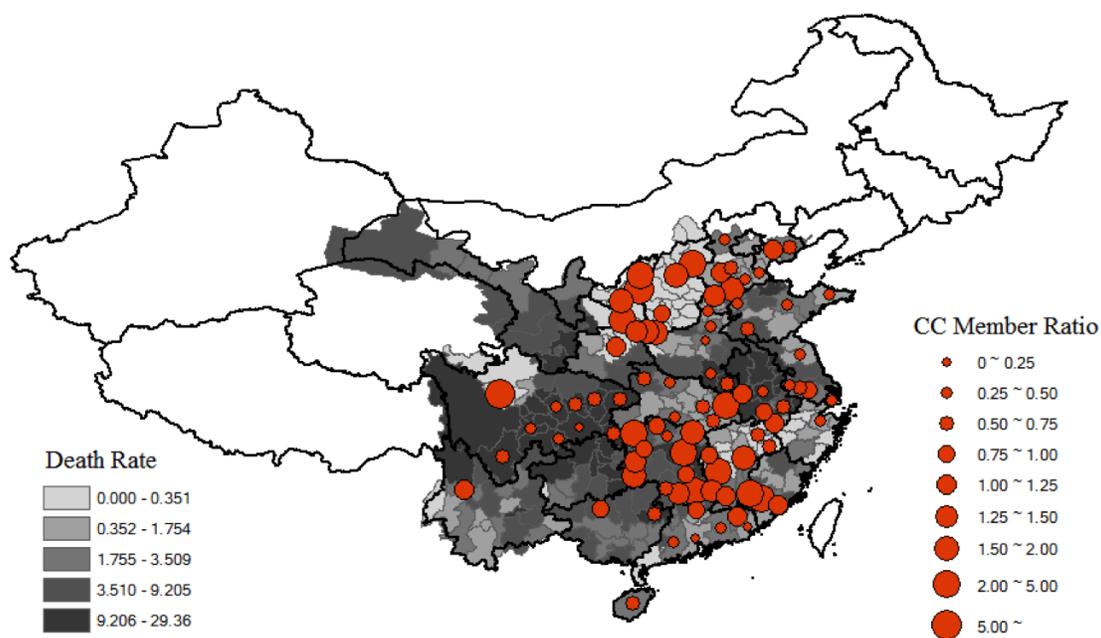
*Notes:* Robust standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; control variables include all variables listed in column (7) of Table 2. The number of observations in columns (2), (3), (5) and (6) decreases to 264 since one prefecture (today's Hainan) is an island without any adjacent prefectures.

TABLE 8: Possible Channel for the Effect of CC Membership Ratio: 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 Ratio (1958)	0.225 (0.164)	-0.020 (0.017)	1.366** (0.567)	0.044*** (0.012)	-0.065** (0.027)
GLF × ln (Urban Population)	-0.190** (0.070)	-0.011** (0.004)	-0.125 (0.176)	-0.004 (0.003)	-0.007 (0.007)
GLF × Provincial Capital	-0.051 (0.111)	0.019*** (0.006)	-0.275 (0.323)	-0.013* (0.006)	0.032*** (0.010)
GLF × ln (Wheat Suitability)	0.766** (0.318)	0.003 (0.030)	0.853 (1.263)	0.053* (0.025)	-0.052 (0.052)
GLF × ln (Rice Suitability)	-0.051 (0.155)	0.000 (0.005)	-1.283* (0.617)	-0.035** (0.012)	0.034** (0.014)
GLF × ln (Population in 1953)	0.194*** (0.049)	0.007* (0.003)	0.382*** (0.086)	0.010*** (0.002)	-0.003 (0.005)
1958	0.483*** (0.065)	0.025*** (0.002)	0.515*** (0.069)	0.013*** (0.002)	0.012*** (0.003)
1959	-3.241*** (0.869)	-0.058 (0.086)	-5.024* (2.361)	-0.185*** (0.058)	0.127 (0.132)
1960	-3.811*** (0.853)	-0.087 (0.085)	-6.026** (2.327)	-0.206*** (0.058)	0.118 (0.131)
1961	-4.502*** (0.884)	-0.109 (0.085)	-6.096** (2.334)	-0.207*** (0.058)	0.098 (0.131)
Observations	545	545	541	541	541
R-squared	0.732	0.691	0.523	0.525	0.319
No. of Counties	109	109	109	109	109

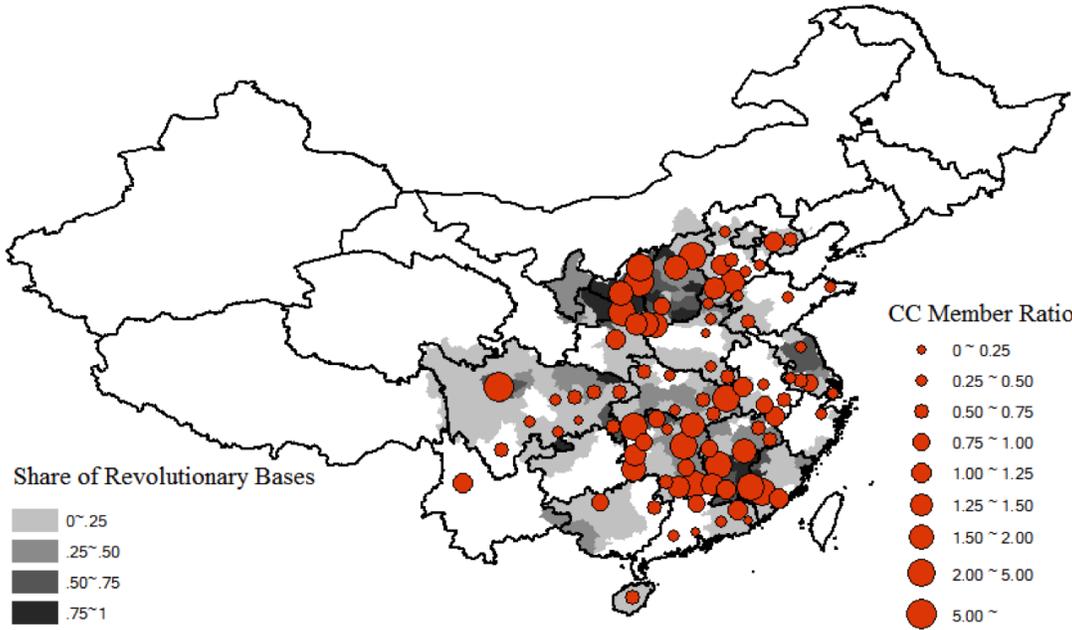
Notes: Robust standard errors clustered at the prefecture level in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

FIGURE 1: Geographic Distribution of CC Membership Ratio and Famine Severity



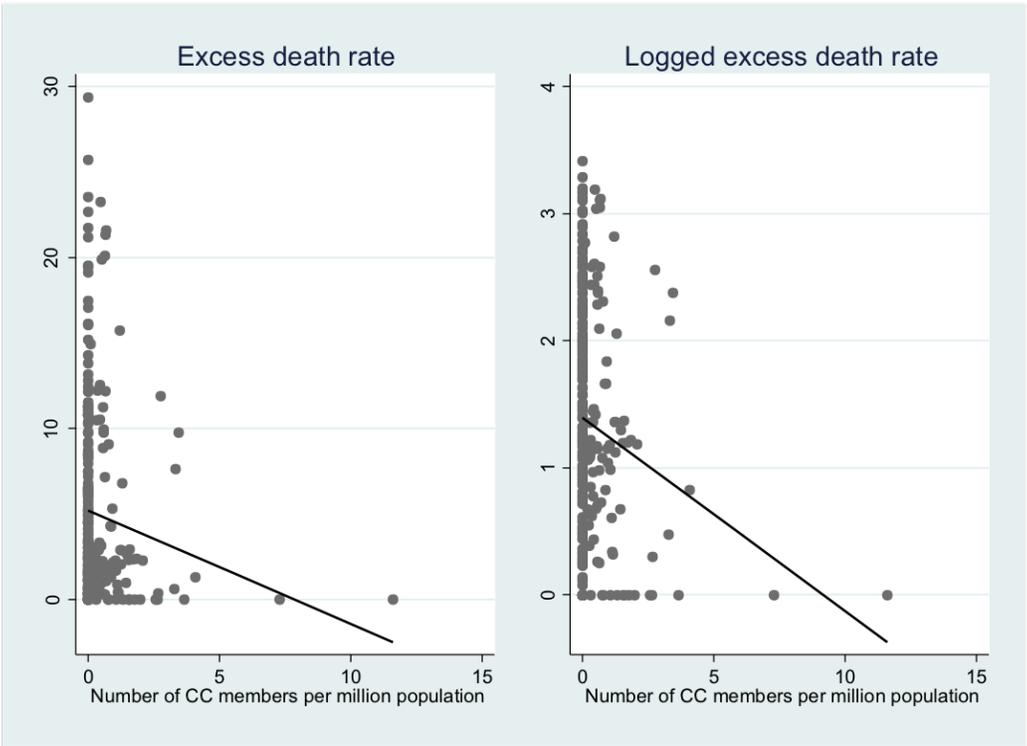
*Note:* The different shades of grey reflect the degree of excess death rates during the Famine period of 1959-1961. Each red circle represents a prefecture; its size is proportional to the number of native CC members normalized to one million people. The black solid line delineates the provincial boundaries in 1953. The prefectural boundaries are based on the map of the Qing dynasty in 1820.

FIGURE 2: Geography of Revolutionary Bases and CC Membership Ratio



*Note:* The different shades of grey reflect the share of revolutionary bases. Each red circle represents a prefecture; its size is proportional to the number of native CC members normalized to one million people. The black solid line delineates the provincial boundaries in 1953. The prefectural boundaries are based on the map of the Qing dynasty in 1820.

FIGURE 3: Correlation between Famine Severity and CC Membership Ratio



## Appendix A

### Prefecture Level Excess Death Rate

The information on prefecture level excess death rate is provided by [Cao \(2005\)](#). In this appendix, we briefly introduce the method that [Cao \(2005\)](#) employed. Cao's (2005) estimate mainly bases on population census in 1953 and 1964, and the county-level gazetteers.

First, using population growth rate information in the county-level gazetteers, [Cao \(2005\)](#) estimates the population growth rate in each prefecture during 1953-58 (denoted by  $G^0$ ) and 1961-64 (denoted by  $G^1$ ). For instance, in Xuzhou prefecture, the population growth rate during 1953-58 is 23 thousandth, and that during 1961-64 is 25.4 thousandth.

Second, using the population in 1953 ( $Popu_i^{1953}$ , census data) and 1964 ( $Popu_i^{1964}$ , census data) as the base, the author can calculate the total population before ( $Popu_i^0$ ) and after the Great Leap Famine ( $Popu_i^1$ ):

$$\begin{aligned} Popu_i^0 &= Popu_i^{1953} \times (1 + G_i^0)^{t^0} \\ Popu_i^1 &= Popu_i^{1964} \times (1 + G_i^1)^{-t^1}, \end{aligned}$$

in which,  $t^0$  represents the duration between 1953 and the beginning date of GLF, and  $t^1$  represents the duration between the end date of GLF and 1964. The difference is the net decrease in total population:

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

which also equals the total deaths ( $D_i$ ) minus the total births ( $B_i$ ) during the famine period. In Xuzhou prefecture, the estimated population in 1958 is 6281 thousand, and that in 1961 is 6016 thousand. The net decrease in population is about 265 thousand.<sup>1</sup> Third, the excess deaths refer to the total death minus the normal death. Its relationship with the net decrease

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<sup>1</sup> [Cao \(2005\)](#) also considers the number of migrants since migration can lead to the population change. County gazetteers record the information of migrants. In the case of Xuzhou, the size of net migrants is nearly zero.

of population can be specified as:

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

in which,  $\tilde{D}_i$  is the potential normal deaths based on the death rate during the non-famine period. Then, the author calculates the difference between the birth rate during the famine and the death rate during normal period, and then estimates  $B_i - \tilde{D}_i$ . In Xuzhou prefecture, this difference is around 139 thousand. Then, the total excess deaths are around 404 thousand.

Then, the excess death rate can be calculated by the ratio of excess deaths to the total population in the year of 1958. In the case of Xuzhou, the excess death rate is about  $404/6281 = 6.43\%$ .

## Appendix B

TABLE B1: Dropping the Prefecture with More CC Members

	Excess Death Rate (%)		Logged Excess Deaths					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CC Membership Ratio	-0.623** (0.256)	-0.616*** (0.209)	-0.501*** (0.127)	-0.514*** (0.117)				
Number of CC Members					-0.319* (0.166)	-0.320** (0.157)		
Number of CC members (logged)							-0.722* (0.373)	-0.683* (0.364)
All basic controls		Y		Y		Y		Y
ln (Population in 1953)	Y	Y	Y	Y	Y	Y	Y	Y
Province Dummies	Y	Y	Y	Y	Y	Y	Y	Y
Observations	264	264	264	264	264	264	264	264
R-squared	0.540	0.575	0.695	0.723	0.685	0.712	0.686	0.712

*Note:* Robust standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The average number of CC members in our sampled prefectures is 0.683, but one prefecture (Changsha) had 28 members in 1958. To check robustness we drop this observation.

TABLE B2: Determinants of CC Membership Ratio

	(1)	(2)	(3)	(4)	(5)
Share of revolutionary bases			1.560*** (0.473)	1.537*** (0.532)	1.535*** (0.527)
Urbanization Rate (%)	-0.002 (0.005)	-0.002 (0.005)			-0.002 (0.005)
Provincial Capital	0.004 (0.185)	-0.014 (0.204)			0.035 (0.195)
Historical Treaty Ports	-0.041 (0.130)	0.057 (0.149)			0.084 (0.136)
Coast	-0.124 (0.172)	-0.109 (0.202)			-0.079 (0.181)
<i>Changjiang</i> (Yangtze) River	0.116 (0.218)	0.146 (0.239)			0.081 (0.214)
ln (Crop Suitability: Wheat)	0.001 (0.172)	-0.065 (0.330)			0.097 (0.318)
ln (Crop Suitability: Rice)	0.090 (0.223)	-0.155 (0.481)			-0.282 (0.481)
ln (Population in 1953)	-0.113 (0.122)	-0.106 (0.169)			-0.056 (0.149)
Province Dummies	N	Y	N	Y	Y
Observations	265	265	265	265	265
R-squared	0.017	0.139	0.151	0.226	0.235

Note: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

TABLE B3: Determinants of Excess Death Rate at the Prefectural Level

	(1)	(2)	(3)	(4)	(5)	(6)
Urbanization Rate	-0.107*** (0.021)	-0.046*** (0.015)	-0.113*** (0.025)	-0.046*** (0.016)	-0.086*** (0.025)	-0.030* (0.016)
Provincial Capital					-1.121 (0.949)	-1.196 (0.755)
Historical Treaty Ports					-1.114 (0.808)	-1.042 (0.669)
Coast					-3.733*** (0.906)	-1.084 (0.809)
<i>Changjiang</i> (Yangtze) River					0.077 (2.098)	-0.886 (1.802)
ln (Crop Suitability: Wheat)			1.803** (0.813)	2.322*** (0.840)	0.445 (0.849)	1.780** (0.865)
ln (Crop Suitability: Rice)			1.593** (0.769)	2.208 (1.439)	1.611* (0.825)	1.992 (1.359)
ln (Population in 1953)					0.881** (0.425)	0.745* (0.401)
Province Dummies	N	Y	N	Y	N	Y
Observations	265	265	265	265	265	265
R-squared	0.028	0.527	0.051	0.547	0.105	0.562

Note: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

TABLE B4:  
Results of a Test to Determine Whether the CC Membership Ratio Follows a Random Walk

	CC Membership Ratio in		Change in CC Membership Ratio from 1945 to	
	1956 (1)	1958 (2)	1956 (3)	1958 (4)
CC Membership Ratio (1945)	1.079*** (0.098)	1.030*** (0.082)	0.079 (0.098)	0.030 (0.082)
Share of revolutionary bases	1.035** (0.436)	1.016** (0.435)	1.035** (0.436)	1.016** (0.435)
Urbanization Rate (%)	-0.005 (0.003)	-0.003 (0.003)	-0.005 (0.003)	-0.003 (0.003)
Provincial Capital	0.127 (0.169)	0.102 (0.173)	0.127 (0.169)	0.102 (0.173)
Historical Treaty Ports	0.134 (0.109)	0.103 (0.115)	0.134 (0.109)	0.103 (0.115)
Coast	0.088 (0.153)	0.064 (0.157)	0.088 (0.153)	0.064 (0.157)
Changjiang (Yangtze) River	0.075 (0.149)	0.187 (0.168)	0.075 (0.149)	0.187 (0.168)
ln (Crop Suitability: Wheat)	0.319 (0.270)	0.261 (0.269)	0.319 (0.270)	0.261 (0.269)
ln (Crop Suitability: Rice)	-0.397 (0.473)	-0.378 (0.474)	-0.397 (0.473)	-0.378 (0.474)
ln (Population in 1953)	-0.113 (0.145)	-0.103 (0.146)	-0.113 (0.145)	-0.103 (0.146)
Province Dummies	N	Y	N	Y
Observations	265	265	265	265
R-squared	0.472	0.457	0.185	0.187

Note: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix C

### Determinants of Excess Death Rate (%) at the Provincial Level

Since most extant studies employ the share of rural population during the famine period to proxy for urban bias, but since data of this measure are available only at the province level, we repeat this exercise using provincial level data, and find that it does significantly increase excess death rate during the famine period (columns (1) and (3)). To check whether our alternative measure is a good proxy, we run the same regression using also the provincial level data, and find that excess death rate is significantly lower in provinces with lower urbanization rates in 1920. These results provide confidence that urbanization rate in 1920 is a good, albeit unconventional, proxy for urban bias.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Rural Population (%)	-0.221*** (0.069)		-0.141** (0.065)				
Rural Population * GLF	0.608* (0.294)		0.685*** (0.201)				
Urbanization Rate (%) * GLF				-0.796** (0.345)		-0.937** (0.374)	-0.886** (0.359)
Grain Output Per Capita		-11.518 (6.814)	-7.736 (6.509)				
Grain Output Per Capita * GLF		4.412 (11.516)	-5.947 (9.582)				
ln (Crop Suitability: Wheat) * GLF					-3.976 (9.411)	-8.162 (9.297)	4.276 (4.290)
ln (Crop Suitability: Rice) * GLF					0.099 (4.205)	3.047 (4.490)	-6.202 (9.468)
CC Membership Ratio (1958) * GLF							-4.810* (2.336)
Province Dummies	Y	Y	Y	Y	Y	Y	Y
Observations	216	216	216	216	216	216	216
R-squared	0.521	0.479	0.533	0.498	0.464	0.508	0.521

Note: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix D

### Robustness Check – the Effect of the Number of CC Members

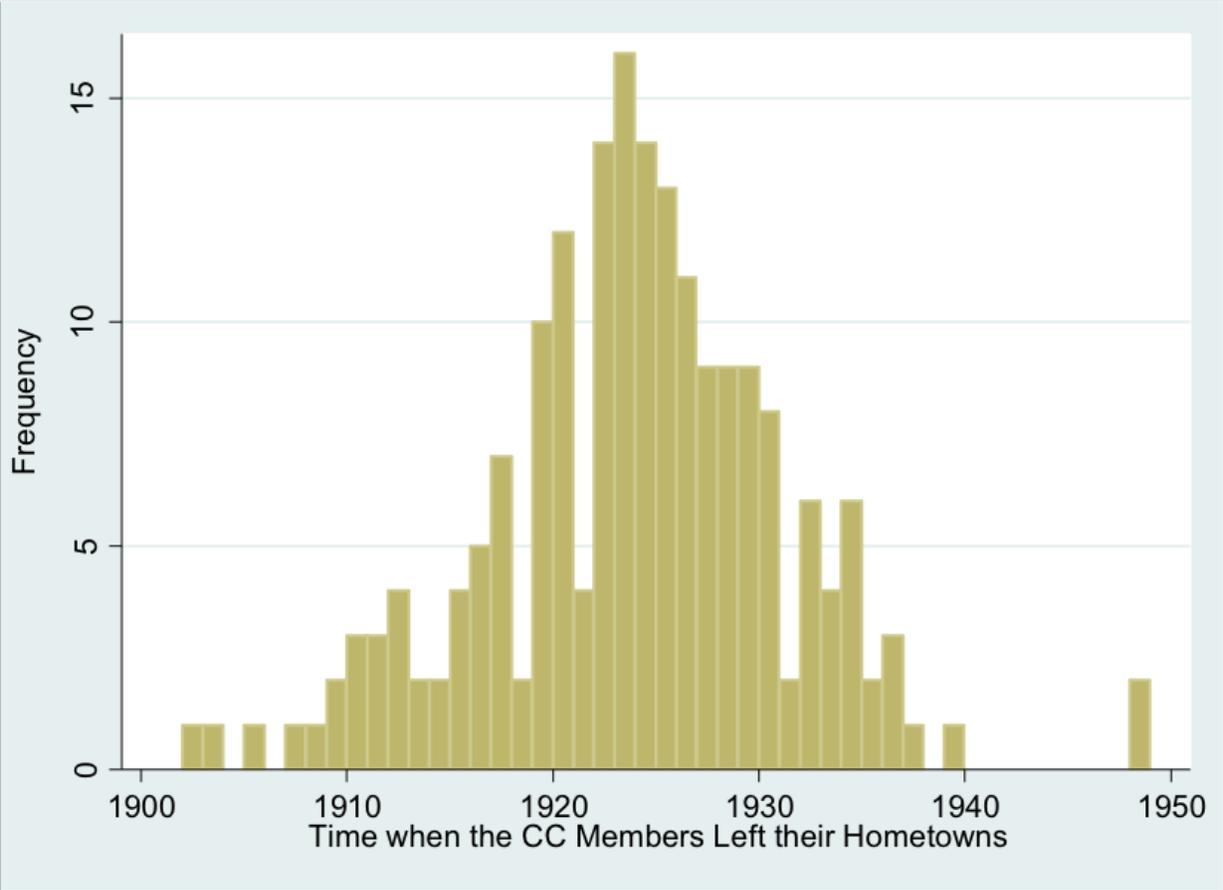
To check robustness we regress the logged number of excess deaths on the logged number of CC members in 1958. The results show that without controlling for population size, the effect is not significant, since the number of CC members and the number of excess deaths are positively correlated with population size. The results remain robust with the inclusion of population size, provincial dummies and other control variables.

	Dependent variable: Logged Excess Deaths					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (# of CC Members)	0.371 (0.657)	-1.198* (0.650)	-0.987** (0.483)	-0.884** (0.449)	-0.943** (0.444)	-0.912** (0.459)
Urbanization Rate				-0.059 (0.042)	-0.056 (0.044)	-0.056 (0.043)
Provincial Capital					-0.548 (0.694)	-0.507 (0.696)
Historical Treaty Ports					0.052 (0.696)	0.016 (0.712)
Coast					-2.344*** (0.842)	-2.012*** (0.700)
Changjiang (Yangtze) River					0.468 (0.748)	0.616 (0.727)
ln (Crop Suitability: Wheat)						1.441 (1.302)
ln (Crop Suitability: Rice)						0.435 (1.135)
ln (Population in 1953)		2.400*** (0.348)	1.868*** (0.355)	1.923*** (0.348)	2.157*** (0.365)	2.069*** (0.348)
Province Dummies			Y	Y	Y	Y
Observations	265	265	265	265	265	265
R-squared	0.001	0.175	0.678	0.685	0.698	0.703

Note: Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

# Appendix E

FIGURE E: Distribution of the Years of Departure of CC Members from their Hometowns



Note: Only two out of 195 CC members left their hometowns in 1949.