Historical Traumas and the Roots of Political Distrust: Political Inference from the Great Chinese Famine

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Abstract

Political trust is the foundation of authoritarian regimes' legitimacy, and it is often sustained by propaganda. When does propaganda reach its limit, and what are the consequences when propaganda is falsified? We study the causal effect of the Great Chinese Famine (1958-1961) on survivors' political distrust. Policy failures led to the Famine, but the propaganda blamed drought for the disaster. Information that directly contradicted the propaganda — experiences of severe Famine in the absence of abnormal drought conditions — was quasi-randomly available to some citizens, but not others. Using a nationally representative survey, we employ a difference-in-differences strategy to compare individuals who were exposed to different intensities of the Famine across regions with different levels of drought during the Famine. The Famine survivors inferred the government's liability from starvation experiences and the drought conditions, and they were more likely to dismiss the propaganda and blame the government for the Famine if they observed regular weather conditions during the Famine. As a result, these individuals expressed significantly less trust in the government. Costs of falsified propaganda are substantial, since the dampened political trust has turned into a stable political ideology. The distrust persists even half a century after the Famine, has been transmitted to the subsequent generation, and has spilled over to a broad range of political attitudes unrelated to the Famine.

Keywords: Political Trust, Political Attitudes, China, Authoritarian Regime, Persistence
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Which is more important for an orderly state: food, weapons, or a government that one can trust?

By three methods we may learn wisdom: First, by reflection, which is noblest; second, by imitation, which is easiest; and third, by experience, which is the bitterest.

Confucius, 551 - 480 BC

1 Introduction

Political trust is the foundation of political support and regime legitimacy.[1] This is particularly the case in authoritarian regimes whose legitimacy does not naturally stem from democratic elections. For example, the notion of "Big Brother" suggests someone to be trusted, and the imagery of Mao as the sun highlights the reliability of the leader. At its core, political trust manifests itself in citizens' beliefs that the government will not deliberately do them harm (Newton, 2007). In the aftermath of man-made disasters, policy failures, and high-profile political scandals, propaganda and information control are at the heart of authoritarian regimes' effort to generate and maintain trust among citizens (Guriev and Treisman, 2018).

Propaganda comes with risks. Citizens may not passively absorb propaganda messages, and they could encounter information that undermines the propaganda. Once a propaganda message is falsified, the regime would need to bear profound costs as citizens may not only distrust the particular message, but also distrust the sender of the message and ultimately the entire regime. Under what conditions does propaganda reach its limit? In particular, do citizens form political distrust when they possess contradictory information that could reveal the nature of the negative experiences they have gone through? When propaganda *does* reach its limit, what are the dynamic consequences such as intragenerational persistence and intergenerational transmission of the political distrust?

Understanding the limits of propaganda and the conditions under which political distrust could arise in authoritarian regimes is important: an answer to this question allows us to gauge the extent to which authoritarian regimes could remain stable and sustain legitimacy among their populace. The abuse of political power in authoritarian regimes often generates massive disasters. These regimes inevitably attempt to subsequently cover up and shift the blame to factors outside of the regimes' control. Hence, the extent to which authoritarian regimes could get away from the disasters they cause represents a general class of problems.

Nonetheless, there are three empirical challenges in identifying how citizens' political trust is shaped by the interaction between negative policy outcomes, subsequent propaganda to cover up the catastrophe, and

[1] Lack of political trust is often associated with a variety of political attitudes and behaviors among citizens that impede the smooth operation of the state, ranging from dampened support to proposed policies that citizens are otherwise enthusiastic about, to lower compliance with existing tax policies, to suppressed keenness to participate in pension programs that require credible commitment from the government, and even to higher tendency to protest against the incumbent government and demand for regime change. Sapienza and Zingales (2013) show that an average US citizen would not support gasoline tax-and-rebate scheme simply because he does not trust the government to actually rebate the money. Kuziemko et al. (2015) use experimental evidence to show that political trust plays a critical role in shaping Americans' support for redistribution policies. In the Chinese context, greater distrust in the government is associated with an increase in the likelihood of attending a protest or demonstration, or refusing to pay taxes or fees (Cantoni et al., 2017); political distrust among rural Chinese residents is associated with significantly lower likelihood of enrolling in the *New Rural Pension Scheme* (NPRS) introduced in 2009 (based on authors' own calculation).

information inconsistent with the propaganda. First, the role of government's actions in shaping outcomes is often not well defined, making it difficult to benchmark citizens' response to the negative outcomes in the first place. Second, conditions that generate variations in posterior political trust may not be present. When there is a clear mapping between the government's actions and the negative outcomes, there may lack factors outside of the government's control to provide plausible deniability of the government's responsibility. If it is unambiguous to citizens that the government is the one to blame, then one may observe full convergence of citizens' posterior distrust in the government. When the presence of deniability factors allows the government to deploy propaganda to shift the blame, there may not exist differential access to information that could allow some citizens to question the propaganda and attribute the negative outcomes to the government. Exogenous variations in either the presence of deniability factors or differential access to information that exposes the government's responsibility are rarer in empirical contexts. Finally, quantifying the intragenerational persistence and intergenerational transmission of political distrust following a particular event is even more demanding: not only does it require data within individuals over time and multiple elicitation of political distrust among household members of different generations, but it also needs the initial shock to be large in magnitude in order to achieve reasonable statistical precision and trigger various persistence mechanisms.

In this paper, we study how the Great Chinese Famine (1958-1961, "the Famine" henceforward) — the starvation experience, the propaganda that shifted the blame away from the regime, and private information that ran counter to the propaganda — affected the political trust among the survivors and their children. The Famine context allows us to overcome the empirical challenges that prevent clean identification of belief formation about the state and the limits of propaganda. First, the mapping from the Chinese government's policy to the disastrous famine outcome is well defined. The Famine was not caused by shortage of food *per se*, but rather the distribution of available food (Sen, 1981). In other words, the Famine was a man-made disaster due to the systematic misallocation of food — the food procurement system separated agricultural production from the amount of food available for consumption. Second, the Famine context features both the potential deniability and differential access to information that contradicted the propaganda message. The Chinese state actively launched a campaign soon after the Famine to blame weather, in particular the drought that occurred during the Famine. Without additional information, the Famine survivors could reasonably attribute the Famine to naturally occurring shocks to food production. Moreover, information on local drought can be observed by citizens. Lack of drought despite severe Famine provides a subset of citizens with information independent from the government's manipulation, cross-cutting the Famine event itself (since drought is not associated with Famine severity), in direct contrary to the propaganda message, highly relevant to the interpretation of the Famine, and critical to the inference on the government's trustworthiness. Finally, the Famine was one of the most traumatic peacetime tragedies of the 20th century, resulting in approximately 30 million deaths. The magnitude of the event and our multi-generational household survey make it feasible to identify the intragenerational persistence and intergenerational transmission of the Famine impact.

Specifically, we use a difference-in-differences strategy to examine the patterns in which survivors made inferences on the government from their experiences during the Famine. Using a nationally representative survey, we compare individuals who experienced the Famine in regions with different Famine intensities, across places with various degrees of exceptional drought during the Famine period. Since local drought conditions were orthogonal to local Famine intensities, drought provided some survivors with cross-cutting

information that could contradict the propaganda message, which blamed the Famine on drought. In particular, those who lived in regions where the Famine was severe *and* observed exceptional high levels of drought could believe in the propaganda message, and (mistakenly) attribute the Famine to weather shocks rather than the government's calamitous decision-making. In contrast, for individuals who lived in areas not affected by drought but nevertheless experienced severe Famine, they should be more likely to discredit the propaganda message and infer that the government was responsible for the Famine. Therefore, the interaction between individuals' exposure to the Famine (i.e. its intensity) and the weather context of exposure (i.e. local drought conditions during the Famine) enables us to causally identify citizens' political inference on the regime's trustworthiness when their personal experiences were consistent with the state's propaganda. We discuss our identification strategy and the threats to identification in greater detail in Section 4.

We find that experiences of the Famine increased political distrust when local weather conditions contradicted the propaganda message. Upon having experienced severe hunger, individuals from regions where they witnessed lower levels of drought during the Famine became substantially less trusting of the contemporary local government, albeit more than 50 years after the Famine. The intensified political distrust was less prominent among those who experienced hunger in regions with higher levels of drought during the Famine, suggesting that they were more likely to be convinced by the propaganda message and attribute the Famine to natural disaster rather than systematic political failures.[2] These findings are robust to various alternative empirical specifications, Famine experience measurements, and drought measurements.

The patterns in which propaganda reached its limit are consistent with an information inference framework. First, propaganda worked only if the Famine survivors did not observe information incompatible with the propaganda. To the extent that weather conditions were similar within geographically nearby areas, when the Famine survivors observed significant variations in the Famine severity in regions near their hometown, they would be able to learn that weather was unlikely the cause of the Famine as advocated by the propaganda. Indeed, we find that the propaganda failed to uphold high political trust precisely in places where geographically adjacent counties experienced the Famine with very different intensities. Second, the propaganda message that blamed the Famine on drought was convincing only if the Famine survivors trusted the Chinese Communist Party — the sender of the propaganda message — in the first place. Indeed, we find that adhering to the propaganda message and attributing the Famine to weather were much more pronounced among individuals with higher prior trust in the Chinese regime, proxied by residents in provinces passed by the Communist Party's Long March during the 1930s. In contrast, for residents outside of the Communist stronghold regions where ex-ante trust towards the regime was relatively low, they were more likely to dismiss the propaganda message all together and blame the government for the Famine, regardless of local weather conditions.

Moreover, the impact of Famine experiences extends beyond the domain of political trust, and beyond the generation who directly experienced the Famine. The Famine's impact on contemporary political trust cannot be overturned by positive evaluations of the current government's performances. This suggests that the dampened political trust has turned into stable political ideology, lowering the support for the regime regardless of its performance. In addition, the Famine experiences affect political attitudes in a wide

[2]On average, the varying degrees to which individuals blamed the Famine on nature versus the government did not eliminate the overall adverse impact of hunger experiences themselves: survivors with the average hunger experiences dampened political trust, even if the survivors tended to ascribe their sufferings to natural disaster.

range of domains not directly related to the Famine. Perhaps more strikingly, not only does the Famine's impact on political trust persist within the survivors themselves for more than five decades, it has also been transmitted to the subsequent generation who did not go through the Famine in person.[3] Parents who suffered during the Famine have transmitted their political distrust to their children to a stronger degree, comparing to those parents who did not experience starvation. Moreover, even the pattern of political inference has been carried over to the next generation: children of those who experienced starvation in regions with little drought during the Famine exhibit significantly higher political distrust, just like their parents. We show suggestive evidence that several channels contributed to the persistence of the Famine impact. First, the Famine experiences served as a catalyst that drew together people with similar political trust in the marriage market. Such assortative mating formed homogeneous households that reinforced each member's own political distrust. Second, the Famine experiences and the resulting political distrust led survivors to disengage with the government: they stayed away from working for the government, and avoided marrying spouses employed by the government. They hence forewent important opportunities to update their beliefs on the government's trustworthiness after the Famine.

Taken together, our results indicate that propaganda comes with risks. Propaganda messages can be falsified, and falsified propaganda can backfire. When citizens obtain independent information at odds with the propaganda message, not only could the message itself get discredited, the entire regime may also become distrusted and challenged. Once political distrust emerges, it could self-perpetuate and persist, incurring a profound cost to the regime. Moreover, our findings suggest that a propaganda message reaches its limit not simply because it reveals that the regime performs badly, but perhaps more importantly, because it unearths the nature of such bad performance. This enriches the framework where an authoritarian regime is threatened primarily due to unsatisfactory socioeconomic performance (Gehlbach, Sonin, and Svolik, 2016). More fundamentally, the regime loses its legitimacy when citizens realize that the unsatisfactory performance is driven by man-made, intentional, and avoidable policy failures.

These findings contribute to a growing empirical literature on the experience-based formation of beliefs, attitudes and preferences.[4] Nunn and Wantchekon (2011) identify a persistent impact of the African slave trade on social trust; Alesina and Fuchs-Schündeln (2007) demonstrate that citizens' preference for redistribution was shaped by the political regime they grew up in; Malmendier and Nagel (2011) show that individuals grown up during the Great Depression are significantly less willing to take financial risks and participate in the stock market; Giuliano and Spilimbergo (2014) identify that the experiences of economic recession during formative years left individuals more favorable towards state redistribution; and Di Tella, Galiant, and Schargrodsky (2007) show that property rights allocation outcomes influenced a wide set of market-related beliefs. More recently, Fuchs-Schündeln and Schündeln (2015) show that cohorts who spent more time under democracy exhibit stronger support for the regime; and Malmendier and Nagel (2016) use rich belief data to show that individuals form inflation expectations based on personal experiences in the past. Nunn (2012) provides a fascinating survey on how cultural and political beliefs are shaped by history. Using the unique context of the Great Chinese Famine, we demonstrate that a massive shock in citizens'

[3]Vertical transmission of beliefs, attitudes and ideology has received considerable attention in economic theories, for example Bisin and Verdier (2001).

[4]Several papers have documented the long persistence of political attitudes in a given given. For example, Voigtlander and Voth (2012) document that anti-semitic attitudes and violence have persisted in Germany for at least 600 years; Cantoni, Hagemeister, and Westcott (2019) show that regions with high support for the recent right-wing party in Germany are strongly associated with similar support of the Nazi party in the 1930s.

information about the government induced by traumatic experiences can fundamentally and persistently change their political trust and attitudes. We further contribute to the literature by suggesting potential mechanisms of persistence in the political trust.

This paper also adds to the recent empirical literature on retrospective evaluation of government, typically studied in the context of voting. Voters' choices are governed by a coherent logic in many cases (Healy and Malhotra, 2013).[5] For example, Healy and Malhotra (2010) shows that when evaluating the government's performance responding to a natural disaster, citizens are sophisticated enough to distinguish aspects that were beyond the government's control (e.g. tornado-caused death) and those that were directly commanded by the government (e.g. disaster relief policies). Our findings are consistent with this general pattern, as the Famine survivors did not passively absorb the propaganda message from the state, and extracted useful information from the local weather conditions.[6] More broadly, our paper provides one of the first empirical data points that citizens in authoritarian regimes may achieve certain degree of government accountability through retrospective evaluation of the regime in the form of expressed political distrust.

Our findings on the formation and persistence of political distrust also contribute to the large literature on trust. Economists consider trust as a critical component of social capital, directly affecting economic outcomes at the micro level (Arrow, 1972), as well as institutional performances at the macro level (Putnam, Leonardi, and Nanetti, 1994). Political trust, in particular, is vital to our understanding of political institutions and their operations, and has been widely considered as a key factor that governs political interactions and activities (see, among others, Easton (1965), Muller, Jukam, and Seligson (1982), Nye, Zelikow, and King (1997), and Warren (1999)). Recently, a small economic literature turns to the subject of political trust and its consequences on public policy implementation (Sapienza and Zingales, 2013; Kuziemko et al., 2015). We add to this literature by providing evidence on the source of political trust, how it is formed, and how it persists over time.

Lastly, our finding that personal experiences during the Famine persistently affected political trust also contributes to the literature in both behavioral economics and psychology on the impact of traumatic events. Much of the existing literature focuses on the domain of risk preference, time preference, and investment decisions. For example, Malmendier and Nagel (2011) on macroeconomic turmoils; Callen et al. (2014) and Voors et al. (2012) on violence conflicts; Lerner et al. (2003) on terrorist attacks; Callen (2011) and Cameron and Shah (2013) on natural disasters. By focusing on the Great Chinese Famine, we extend this literature by investigating how traumatic events impact beliefs and attitudes in the political domain.

The rest of the paper proceeds as follows: Section 2 briefly describes the historical background, institutional setup, and important features of the Great Chinese Famine. Section 3 describes various data sources used in this study, where we also introduce our measurement of the Famine experiences and outcomes of interest. Section 4 introduces the empirical strategy, discussing the identification assumptions and potential

[5] In other instances, voters are found to make consistent and predictable errors, though the effect sizes are often small. For example, Wolfers (2007) shows that voters tended to reward incumbents for factors beyond their control. Healy and Malhotra (2009) and Huber, Hill, and Lenz (2012) demonstrate voters' systematic recency bias, overweighing visible government actions and recent performances during elections. Our result showing the Famine's persistent adverse effect on political trust provides contrasting evidence in this regard: citizens could be salient towards major events that occurred in the distant past, and recent positive signals of the government may not be sufficient to substantially alter perceptions formed in the past.

[6] In the context of the Famine, citizens were making political inferences from a disaster with seemingly ambiguous causes, and the inferences focus on who was truly responsible for the Famine. The other natural disaster related studies that we mention here typically focus on "true" natural disasters where there was no ambiguity in their causes — citizens were instead making political inferences from the government's responses in the aftermath of the natural disasters.

threats to identification. Section 5 presents main results and evidence on mechanisms, including a discussion of the scale of the Famine's impact. Section 6 investigates the extent to which the Famine impact has affected a broad set of political attitudes beyond those directly related to the Famine, and affected generations born after the Famine. Section 7 presents evidence against alternative hypotheses and a variety of robustness exercises that support causal interpretation of our findings. Finally, Section 8 concludes.

2 The Great Chinese Famine

Three key features of the Great Chinese Famine make it an ideal context to study the formation of political distrust and the limits of propaganda. First, the Famine is a major, traumatic shock to those who experienced it, which could shape survivors' political attitudes for many decades to come. Second, the causes of the Famine are unambiguous — it is a man-made disaster due to policy mistakes of the central and local governments. Third, the Famine poses an inference problem to the citizens: there exists both the potential deniability of the government's responsibility due to propaganda, and access to independent information that could contradict the propaganda message. We now describe these in detail. In Appendix A, we describe additional characteristics relevant to this study, such as its concentration in the rural sector and the strict migration control in place during and after the Famine.

2.1 "The worst famine in human history"

The Great Chinese Famine, occurred from 1958 to 1961, is widely considered as "the worst famine in human history."[7] Although historians and demographic scholars have yet to reach a definitive conclusion on the actual number of deaths, few doubt the Famine's unprecedented intensity, as measured by excessive deaths and the plummet in fertility.[8] Figure 1 presents the population pyramid of China based on its 2000 census. One can evidently observe trimming of population born between 1940 and 1960 (unnatural death) as well as the gaps during the 1958-1961 cohorts (unborn babies and infant mortality). Approximately 30 million people (5% of China's total population in 1957) perished unnaturally.[9] Fertility (including both unborn babies and infant mortality) dropped by an estimated size of another 30 million. Despite its immense scale, the Famine took place within an incredibly short period of time – the majority of the deaths were concentrated in 1959 and 1960. The short duration amplified the severity of the Famine and the traumatic experiences among the survivors, making it one of the most traumatic peacetime tragedies of the 20th century.

2.2 Man-made tragedy: Mao's *Great Leap Forward*

It has been widely established among scholars that the Great Chinese Famine was a direct consequence of Mao's Great Leap Forward, an economic and social campaign led by the Chinese Communist Party

[7]Historians officially define the Great Famine to be three years, 1959-1961, when mortality rates were the highest. Famine became widespread when local storage of the 1959 harvest ran out during the early part of 1960 (Becker, 1996; Thaxton, 2008). For the purpose of this study, we include 1958 as an early starting year of the Famine, since hunger experience was prevalent as early as 1958.

[8]Typically, demographers define excessive deaths as the difference between actual death rates and what would have occurred based on the linear trend calculated using intervals both prior and after the Famine period.

[9]This figure is based on the average estimates of Ashton et al. (1984), Banister (1984), Cao (2005), Coale (1981), Jin (1993), and Peng (1987), among others. More recently, Dikötter (2010) uses classified archival documents to reach the estimation that there were at least 45 million premature deaths during the Famine.

from 1958 to 1961 (see, among others, Kung and Chen (2011) and Meng, Qian, and Yared (2015)). Hence, the Famine is also often referred to as "the Great Leap Famine of China." The Great Leap Forward was initiated by Mao Zedong, aiming to rapidly transform the country from an agrarian economy into a communist society through swift industrialization and collectivization. In particular, the campaign introduced a mandatory process of agricultural collectivization that prohibited any private farming practices. Agricultural products were procured and then redistributed by the government with a set quota. The Great Leap Forward also introduced *People's Communes*, which exercised management and control of all rural resources such as labor, land, and food. The distorted incentive structure in agricultural production, agricultural labor diversion to industrial projects, and the grain procurement system during the Great Leap Forward are considered as some of the main contributors to the Famine.

The local governments played an important role in magnifying the Famine severity. Kung and Chen (2011) show that career and promotion incentives of local Communist Party officials led to excessive adherence to the procurement targets beyond reserving necessity level food crops to the local population. Kung and Zhou (2016) document that even the procurement system itself suffered from political distortions, as it was affected by regional favoritism and hometown biases of the government officials.

One of the most striking features of the Famine is its sharp variation in severity across regions. This sharp and excessive variation of the Famine severity across regions is often cited as a primary evidence that the Famine was not caused by nature, since variation in agricultural production output in geographically nearby regions is unlikely to be of this magnitude. For example, the unnatural death rates in 1960 of two adjacent provinces differed by more than sixfold: Anhui province suffered from an unnatural death rate of 1.84% in 1960, while the adjacent Jiangsu province lost 0.29% of its population due to unnatural causes.[10] Meng, Qian, and Yared (2015) provide evidence demonstrating that such regional variation was generated by an inflexible and progressive government procurement policy. Figure 2 demonstrates the high cross-county variation in Famine severity, measured by *cohort loss*, where darker shades indicate higher degree of Famine severity in the corresponding counties (Appendix B.1 provides details on the construction of the *cohort loss* measurement). While the figure focuses on cross-county variation in Famine severity, such high variation occurred at almost all administrative levels: across provinces, across counties within a particular province, across villages within a particular county, and ultimately, across individuals within a particular village.

2.3 Propaganda and deniability via drought

The Chinese Communist Party and the government promptly launched information control after the Famine to curtail its political repercussions. Narratives and reports related to the Famine were heavily controlled, and extensive discussions on topics related to the Famine have been censored throughout the public media and schooling in China even until today.[11] To the extent that limited mentioning of the Famine is inevitable given its scale, the Chinese regime's official stance has been that the Famine was predominantly a result

[10] These figures are estimated based on Cao (2005). The contrast in Famine severity between Anhui and Jiangsu has been noted by several scholars. For example, Chen (2011) documents this difference. He attributes it to the polarized needs of irrigation across these two provinces due to geographic and climate reasons. Different scales of these irrigation projects undertaken during the Great Leap Forward then led to differential degrees of agricultural labor diversion.

[11] Many have documented the lack of knowledge on the existence of the Great Chinese Famine among Chinese citizens as a result of strict media censorship. For example, Frank Dikotter depicts this phenomenon in a 2013 piece on *Foreign Policy*: "The Disappeared" (`http://www.foreignpolicy.com/articles/2013/01/02/the_disappeared`).

of severe natural disasters, in particular drought, compounded by minor planning errors. Such messages have been effectively communicated through various propaganda channels. For example, propaganda songs that explicitly called drought the state enemy were written and spread as early as 1960, during the peak of the Famine.[12] In fact, the official blame on weather for causing the Famine is epitomized in the term "Three Years of Natural Disasters," coined immediately after the Famine to refer to the event. The term remains unchanged until today.

The complexity of the Famine coupled with tight information control provides the regime with potential deniability of its responsibility over the Famine. In particular, the propaganda that blames drought for the Famine was not created entirely groundlessly — moderate drought that affected agricultural production *did* take place during the Famine period. Nevertheless, drought alone was not able to account for the full scale and the regional variation of the Famine severity that we observe. The cross-county variation in the Famine severity was only *weakly* correlated with the occurrence of heavy drought during the Famine period (see, among others, Li and Yang (2005), and Meng, Qian, and Yared (2015)). This indicates that factors beyond the drought played an important role in the Famine. In Table A.1, Panel A, we present additional evidence from our own calculation. We show that the agricultural productivity shocks associated with heavy drought cannot explain the Famine severity across provinces, measured using a variety of methods. We will discuss this in greater detail in Section 4.2.

Importantly, the pattern that drought is unrelated to the Famine severity only becomes apparent when one has access to data on the weather conditions and Famine intensity across China. From the perspective of survivors who have gone through the Famine, the tight information control creates substantial variations across regions in term of the available information relevant to the Famine. Specifically, the Famine survivors have access to two pieces of personal, local information regardless of the country's censorship environment. First, the Famine survivors could witness the starvation intensity in their residence locations, which would provide first-hand information on the severity of the Famine. Second, the Famine survivors could observe the local weather condition, in particular, whether exceptional drought indeed occurred during the Famine period. This second piece of information is critical, as it may either lead the Famine survivors to be persuaded by the propaganda's narrative, or present them with direct evidence against the propaganda message. We empirically examine whether the Famine experience and the observation of different local weather conditions jointly affect the Famine survivors' inference on the government's trustworthiness.

3 Data & measurement

Our difference-in-differences empirical strategy compares the political trust of individuals who experienced different degrees of the Famine across regions with various levels of drought during the Famine period. This empirical strategy requires measurement of the survivors' Famine exposure and their subsequent political trust and attitudes. We use the *China Family Panel Study* (CFPS) for these measures: we use the CFPS baseline wave conducted in 2010 (hereafter CFPS-2010) to measure Famine exposure, and we use the 2nd wave of CPFS in 2012 (hereafter CFPS-2012) to measure various outcomes of interest, such as political trust,

[12] In Appendix C, we provide a translated excerpt of an official propaganda poem. This poem, along with many others, constitutes the government's substantial propaganda efforts to emphasize the dominant role played by natural disasters.

attitudes, and related behaviors.[13] Eliciting Famine exposure and political outcomes in separate years alleviates concern that questions regarding the Famine would prime the respondents so that they reported political trust and attitudes differently.

CFPS is a large-scale, almost nationally representative panel survey project conducted by the Institute of Social Science Survey at Peking University.[14] Through a multistage probability sampling procedure, CFPS completes interviews with a total of 14,798 sampled households and all individuals living in these households, amounting to 36,000 completed adult observations. The 25 provinces of China covered by CFPS represent about 95% of the Chinese population in mainland China, with only Inner Mongolia, Xinjiang, Tibet, Hainan, Ningxia, and Qinghai excluded from the overall sample.

For our baseline estimation, we limit our sample to individuals who completed both CFPS-2010 and CFPS-2012 survey. We further limit our sample based on two criteria: *(i)* individuals resided in the rural sector at the time of CFPS-2010; and *(ii)* individuals born before 1963. These individuals constitute the sub-population susceptible to the Famine. Criterion *(i)* is based on the fact that the Famine impact was concentrated in the rural area. Due to strict migration restrictions between the rural and urban sectors, 95% of the individuals living in the rural area in 2010 have been living in the same counties since their birth.[15] Criterion *(ii)* guarantees that the individuals of interest were born before the end of the Famine, allowing us to focus on those people who were subject to *direct* and *personal* hunger experiences during the Famine.

In Table 1, Columns 1 and 2, we present summary statistics (mean and standard deviation) among this subsample of CFPS subjects — all Famine susceptible individuals — across three groups of characteristics: *(Panel A):* personal characteristics such as age, gender, height and weight; *(Panel B):* parental characteristics such as parents' literacy, membership in the Communist Party, and whether parents were landlords prior to the Land Reform in 1950s; and *(Panel C):* village characteristics at the time of CFPS survey in 2010, such as village size, total agricultural and non-agricultural production, and whether the village is categorized as natural disaster or natural resource zone.

We now introduce the key measurement of Famine exposure in Section 3.1, the main outcome variable (political trust) as well as its interpretation in Section 3.2, and we describe various measures of drought in Section 3.3. In Appendix B, we describe additional data sources and variables that we use in this paper.

3.1 Famine experiences

Our primary measures of the Famine exposure rely on survivors' reported starvation experiences during the Famine period. In CFPS-2010, we asked the following question:

> Have you experienced starvation for more than one week?
> If so, when did it start, when did it end, and where did it happen?

For individuals who reported starvation experiences between 1958 and 1963, we treat them as having experienced hunger during the Famine. Note that the question itself did not explicitly mention the Great

[13] We use a private version of CFPS-2010, which allows us to access many politically sensitive variables including the historical trauma memory and various regional identifiers.

[14] Detailed information about the CFPS project can be found at `www.isss.edu.cn/cfps`.

[15] Hence, our CFPS rural sample excludes those individuals who left the rural area to work in urban sectors (so-called *migrant workers*). However, for the older cohorts that we primarily focus on in this study, the ratio of migrant worker is low. We provide a detailed discussion on the Famine's concentration in the rural sector in Appendix A.1, and on the strict migration control during and after the Famine in Appendix A.2.

Chinese Famine; in fact, the question only asked about generic hunger experiences, and subjects would not be primed to think about when did the hunger experiences occur until they have indicated "yes." Conditional on having reported starvation experience, approximately 97% of the respondents indicated that their hunger experiences took place within the time frame of the Famine. This high concentration of reported hunger years confirms that starvation was a highly salient event to those who suffered from the Famine, and individuals have extraordinarily long lasting memory of traumatic experiences from the past as oral history and anthropology evidence demonstrates.

Overall, 24.5% of the respondents reported that they have experienced starvation during the Famine. Such measurement based on survivors' individual starvation memory allows us to capture the Famine experience that would most directly affect *survivors'* political attitudes, as compared to census-based measures that reflect delayed fertility and infant mortality. We compare personal and parental characteristics between individuals who reported starvation experience during the Famine and those who did not, in Table 1, Columns 3 and 4. While our identification strategy does not rely on the exogeniety of the Famine exposure across individuals, one can see that individuals who experienced starvation during the Famine share near identical characteristics with those who did not. Those who experienced starvation have slightly less educated and less politically connected parents, albeit the differences are not statistically significant and substantial in magnitudes.[16] One exception is age: those who reported starvation experiences were older than those who did not. Moreover, we observe an upward age trend in the likelihood of reporting starvation experiences during the Famine (see Figure A.1). This reflects the biological and cognitive limits of formation memory when children are very young, which is also likely to coincide with the age range when political inference from hunger experiences became relevant. Our baseline results are robust to dropping survivors who were under age 10 at the time of the Famine.

The individual starvation experiences enable us to exploit rich variation at a much finer geographic level. We aggregate the hunger experience at the village level, the lowest administrative unit in China, and construct two baseline Famine exposure measures: *(i) village average Famine experiences*, which is the share of village residents who experienced starvation during the Famine (among those who would have been susceptible to the Famine impact); and *(ii)* leave-self-out share of village residents' starvation experience, which assuages concerns of omitted variables driving both individuals' report on own starvation experience and their subsequent political trust and attitudes.

On average, a 5 percentage point increase in *cohort loss* (introduced in Appendix B.1) in a particular county is associated with an 18.4 percentage point increase in the likelihood of reporting individual Famine experience in the corresponding county, which explains nearly the entire variation of individual Famine experiences across counties within a particular province.[17] See Appendix E for additional details and validation checks of the reported starvation experiences.

[16] Such balance is quite unique to the Famine, compared with other traumas during the Maoist era; see Table A.2 for balance checks on individuals who were sent down to the countryside, who were sent to the cadre schools, who were persecuted during the Cultural Revolution, and who were military members, versus whose who were not. We suspect this is because the Famine affected a much larger fraction of the population than these smaller, potentially more selective experiences. See Appendix D for more details.

[17] Our validation can only be conducted at the aggregate level of county, as that is the lowest level of geographic aggregation where objective measurement of the Famine exposure is available.

3.2 Political (dis)trust

Measurement The primary outcome of interest is citizens' trust in local government officials, measured more than 50 years after the Famine. This question was asked in CFPS-2012, translated as follows:

Please rate to what degree do you trust local government officials? (0 = extremely low trust; 10 = extremely high trust)

Note: for ease of interpretation, we recode the trust outcome so that 0 indicates extremely high trust and 10 extremely low trust.

Trust in the local vs. central government Citizens' experiences and inferences from the Famine would affect their trust in both the central and local governments. Both the central and local governments were implicated in the Famine. The central government was responsible for setting the procurement targets and failed to make proper adjustments according to actual production fluctuations (Meng, Qian, and Yared, 2015). The severity of the Famine was considerably exacerbated due to the local government officials' excessive compliance with the procurement targets, largely driven by their promotion incentives (Kung and Chen, 2011). The local officials often exaggerated in their reports on local production to pander their superiors. While they retained ability to negotiate regional procurement quotas with the central government, many refused to re-bargain with higher level officials regarding the unreasonable procurement targets during the Famine. As a result, local government officials employed coercion to extract crops from the farmers. From the perspectives of the local residents, the local government's behaviors during the Famine may be considered as more tangibly outrageous.

Due to the political sensitivity, we are only able to explicitly measure citizens' trust in the local government among a large, representative sample of Chinese citizens. Based on a separate survey among elite college students in China where we managed to elicit both trusts in the central and local governments, there exists a very high correlation between the trust in these two levels of governments (Cantoni et al., 2017).[18]

Interpreting self-reported political distrust Given China's authoritarian regime, one worries that the self-reported distrust in the local government expressed during a face-to-face survey is biased because respondents feared to reveal distrust truthfully. We do not think self-censorship is particularly concerning in this context, for the following reasons (see Appendix F for more detailed discussions). First, the self-reported distrust in the local government carries high interval validity. Political distrust is indeed high among individuals whom we expect to hold unfavorable attitudes towards the government. For example, if respondents have encountered negative interactions with the local government during the year prior to the CFPS survey (e.g. being treated unfairly by the government; having conflict with government), such experiences are strongly associated with high level of reported political distrust. On average, having experienced one of such negative encounters raised the reported distrust by 1 unit (out of a scale of 10), and the t-statistics of the correlations well exceed 10 for most of the negative experiences recorded. Second, the self-reported political distrust does not exhibit an abnormally compressed distribution, unusual lumping

[18]Correlation between trust in central government and trust in provincial government = 0.72; correlation between trust in central government and county government = 0.45. Number of observations = 1,766. See Cantoni et al. (2017) for more detailed sample and survey descriptions.

at certain "politically correct" answers, or other patterns that would suggest self-censorship (see Table A.3). Third, the overall distribution of self-reported political distrust measured by the CFPS is similar to that measured via anonymous online surveys in China and that elicited using face-to-face surveys conducted in other developing countries (see Table A.4). Fourth, recent studies show that China is more tolerant towards citizens' criticisms against the *local* government cadres than one may speculate (see, among others, Lorentzen (2013) and King, Pan, and Roberts (2013)). Hence, the Chinese citizens may face and perceive relatively low pressure to self-censor distrust in the local government.

3.3 Drought during the Famine

The local drought conditions constituted a critical part of the context in which citizens experienced and interpreted the Famine. In particular, drought conditions amplified the noise associated with starvation experiences as a signal for the government's trustworthiness. We use two difference and independent sources to measure drought during the Famine. Importantly, both measures capture drought that affected agricultural production rather than food consumption, since the amount of food available for locals to consume was determined by the procurement quotas.

First, we measure drought using historical precipitation data from the *Terrestrial Air Temperature and Precipitation* monthly and annual time series, constructed based on the Global Historical Climatology Network and Legates and Willmott's station records. The precipitation records vary at 0.5 by 0.5 degree of latitude/longitude grid. For each county, we assign the corresponding precipitation records based on its geographic coordinates, and we construct precipitation during the Famine as the standardized annual precipitation levels during 1960 and 1961.

Second, we measure exceptional drought that affected agricultural production in each province during the Famine based on two contemporary archives.[19] We use the *Comprehensive Statistical Data and Materials on 50 Years of New China (1999)* compiled by the Department of National Economic Statistics at China's National Bureau of Statistics, to obtain annual data on total agricultural sown area for each province. We use *Report of the Damage Caused by Disaster in China (1996)* compiled by China's National Bureau of Statistics, Department of Domestic Affairs, to obtain information on total areas affected by drought for each province for a given year. For each province, we calculate the annual ratio of heavy drought-affected area to the total agricultural sown area, capturing the relative scale of annual drought severity. We use the maximum ratio during the peak of the Famine period (1960-1961) to indicate the drought affecting agricultural production *during* the Famine. We next divide the drought level *during* Famine by the average drought level during the decade *prior* to the Famine. This is intended to capture the fact that merely a high level of drought affecting agricultural production *during* the Famine was not informative to the citizens, unless such shocks were exceptionally severe compared to those occurred during non-Famine years. We normalize this ratio for ease of interpretation.[20]

[19] Appendix B.2 provides additional details on the data sources and construction process of the drought index based on agricultural production, where we also briefly discuss relevant constraints regarding data availability and data reliability. Overall, we have non-missing values for 26 of the 31 provinces in China. The 5 missing provinces are: *(i)* direct-controlled municipalities with limited agricultural production (Beijing, Tianjin and Shanghai); *(ii)* Tibet; *(iii)* province that was not officially established until late 1980s (Hainan).

[20] Figure 3 plots the drought index for the 26 provinces that we have data across China, where darker shades indicate higher level of exceptional drought during the Famine period. One can see from Figure 2 and Figure 3 that the distribution of exceptional drought during the Famine does not correspond to the Famine severity that we observe across regions. We conduct formal analyses on the association between drought level and various measurements of the Famine severity in Section 4.2.

These two drought measures are highly negatively correlated ($correlation = -0.40$, $p\text{-}value < 0.001$). We consider these two measures complementary: while precipitation-based measure is more exogenous, the second measure of drought that particularly affected agricultural production is arguably the more relevant and direct for citizens' political inference problem from the Famine. The baseline results are not only robust to using either drought measures, but also to alternative ways to construct the drought measures, which we will discuss in greater detail in Section 5.

4 Empirical strategy

4.1 Empirical model

We exploit the joint variation in both the Famine exposure, and the context of exposure due to drought shock: whether the survivors experienced intense starvation *and* whether they observed drought during the Famine would lead to their divergent interpretation of the Famine. Combining data from various sources introduced in Section 3, we estimate a difference-in-differences model to examine the political inferences from hunger experiences during the Famine. Our baseline specification is the following:

$$y_{icp} = \sum_{c} \alpha_c + \sum_{p} \delta_p + \beta\, Famine_* + \gamma\, Drought_* + \delta\, Famine_* \times Drought_* + \epsilon_{icp} \tag{1}$$

where y_{icp} is the political distrust measured in the CFPS (i indexes individual, c the birth cohort, and p the province of residence); and α_c and δ_p are full sets of birth cohort and province of *current* residence fixed effects. $Famine_*$ refers to the two Famine severity measures: *(i)* villages' share of residents experienced starvation during the Famine; and *(ii)* the corresponding leave-self-out share, which varies at the individual level. $Drought_*$ refers to the two drought measures: *(i)* annual precipitation level during the Famine period, which varies at the county level; and *(ii)* the index of exceptional drought affecting agricultural production during the Famine period, which varies at the province level. We assign drought measures to the Famine survivors based on their location of residence at age 3, the residence location measured closest to the Famine period in the CFPS. Movers who currently reside in places different from where they lived during childhood allow us to separately identify province fixed effects and the term on drought.[21] In our main specification, we allow idiosyncratic differences, ϵ_{icp}, to be correlated across individuals within a given province.

Coefficient β captures the main effect of hunger experiences during the Great Chinese Famine. Note that β may also capture the systematic selection of the Famine exposure. δ is the main coefficient of interest, capturing the differential effect of the Famine experiences across regions with various levels of drought during the Famine. In other words, δ indicates to what extent did survivors attempt to distinguish the government's responsibility in the Famine from factors beyond the government's control. By conditioning on province of current residence fixed effects, our baseline empirical specification absorbs differences in actual qualities, policies and performances across the provincial governments. By conditioning on birth cohort fixed effects, our specification also absorbs all variations across age groups that might induce different trust in the government in spite of same policy outcomes.

In addition to the baseline specification, we estimate additional specifications that: *(i)* use alternative clustering choices (county level, cohort level, and province-cohort two-way clustering); *(ii)* include alter-

[21] All of the baseline results are robust to assigning drought index using residence location at birth or at the time of survey.

native fixed effects (county and cohort fixed effects, and province×cohort fixed effects); and *(iii)* include various individual-level and county-level controls. The baseline results are robust to these alternative specifications, which we discuss in Section 7.1 and 7.2.

4.2 Identification assumption and threats to identification

Individuals' exposure to the Famine within a region was definitely not random, since many pre-determined characteristics would make certain individuals relatively more vulnerable to experiencing hunger during the Famine. By aggregating the Famine exposure at the village level, we assuage some of the endogeneity concerns as we exploit only across-village variations in the Famine intensity, rather than within-village-across-individual variations. Nonetheless, across village differences in the Famine intensity reflects various characteristics of the region, including local politicians' quality, that could affect residents' political trust independent from the Famine.

Conditional on the Famine severity at the village level, the degree to which the Famine victims observed drought during the Famine can be credibly exogenous. Such exogeneity is plausible because the procurement system during the Great Leap Forward separated the level of food production (affected by drought) from the amount of food available for consumption (dictated by procurement quotas). More precisely, our difference-in-differences framework relies on the identification assumption that the following two are *not* jointly determined: *(i)* characteristics that make a village susceptible to severe Famine outcomes; and *(ii)* contemporaneous drought level during the Famine. Our identification assumption essentially states that villages' non-random exposure to the Famine was *not* differentially non-random across regions that were hit by the drought differently during the Famine.

Our difference-in-differences framework allows us to rule out a range of determinants of Famine exposure at the village level as confounding factors. Time-invariant regional factors that affect the Famine intensity cannot drive our results because of the inclusion of regional fixed effects. Moreover, time-variant regional factors (e.g. local leaders' career incentives and political connections, even if these are changing over time) cannot drive the estimated effects as long as these factors are orthogonal to the contemporaneous shock in drought during the Famine. We next discuss threats to identification and present evidence supporting our identification assumption.

Drought did not lead to severer Famine If heavier drought caused severer Famine, *and* if vulnerable people had higher than average trust of the government than those who were not vulnerable, then such positive selection bias could threaten the identification.[22] Previous studies (see, among others, Li and Yang (2005), and Meng, Qian, and Yared (2015)) demonstrate the weak correlation between drought level and the observed Famine severity. In particular, the link between weather condition (hence local food production) and the actual amount of food available was largely eliminated due to procurement and reallocation of food across regions.[23] In Table A.1, Panel A, we present results from using drought that affected agricultural production (measured during various time frames in Columns 1-3, and the index of exceptional

[22] One can consider the vulnerable people as those individuals who did not have the full insurance against the Famine. Correspondingly, people may possess certain characteristics (for example, political connection) such that they could always avoid hunger even if the Famine was extremely severe. This is likely because more than 30% of the individuals successfully avoided starvation even in regions that encountered the severest Famine.

[23] A perfect procurement and food allocation system would smooth idiosyncratic productivity shocks across regions. However, China's institutional capacity to implement planned economy during the late 1950s was still limited.

drought during the Famine in Column 4) to predict: *(i)* average hunger experiences during the Famine (measured by the CFPS); and *(ii)* cohort loss during the Famine (constructed through census data). Confirming the previous studies, we find that the impact of drought on the Famine severity is close to zero and not statistically significant. In other words, while drought may induce selection bias by turning vulnerable people to experience hunger who otherwise wouldn't, the scope of such selection seems to be fairly limited.

Drought did not lead to broader regional divergences More broadly, one may be concerned that drought during the Famine may lead to persistent divergence across regions over time, and our estimated effects on $Drought_*$ merely captures these regional differences. If villages with different Famine intensities and individuals with different experiences during the Famine also had distinctive experiences throughout the post-Famine decades, then the estimated effect on $Famine_* \times Drought_*$ would instead measure this prolonged divergence after the Famine.

We examine the relationship between drought (measured during various time frames) and a range of key socioeconomic characteristics: *(i)* population natural growth, *(ii)* gross regional product (both total and that of agricultural sector in particular), *(iii)* employment rate, and *(iv)* local fiscal revenues (both total and that from taxation in particular). In Table A.1, Panel B, we presents results regarding the characteristics in 1960 (the peak of the Famine); and in Panel C, we focus on socioeconomic characteristics in 2012 (the year of the CFPS survey). In addition, in Panel D, we investigate whether drought affects the overall growth of these characteristics between 1960 and 2012; and in Panel E, we zoom in to the growth during the post-reform era (1980-2012), conditional on their initial levels in 1960. One can see that there exists *no* coherent relationship between drought and the levels or the growth of regional socioeconomic characteristics, and in vast majority of the cases the associations are statistically insignificant.

Little evidence of different selection of the Famine exposure depending on drought Even though severer drought during the Famine was not associated with a higher proportion of people suffering from hunger on aggregate, different levels of drought could induce distinct types of people to become vulnerable to hunger experiences. While the overall causes of the Famine were very much political, regions encountered shortage of food supply for different reasons. Intense starvation took place in regions that was hit by severer drought because quotas in the food reallocation system failed to adjust, and not enough food was replenished after the procurement (see, among others, Meng, Qian, and Yared (2015)). Regions that avoided heavy drought (yet) still suffered from severe Famine because food produced locally was taken away through the strictly-enforced procurement policies. One could imagine that the types of people who lacked access to food may be systematically different in these two scenarios.

In order to alleviate such concern, we check whether individuals who experienced starvation during the Famine have identical observable characteristics regardless of the drought levels during the Famine. We test whether the differences between individuals who experienced starvation and those who did not are different across regions with various levels of drought during the Famine, along dimensions of personal characteristics (e.g. age, gender, height and weight), parental characteristics (e.g. parents' literacy, membership in the Communist Party, and whether parents were landlords prior to the Land Reform in 1950s), and village characteristics at the time of CFPS survey in 2010 (e.g. village size, total agricultural and non-agricultural production, and whether the village is categorized as natural disaster or natural resource zone). Table 1, Column 5, presents the regression coefficients on Famine exposure interacted with drought level

during the Famine (with main effects of Famine exposure and drought level included in the regression, as well as cohort and province of residence fixed effects, as in the baseline specification). Column 6 reports the corresponding p-values of the coefficients. One can see that across these observable characteristics, individuals who experienced starvation during the Famine were not differentially different from those who did not across regions with various drought levels. In other words, we do not find evidence that due to various degrees of drought, systematically different types of people in the corresponding regions became vulnerable to the Famine exposure. We want to emphasize that the list of characteristics we test here is by no means comprehensive. We cannot rule out that unobserved characteristics determine individuals' differential Famine exposure by drought.

5 Political inference and political distrust

5.1 Baseline results

We first present results from the baseline difference-in-differences specification. In Table 2, we examine the impact of the Famine experiences on citizens' contemporary distrust in local government officials. Each column corresponds to a different Famine experience and exposure measure ($Famine_*$): village average Famine experience (Column 1); and leave-self-out share of village residents' starvation experience during the Famine (Column 2). Each panel corresponds to a different drought measure ($Drought*$): annual precipitation during the Famine period (Panel A); and exceptional drought affecting agricultural production during the Famine (Panel B).

Several consistent patterns emerge across the results of baseline specifications during various Famine exposure and drought measures. First, having been exposed to severer starvation during the Famine, whether it is measured by the village average starvation experience or the average experiences of other residents in the village, was associated with an increase in political distrust in the local government. As we have discussed previously, one should interpret this main effect of the Famine exposure with caution, since it may be driven by the differences in unobservable characteristics across regions that were affected by the Famine at different degrees.

Second, having experienced starvation in regions hit by heavier drought made the Famine survivors distrust the local government officials to a much lesser degree, as indicated by either the positive coefficients on $Famine_* \times precipitation$ and negative coefficients on $Famine_* \times exceptional\ drought$. This is consistent with a pattern of political inference that when people were exposed to the Famine in contexts with exceptional drought conditions, they were significantly more likely to exhibit attitudes consistent with the propaganda message, holding the observed weather conditions, rather than the government, liable for the Famine. Conversely, having experienced starvation while failing to observe exceptional drought during the Famine made the citizens encounter information that contradicted the overarching propaganda. Given the fact that most regions during the Famine were able to produce sufficient food above subsistence level (Meng, Qian, and Yared, 2015), the Famine victims likely witnessed crops and grains produced being procured away by the government despite local starvation conditions.[24] As a result, the Famine experience

[24]Not observing drought during the Famine may be accompanied with the Famine victims' witnessing visible state brutality to procure food. We cannot distinguish between the two. We consider these observations as part of the consistent mechanism on political inference on who is responsible for the Famine — lack of sufficient food vs. misallocation of food.

and the associated political inference from not observing drought led the survivors to attribute the Famine to the government, and increase their political distrust.

Third, throughout the various specifications, the magnitudes of the coefficient on $Famine_*$ are about two to three times larger than those on $Famine_* \times precipitation$ and $Famine_* \times exceptional\ drought$. The net effect of the Famine experiences and political inference from drought on the Famine survivors' political distrust remains positive, as long as the drought they observed was no more than 2 standard deviations above the national minimum. In other words, in spite of the fact that high levels of drought led citizens to consider nature as an important factor contributing to the Famine, in the majority of the regions the overall adverse impact of the Famine on political trust was not overturned by the potential political inference that shifts blames from the government to nature — most Famine survivors dismissed the propaganda and attributed positive weights to the government when they evaluated the cause of the Famine.

Note that all of the specifications include province of current residence fixed effects. This implies that the Famine survivors held different degrees of political distrust in the aftermath of the Famine, even though they were subject to the same local government and have undergone the same local policy outcomes over their life time. In fact, the baseline results hold even if we include county of residence fixed effects, or province×cohort fixed effects. In Section 7.1 and 7.2, we discuss the robustness of these results, and present evidence ruling out alternative hypotheses that could explain the baseline results.

5.2 Mechanisms: information, inference, and limits of propaganda

As the main results show, the propaganda failed — in this context, the Famine survivors disregarded the propaganda message that blamed drought for the Famine and did not excuse the government for the disaster — when the Famine survivors experienced severer Famine but encountered information based on local weather conditions that contradicted the propaganda message. We now investigate complementary conditions under which propaganda may fail.

Complementarity between propaganda and censorship The success of propaganda that blames drought for the Famine hinges on the Famine survivors not having access to information on the Famine conditions in other parts of the country. Censorship of Famine related information, reinforced by the bans on migration, is hence critical in maintaining the effectiveness of the propaganda message. If the Famine survivors had information on the Famine severity beyond their home county, they could observe excessive variation in Famine severity despite the similarity in weather conditions, or lack of variation in Famine severity despite the cross-regional differences in weather conditions. Either observations would make them unlikely to attribute the Famine to nature, and the propaganda that explicitly connect the Famine with the weather conditions would break down.

We use two proxies to the Famine survivors' access to additional information beyond what they could observe locally. First, since sustained radio operation required a consistent source of electricity power, whether villages had access to electricity prior to 1978 captures the existence of infrastructure such as radio that could allow residents in some villages to learn about conditions and information beyond their locality during the Famine. Second, the variation in Famine severity in surrounding counties could provide information crucial to political inference. Since the weather and drought conditions did not vary substantially among counties within close geographic proximity, the low variability in neighboring counties' Famine

severity would enhance the inference from local drought condition. Conversely, high variability would lead the Famine survivors to conclude that drought was unlikely as the cause of the Famine, and hence the political inference from local drought condition weakens.

We operationalize these by dividing the sample: *(i)* by villages with or without electricity coverage before 1978; and *(ii)* by whether the maximum difference in Famine severity across adjacent counties is above or below median. We re-estimate the baseline specification on these subsamples, and the results are presented in Table 3, Columns 1-4. The pattern that the Famine survivors excused the government for the Famine is present only in regions either without access to additional information beyond what could be directly observed in the local county, or absent of sufficiently meaningful information that is readily accessible in nearby localities. This indicates that the propaganda requires the Famine survivors make political inference only using local Famine severity and drought conditions to infer its causes. Access to additional information, on the other hand, made local information (both Famine severity and drought conditions) no longer binding — survivors no longer needed to only rely on local experiences alone to learn about the Famine severity, its causes and consequences.[25] In other words, propaganda and censorship in this context are complements: without censorship that prevents the Famine survivors from observing the Famine and weather conditions across China, they would almost certainly encounter information inconsistent with the propaganda message. Without information beyond the survivors' home county, then a fraction of them could be convinced by the propaganda message so long as their local Famine and weather conditions were consistent with the propaganda narrative.

Prior political trust Observing drought in one's county and (mistakenly) attributing the Famine one experienced to nature, as advocated by the official propaganda narratives, could only occur if one has relatively high prior trust in the government and its propaganda in the first place.

While it is unfeasible to directly obtain the Famine survivors' political trust prior to the Famine, we use the provinces passed by the Communist Party's Long March (1934-35) as proxies for regions where trust in the Communist Party and Chinese government was high prior to the Famine period. The Long March was a military retreat undertaken by the Communist Party's Red Army during the Chinese Civil War, where the army passed through 11 provinces and the route of retreat was largely determined by the encirclement strategies of the Kuomingtang Nationalist Army. The Long March featured intense pro-Communist propaganda and recruitment of party members.[26] For instance, regions where the Communist Party passed by during the Long March exhibit 42% more party members in 1956 (Lu, Luan, and Sng, 2016).

We divide the sample by residents of provinces passed by the Long March and those that were not passed by, and we re-estimate the baseline specification on the subsamples. The results are presented in Table 3, Columns 5 and 6, respectively. Assuming that the residents in the Long March passed-by provinces possessed higher prior trust in the Communist Party and its government, we observe that individuals with higher political trust prior to the Famine are significantly more likely to have posterior political trust

[25] Importantly, in regions with access to additional information, their regression coefficients on the Famine severity and its interaction with drought conditions during the Famine are statistically indistinguishable from zero. However, this does *not* suggest the absence of overall Famine effect on survivors' political distrust in those regions. Rather, political distrust has increased among everyone.

[26] Mao concluded by the end of the Long March in December 1935, that "The Long March is also a propaganda force. It has announced to some 200 million people in eleven provinces that the road of the Red Army is their only road to liberation. Without the Long March, how could the broad masses have learned so quickly about the existence of the great truth which the Red Army embodies? [...] The Long March is also a seeding-machine. In the eleven provinces it has sown many seeds which will sprout, leaf, blossom, and bear fruit, and will yield a harvest in the future."

affected by the drought conditions during the Famine. In other words, those with high prior political trust are more likely to attribute the Famine to nature when observing heavy drought during the Famine, interpreting the Famine's cause in a manner aligned with the Communist Party's official propaganda when local information is consistent with such interpretation. For those individuals with low prior political trust, propaganda breaks down more generally. We observe an overall decrease in political trust due to Famine exposure, regardless of the occurrence of local drought during the Famine.

Information irrelevant to the propaganda message Propaganda is domain specific. While information on local drought conditions was important to Famine survivors' political inference, not all natural disasters during the Famine were equally relevant in supporting the propaganda message. As the Communist Party's post-Famine propaganda aimed to shift the blame to drought, information on the occurrence on natural disasters other than drought would be irrelevant to the Famine survivors' political inference on whether nature or the government caused the Famine. We examine the relative importance of drought versus another natural disaster — flood — that could affect agricultural production but not directly affect political inference and the propaganda's validity. In Table A.5, we replicate our baseline specification in Column 1, replacing the interaction term with that between Famine severity and flood during the Famine in Column 2, and finally we include the interaction with drought and interaction with flood simultaneously in Column 3. Indeed, only the interaction term with respect to local drought conditions matter for the survivors' political distrust, and the interaction term with respect to flood is statistically indistinguishable either on its own or when it was horse-raced against the interaction term with respect to drought. This suggests that the political distrust we examine in the baseline specification is shaped by the specific propaganda contents in the aftermath of the Famine. Propaganda breaks down even when conceptually similar information has been observed, so long as the such information does not match with the particular domain emphasized by the propaganda.

Personal experience vs. experiences of others While information played an important role in shaping the Famine survivors' political distrust, the starvation experiences during the Famine were likely to affect political distrust beyond its provision of information relevant to political inference. In particular, one does not need to experience starvation directly and personally in order to learn about the Famine severity — observing the starvation experiences among fellow villagers should be sufficient from an information perspective. Does personal starvation experience affect political inference and political distrust, above and beyond the average starvation experience one could observe among other members of one's village?

We horse-race the village leave-self-out average starvation experience during the Famine and its interaction with the drought conditions, with one's own starvation experience and its interaction with the drought condition. The results are presented in Table A.6. One can see that the village leave-self-out average starvation experience remains important even controlling for personal direct experiences, suggesting the importance of information content captured by the village aggregate experiences. The results are similar if we aggregate the starvation experience at the county level.

Nevertheless, other people's hunger experiences could not completely substitute for going through the starvation experience in person. The coefficient estimates on personal hunger experiences during the Famine are also statistically significantly, albeit at a smaller magnitude. This suggests that in addition to information about the government one could learn from the aggregate Famine intensity, personal starvation

experiences potentially also: *(i)* provided information about how ones' own households were treated by the state during crisis (particularly in comparison with how other households were treated), and *(ii)* provoked emotions (such as long-lasting grudges) that could not be easily attained by observing the hunger experiences of others.

5.3 Magnitude of the Famine impact

While political inference from the Famine experiences led to a statistically significant impact on political distrust, is the Famine impact substantively important?

For individual Famine survivors, the starvation experience and the resulting political distrust is substantial in magnitude. In Table 4, Panel A, we quantify the magnitude in two ways, focusing on the effects of political inference due to observed weather conditions during the Famine, rather than the main effects of the Famine experience. First, if an individual experienced starvation in a county with the highest in sample level precipitation during the Famine, her political distrust would increase by 0.939 unit, compared to the counterfactual scenario where the precipitation level was the lowest. Second, if two individuals experienced starvation in countries that were 1 standard deviation apart in terms of precipitation levels during the Famine, their political distrust as a result of political inference would differ by 0.464 unit after the Famine. These magnitudes are larger than the correlations between political distrust and several other important factors. For example, as shown in Panel B using the same sample from the CFPS, individuals who have completed senior high school or above tend to express higher political distrust by 0.065 unit;[27] and individuals who are not members of the Chinese Communist Party are associated with 0.208 unit higher political distrust. Moreover, while recent negative encounters with the local government, forced relocation, and under-compensated land acquisitions are associated with significantly higher expressed political distrust (shown in Panel C), the magnitude of the Famine experiences, which occurred six decades earlier, remains comparable despite the fact that the Famine took place much earlier than these negative experiences.

To China as a whole, the amount of people who shared the starvation memory from the Famine is immense. Taking advantage of the national representative nature of the CFPS sample, we estimate that approximately *97 million* individuals alive in China today can recall personal memory of starvation during the Famine. As Thaxton (2008) illustrates, "Rural China's survivors of the Famine hold obstinate memories of pain and loss inflicted on them by agents of the Communist Party and they use these memories to question the legitimacy of the post-Mao political order." The sheer size of the population that has been affected by the Famine and their dampened political trust entail undercurrents of political momentum, which may trigger collective actions and threats to the regime's legitimacy. The aggregation of the Famine impact on political distrust at such an immense magnitude entails undercurrents of political momentum, which may trigger systematic collective actions. For example, Bai and Kung (2014) identify that weather shocks during the early 1980s provoked memory of the Famine, and affected villages' collective decisions regarding agricultural decollectivization. The collective and latent memory of the Famine may impose considerable challenges to the authority of the Chinese Communist Party, who traces its legacy back to the same ruling party during the Famine. This potentially explains the heavy censorship on the Famine that the Communist Party has insisted on throughout the past decades.

[27] Among rural population born before the Famine, only 9.86% have completed senior high school (10th to 12th grade) or above. Hence, these people can be considered as elites in terms of their educational attainment.

6 From political distrust to persistent political ideology

In this section, we ask whether the Famine experience and political inference generated broad and persistent shifts in political ideology against the incumbent regime. When the Famine survivors encountered information that contradicted the propaganda, does the Famine experiences induce changes in political attitudes beyond political trust, leading the survivors to discredit the sender of the propaganda message all together? When the propaganda failed to convince the survivors that the Famine was caused by natural disaster, does the backfire against the regime get transmitted to the subsequent generation?

6.1 Beyond political distrust

We first examine whether the Famine survivors' dampened political trust could be overturned if they perceive the current local government as highly competent and well performed. Conceptually, reported political trust contains elements of both *specific* and *diffuse* support for the regime — the former refers to satisfaction with government outputs and the performance of political authorities, while the latter refers to citizens' attitude toward regime-level political objects regardless of performance (Hetherington, 1998). Indeed, citizens' negative evaluation of the local government's performance during the previous year is highly correlated with their reported political distrust (*t-stats* = 12.93).[28] However, the Famine impact on political distrust is not merely driven by citizens' performance evaluation of the current government (namely, *specific* support). In Table A.7, Columns 1 and 2, one can see that neither the magnitude nor the inference of our baseline specification on the Famine impact is altered when we control for the Famine survivors' performance evaluation of the current government. In other words, for those survivors who observed information that directly contradicted the state's propaganda message, the Famine experience and its political inference lowered their diffuse support for the regime. Their political distrust is generic and cannot be overturned even if they consider the current local government performing satisfyingly. Without the leeway provided by diffuse support, the local governments may be hard pressed to achieve efficacy, and hence are stuck at the low trust equilibrium (Easton, 1965).

In addition to the diffuse political support, the Famine experience also shifted a range of political attitudes that are not directly related to the Famine. In particular, we use the following module administrated in the CFPS-2012 to measure Famine survivors' attitudes toward a broad range of key socioeconomic issues in contemporary China:

	For the following questions, answer based on 0-10 scale.
	0 = "not severe at all"; 10 = "extremely severe"
1	In your opinion, how severe an issue is *government corruption* to China today?
2	In your opinion, how severe an issue is *environmental pollution* to China today?
3	In your opinion, how severe an issue is *wealth inequality* to China today?
4	In your opinion, how severe an issue is *unemployment* to China today?
5	In your opinion, how severe an issue is *medical care* to China today?
6	In your opinion, how severe an issue is *housing and real estate* to China today?
7	In your opinion, how severe an issue is *social welfare* to China today?

[28] Citizen's evaluation of the local government's performance during the past year is reported on a 1-5 scale, where 1 = achieved a lot during the past year; 5 = performed worse than before.

We estimate our baseline specification on these political attitudes as outcomes of interest. We present the coefficient estimates in Table 5, Columns 1-7, one attitude at a time. In Column 8, we summarize the outcomes from these seven dimensions by constructing a z-score index (weighted by the inverse covariance of the standardizes outcomes, following Anderson (2008)). The same pattern emerges as the one pertaining to political distrust. Overall, having experienced more intense starvation during the Famine was associated with citizens considering these socioeconomic issues as more pressing. When citizens experienced starvation in counties where they saw little evidence of exceptional drought, they dismissed the propaganda message and became more likely to blame government failures for the Famine. Consequently, this political inference left them more unfavorable towards government's policies and performances today. This holds true across attitudes toward all seven of the socioeconomic issues — the Famine experience affected a spectrum of political attitudes not directly related to the Famine. We speculate that this is because the Famine may have left its survivors increasingly unsatisfied with the government's policies today, and they expressed such dissatisfaction by judging socioeconomic conditions as far from ideal. In addition, the Famine survivors may be less tolerant of policy inadequacies, fearing that they would foreshadow the recurrence of the historical catastrophe.

Importantly, the Famine experience fundamentally represents interactions between the citizens and the state, and hence should not directly affect attitudes in non-political domains. Indeed, non-political attitudes such as the distrust in neighbors were left unaltered. In Table A.7, Columns 3 and 4, we present results from estimating our baseline specification using *distrust towards neighbors* as the alternative outcome of interest. To the extent that political distrust is typically highly correlated with the general distrust in the society, the sharp contrast between the Famine's impact on political and non-political distrust reinforces our argument that the Famine experiences offered a remarkable opportunity for survivors to update their beliefs on the trustworthiness of their government — and *only* of the government. In other words, although the Famine's impact extends to multiple dimensions on survivors' political attitudes that are not directly related to the Famine, this does *not* represent a broad new social equilibrium pertaining to social trust that had formed after the Famine. Rather, this is a phenomenon unique to the realm of the relationship between citizens and the government.

Taken together, the evidence presented here suggests that when the Famine survivors observed information inconsistent with the propaganda message, not only was the propaganda disregarded, but propaganda also backfired. A broad and rather consistent political ideology, characterized by skepticism towards the incumbent government, has been formed among the Famine survivors in the Famine's aftermath.

6.2 Beyond individuals directly experienced the Famine

Previous sections show that the Famine impact persists *within* the Famine survivors for more than five decades. The contemporary measurement of political distrust and attitudes indicates that the political backfire endures once the propaganda has been falsified. Are the dampened political trust and increased political skepticism persistent *across* generations, transmitted from the Famine survivors to the subsequent generations?

6.2.1 Intergenerational transmission

To evaluate the intergenerational transmission of the Famine impact, we focus on the rural population born after 1963 and whose parents were born before the Famine ended. These individuals are not directly susceptible to experiencing the Famine themselves, but their parents potentially went through the Famine's trauma. Overall, we observe over 1,500 child-parents pairs, where we independently elicited children's and parents' political distrust.[29]

We first examine whether the Famine impact was passed down to the subsequent generation by estimating the intergenerational elasticity of political distrust:

$$y_{icp} = \sum_c \alpha_c + \sum_p \delta_p + \beta\, y^P_{icp} + \gamma\, y^P_{icp} \cdot Famine^P_i + \zeta\, Famine^P_i + \epsilon_{icp} \tag{2}$$

where for individual i in birth cohort c and province of residence p, y_{icp} denotes her own political distrust; y^P_{icp} denotes the political distrust of her parent, $P \in \{F, M\}$ indicating *father* and *mother*, respectively; $Famine^P_i$ ($P \in \{F, M\}$) indicates whether individual i's parent experienced starvation during the Famine; and α_c and δ_p are full sets of birth cohort and province of residence fixed effects. We allow idiosyncratic differences, ϵ_{icp}, to be correlated across individuals who reside in the same province. β measures the overall intergenerational elasticity of political distrust – the amount of changes in the children's political distrust when parents report one additional unit of distrust; γ captures the incremental elasticity if parents experienced starvation during the Famine.

We estimate β and γ for fathers and mothers separately. The coefficient estimates are presented in Table 6, Panel A, Columns 1 and 2. The positive coefficients on *political distrust*$^P_{icp}$ (β) indicates that children's political distrust are elastic with respect to that of both parents, suggesting fairly strong intergenerational transmission of political distrust in general. The coefficient estimate on fathers' *political distrust*$^P_{icp}\times$ *Famine experience*^P_i (γ) is also significantly positive, indicating an amplified degree of transmission when fathers experienced starvation during the Famine. Hence, when fathers experienced starvation during the Famine, we observe an amplified degree of transmission of their political distrust to the subsequent generation. While mothers exhibit stronger transmission of political distrust to their children than fathers on average, there is no evidence that mothers' transmission is intensified by their own Famine experiences.[30]

Next, we investigate whether parents' political inference based on drought conditions during the Famine was transmitted to their children. We re-estimate our baseline model where we replace the children's political distrust as the outcome of interest:

$$y_{icp} = \sum_c \alpha_c + \sum_p \delta_p + \beta\, Famine^P_i + \gamma\, Drought^P_{county} + \delta\, Famine^P_i \times Drought^P_{county} + \epsilon_{icp} \tag{3}$$

where the notations are analogous to those in equation (1), except that $Famine^P_i$ ($P \in \{F, M\}$) indicates whether individual i's parent experienced hunger during the Famine, and $Drought^P_{county}$ ($P \in \{F, M\}$)

[29]The CFPS made efforts to survey children even if they worked outside of their parents' location of residence, so long as the household head is still residing in the sampling county. Out-migration rate among the pre-1963 cohorts is less than 2%. An implicit criteria for the individuals to be included in the sample is that their parents need to be surveyed by the CFPS-2010. In particular, this excludes individuals whose parents are passed away, either during the Famine or afterwards.

[30]The gender heterogeneity in intergenerational transmission that we see here is unlikely to be driven by gender differences in the Famine's direct impact on the parents. Among the individuals who are susceptible to experience hunger themselves, gender is not a significant source of heterogeneity in the effect of the Famine on political trust. See Table A.8 for results from estimating the baseline specification separately by gender.

denotes the local precipitation level that the parent observed during the Famine. Again, we include full sets of birth cohort and province of residence fixed effects, and we allow idiosyncratic differences, ϵ_{icp}, to be correlated across individuals who reside in the same province.

The coefficient estimates, again for fathers and mothers separately, are shown in Table 6, Panel B, Columns 1 and 2. The positive coefficient on fathers' *Famine experiences*$_i^P$ and positive coefficient on *Famine experience*$_i^P$ $\times$ *Drought*$_{county}^P$ indicate that not only was the general impact of the Famine passed down to the subsequent generation, so was the pattern of political inferences during the Famine. If the parents experienced starvation in counties with little drought, they dismissed the propaganda message and they were more likely to attribute the Famine to the fault of the government. As a result, *both* the parents and their children became additionally distrusting toward the government.

6.2.2 Mechanisms of intragenerational persistence and intergenerational transmission

Many factors could contribute to the persistence of the Famine impact among the survivors themselves and transmission across generations. We explore here a particular channel of persistence: the assortative mating and the resulted homogeneous households in the aftermath of the Famine. To the extent that the starvation experience during the Famine could be correlated with observed and unobserved socioeconomic background, assortative matching on the marriage market would draw together husbands and wives who shared starvation experiences during the Famine and similar political distrust. They in turn could form homogeneous household environments and imply significant dynamic consequences: intra-household learning on government trustworthiness could be limited, and incentives of intergenerational transmission of political distrust may be strong.

We examine the Famine survivors' marriage matching along two dimensions: *(i)* whether one's spouse had experienced starvation during the Famine; and *(ii)* whether one's spouse was employed by government-related entities, which consisted of government and its agencies, army, state owned enterprises, collective firms and organizations, and village administrative bodies.[31] We restrict the sample according to the following criteria: *(i)* conditional on being married, current marriage was initial marriage (which amounts to 96.5% of the couples); *(ii)* current marriage took place after the Famine; and *(iii)* both spouses were surveyed in the CFPS-2010. For employment-related outcomes, we further require both spouses to be currently employed since we do not observe the employer information for retirees.[32]

Shared starvation experiences We first estimate the likelihood of marrying someone with the Famine experience when an individual went through starvation during the Famine personally. To account for the fact that high Famine severity may mechanically generate high match rates of Famine-affected couples (since a Famine victim was more likely to reside in places that were hit by the Famine more severely), we control for the Famine severity among the relevant marriage pool, and examine whether the Famine victims were *differentially* more likely to marry others who shared their starvation experiences.[33]

[31] China's marriage law specifies that legal "marriageable age" to be 22 years old for males and 20 years old for females. Given the average educational attainment for the Famine affected cohorts, most of their marriages took place after the couples were already employed. Our results remain very similar if we restrict the sample to individuals who married after 20 years old.

[32] The average age among the restricted sample is 61.6. Thus, we are essentially identify the effects out of a younger subsample from the restricted sample.

[33] In order to capture the relevant sub-population of citizens' marriage pool, we construct the *Famine severity among potential spouses* index as the following: for each individual, we assign her with an index of the proportion of individuals with starvation experience during the Famine in her corresponding village of residence, and within the 5 consecutive cohorts window around her year of

In Table A.9, we present the coefficient estimates on the Famine survivors' own starvation experience on marrying spouses who also experienced starvation (Panel A), and controlling for the Famine severity pertaining the marriage pool as well as its interaction with own starvation experience (Panel B). We control for birth cohort and county of residence fixed effects — nearly all of the married couples among those directly susceptible to the Famine were born in the same county. The positive coefficients on *Famine experience* indicate that individuals became significantly more likely to marry spouses who shared their Famine experiences, if they went through starvation during the Famine in person. This is true for both male and female Famine survivors, and even after accounting for the differences in the density of people who experienced starvation in the relevant marriage pool. Moreover, while the Famine experience could be used as a marriage market signal for parental characteristics and family background, these patterns are nearly unchanged (Columns 2 and 4) when we control for couples' parental characteristics, including parents' literacy status and the political label assigned to the household (which indicates the asset level owned prior to the Land Reform in 1950s).

The sorting of individuals who were traumatized by their Famine experiences into the same households could not only foster persistence in political distrust among the Famine survivors themselves, but also intensify the degree at which their children acquire similar political distrust.

Famine survivors avoid marrying employees of government entities We next investigate decisions of individuals who experienced starvation during the Famine to marry spouses employed by government-related entities. In Table A.10, we present analogy empirical specifications as in Table A.10, Panel A, with the *spouses'* employment as the outcome. Across all specifications, we control for the individuals' own birth cohort and county of residence fixed effects, which allow us to absorb the average regional and cohort differences in job availability in the public sector. One can see that individuals who experienced starvation during the Famine were significantly less likely to marry employees of government-related entities. Given that political distrust may have motivated individuals to "get into the regime" in order to receive political protection and insurance, the Famine victims' lower likelihood of marrying government-related employees is even more remarkable. Moreover, the coefficient estimates remain unaltered when we control for parental and household characteristics (Columns 2 and 4), indicating that assortative matching by career types are not merely reflecting sorting along parental and family background.

This pattern is almost exclusively driven by females. We conjecture that this could be due to the male dominance among local government, bureaucrats, and related employees in the public sector. The majority of the local government officials and agents were males during the Famine. Hence, at the marriage market, females were more likely to associate prospective males employed by government-related entities with the male government officials who inflicted political distrust during the Famine period.

Importantly, decisions of Famine victims to avoid marrying government-related employees, and potentially many other similar decisions not captured here, could significantly reduce their likelihood of interacting with government personnel. This would result in persistence in the distrust towards government since they are also less likely to update their beliefs regarding the trustworthiness of the government. This pattern of "withdrawn" after an experience that is sufficiently negative resembles what is found in Malmendier and Nagel (2011) in the context of the Great Depression.

birth. Our results are robust to alternative definitions of the location-cohort-specific Famine severity index, such as the one based on proportion of individuals with Famine experience within a corresponding gender group in the village of residence.

7 Discussion

In this section, we first present a variety of robustness checks; then, we present a series of results that help us rule out alternative hypotheses that may explain the baseline findings.

7.1 Robustness checks

Drought during non-Famine periods First, we examine whether the baseline results hold if we were to construct the drought measures — average annual precipitation levels and drought affecting agricultural production — for the decade just before the Famine started in 1959. We re-estimate the baseline specifications using these pre-Famine drought measures. We present the results in Table A.11, where we reproduce the baseline specifications with drought during the Famine in Columns 1 and 3, and then drought prior to the Famine in Columns 2 and 4. One can see that only the observed drought *during* the Famine was particularly important to citizens' political inference regarding the Famine, resulting in large impact on their political distrust. In the specification that uses drought level prior to the Famine, however, the coefficient estimates for both types of drought measures become much smaller and statistically indistinguishable from zero, or even switch signs. To the extent that average rainfall and drought conditions could capture general region-specific characteristics unrelated to the Famine and in particular the political inference regarding the Famine, this is unlikely to drive our baseline results as they are specific to the weather conditions during the Famine years. For the remaining robustness exercises we present, we use the annual average precipitation during the Famine as the baseline specification.

Alternative fixed effects We next investigate whether our baseline results hold when we include alternative sets of fixed effects. In Table A.12, Panel A, Column 1, we reproduce coefficient estimates using our baseline specification, where we include a full set of birth cohort and province of residence fixed effects. In Panel A, Column 2, we instead include a full set of birth cohort and county of residence fixed effects, which absorb differences such as government quality, reputation, and policies at the county level. In Panel A, Column 3, we include a full set of province of residence *times* cohort fixed effects, allowing the local government's quality and policies to differ across the local residence of various ages. The estimated effects, in particular the patterns of political inference based on the Famine experiences and exceptional drought, remain qualitatively unchanged in these more conservative specifications.

Different clustering in statistical inference We next explore to what extent is our baseline statistical inference affected by alternative choices of clustering. In Table A.12, Panel A, we re-estimate our baseline specifications, where we allow error terms to be correlated across individuals residing in the same province. We do so for all three choices of the fixed effects that we examined previously. Due to the smaller number of clusters in this case (25), we also implement the wild bootstrap procedure (Camerer, Gelbach, and Miller, 2008) and present the corresponding p-values. In Panel B, we allow error terms to be correlated within each county of residence cells. In Panel C, we cluster the standard errors at the birth cohort level, allowing error terms to be correlated across individuals within the same birth cohorts across provinces. Finally, in Panel D, we re-estimate our baseline specifications, now implementing the two-way clustering by province of residence and by birth cohort. One can see that our statistical inferences on the Famine impact are not

affected by these alternative choices on clustering.

Pseudo-treatment as falsification test Finally, we demonstrate the statistical power of the inferences using our baseline specification by conducting falsification test, where we assign pseudo-treatment. We compare effect of the Famine exposure and the accompanying political inferences on citizens' political distrust, against the distribution of pseudo-treatment effects that we estimate with our baseline specification when we *randomly* and *simultaneously* assign the Famine intensity (average starvation level) to villages, and the precipitation levels during the Famine to counties. We assign the pseudo Famine intensity and precipitation levels by drawing randomly *without* replacement from the set of true values, and we randomly assign 5,000 sets of pseudo-treatment draws in this manner.

In Figure 4, we plot the distribution of t-statistics from the 5,000 estimated pseudo-treatment effects on political distrust, first for the Famine exposure main effect, then for the interaction between the Famine exposure and the precipitation level during the Famine. We mark within the pseudo-treatment effect distribution the location of the t-statistic of the corresponding treatment effect using the *actual* Famine exposure and precipitation level. We also report the share of the pseudo-treatment t-statistics that is larger than the actual t-statistics, in absolute value, which can be considered as analogous to a p-value in this placebo exercise. As evident from the figure, statistical inferences based on pseudo-treatment are similar to the standard regressions: under the null of no effect of the Famine experiences and the accompanying political inference, random variations would very rarely produce t-statistics in explaining political distrust as large as the ones that we find resulting from the actual Famine exposure and precipitation level.

7.2 Ruling out alternative hypotheses

Selection into survival Throughout our study, we focus only on the Famine survivors and their descedents, since we do not observe the political attitudes of those who perished. Selection into survival potentially introduces substantial biases. Previous studies identify that survival probability differs systematically across several biological dimensions, which induce attenuation biases when estimating the Famine's impact on health outcomes (e.g. Meng and Qian (2009)). In addition, selection into survival may operate in non-biological channels. Specifically, individuals with different levels of political trust prior to the Famine may have different likelihood of survival after the Famine, in which case the direction of the bias is ambiguous.

To address concerns regarding survival selection, we re-estimate our baseline specifications after dropping individuals at the lowest quantiles of the distributions along a range of dimensions where the selection into survival was most prevalent.[34] These dimensions are: *(i)* direct outcome of political distrust that we primarily focus on in this study; *(ii)* individual's height, as suggested by Gorgens, Meng, and Vaithianathan (2012); and *(iii)* local availability of alternative food sources.[35] The estimate results after we have corrected for survival selection are presented in Table A.13, where we replicate our baseline estimation in Column 1, and Columns 2-4 correspond to the three selection dimensions that we outline above. One can see that our baseline results are unlikely to be driven by survival selection biases, since correcting for these biases does not quantitatively change the results and their statistical inferences. In fact, when we use local availability

[34] If individuals in this range of the distribution were more likely to perish conditional on having experienced the Famine, then we observed disproportionally more individuals who did not experience Famine in this region of the distribution. Similar methods have been employed by other studies to correct for survival selection (for example, Meng and Qian (2009)).

[35] This is measured by the county-level suitability to grow edible wild vegetation under in low input level and rain-fed conditions. We describe the data sources and how we construct the index in details in Appendix B.3.

of alternative food sources to correct for survival selection, the coefficient estimates on both *Famine exposure* and *Famine exposure* $\times$ *precipitation* enlarge, suggesting that the survival selection may actually causes *attenuation* biases in the baseline estimates. We provide a more detailed discussion on the correction procedure and the results in Appendix G.

Confounding factors of health, education, and labor market outcomes Another important concern is that the Famine's impact on political distrust may merely reflect differences in health conditions, educational attainment, or labor market outcomes among individuals who were exposed to different intensities of the Famine across China.

Health, education, and income are unlikely to confound our results. First, previous studies identify that the Famine's adverse effects on survivors' health conditions, biological traits, educational attainment, and labor market outcomes were almost exclusively concentrated among fetus in-utero, infants, or individuals in their early childhood at the time of the Famine (see, among others, Chen and Zhou (2007), and Meng and Qian (2009)).[36] In contrast, our proposed mechanism of political inference was most prevalent among adolescents and adults at the time of the Famine, because it required cognitive capacity to process political information. Thus, the Famine's adverse effects in the domains of health, education, and income were less likely to confound the political outcomes for the subgroup of the population that we focus on in this study. Moreover, we re-estimate our baseline specification by restricting our sample to individuals older than 5 years old by the end of the Famine, in order to eliminate the group that was most susceptible to adverse effects on other dimensions. In Table A.14, we show that our results are robust to this additional restriction (Column 2, as compared to baseline estimation replicated in Column 1).

Second, to further rule out the confounding factors due to the Famine's adverse effects along other dimensions, we re-estimate our baseline specification and add a range of individual controls: biological traits of weight and height, non-biological characteristics of high school education attainment and total personal annual net income. In Table A.14, we present coefficient estimates in specifications that only include biological controls (Column 3), and non-biological controls (Column 4), respectively. Finally, we include both biological and non-biological controls simultaneously and present the results in Column 5. These coefficient estimates are not quantitatively significantly different from our baseline estimation, indicating that Famine's adverse impacts on biological traits, education, and income were unlikely to be the main driver of our results.

Persistent differences in the local government One may be concerned that the Famine's impact on political distrust took place not because the Famine survivors made political inferences based on drought conditions during the Famine. But instead, the baseline effect could potentially be explained by systematic differences in the local governance manifested during the Famine have endured for decades. For example, the local Famine severity may be a key indicator that predicts how the local government perform afterwards: if the local government officials were willing to sacrifice residents' well-being in order to ruthlessly adhere to the procurement policies (Kung and Chen, 2011), particularly in the regions that were lucky

[36] Using individual level Famine exposure measurement, our CFPS sample confirms this trend – Famine's impact on health, biological traits, and educational attainment existed for individuals younger than 5 years old during the Famine, and the effects diminished for older cohorts. This could arise due to a range of reasons: for example, while the adverse effect of malnutrition during infancy was long lasting, effects of food deprivation during adulthood could be transitory and easy to make up.

enough to avoid the drought, these government officials and their successors may be more likely to impose further policies that impair local residents' political trust.[37]

To address this concern, we focus our attention on the younger cohorts residing in rural area who are not *directly* susceptible to experiencing the Famine themselves, and we examine whether the local Famine severity and its interaction with the drought during the Famine affect their political trust. We assign these individuals with a measure of average Famine severity that is village×gender specific,[38] as well as the corresponding level of precipitation occurred in the corresponding county during the Famine. In Table A.15, we present estimated impact of the Famine exposure and political inference on the political distrust among individuals born before 1962 (baseline sample of those directly susceptible to the Famine experience), born between 1962 and 1978 (born prior to the reform era), and born after 1978 (born in the post-reform era), in Columns 1-3, respectively. Coefficient estimates on younger cohort samples shrink considerably comparing to those on the baseline sample, and the signs of the estimates switch for the post-1978 cohorts. This indicates that to the extent that systematic differences in the local government quality (captured by the Famine severity and its interaction with drought level during the Famine) may matter, individuals affected by the same local governance in recent decades but did *not* go through the Famine episode in person fail to exhibit the patterns of political distrust induced by the Famine that we observe among the older cohorts who went through the Famine themselves.[39]

In addition, one may worry that the local government policies persistently discriminated against regions that experienced higher intensity of the Famine. Although policies are unlikely to be designed and/or implemented by tagging specifically on the Famine experiences, policies targeted at certain region or sub-population with socioeconomic characteristics correlated with the Famine experiences may indirectly induce policy discrimination against the Famine victims, affecting their political support.[40] To address this concern, we estimate alternative specifications that include various measures of county-level policies that target particular sub-populations (for example, welfare expenditures on low socioeconomic class; cultural expenditures on medium to high socioeconomic class). Controlling for these county-level government expenditures has little impact on the estimated effects of the Famine on political distrust.

8 Conclusion

Citizens make important inferences on the quality and performance of the government, especially during critical junctures in citizen-government interactions. These inferences (re)shape citizens' trust in the gov-

[37] By including a full set of province of current residence fixed effect in our baseline specifications, we take into account of the average differences in local governance that are applied to all local residence. Our results are also robust to include county of residence fixed effects, and province×cohort fixed effects, absorbing finer differences in local governance (see Section 7.1 for details).

[38] This *Famine severity measure* is constructed as the proportion of individuals who reported hunger experiences during the Famine among those who were directly susceptible, within a given village of residence *and* gender cell. We standardize the raw proportions to form the final measurement, in order to make coefficient interpretation easier. The results presented here are robust to alternative methods to construct the severity measure.

[39] This does *not* imply that the Famine impact cannot be transmitted to the younger generation who are not susceptible to the Famine themselves. In fact, Section 6.2 shows that impact due to the Famine experiences and the accompanying political inferences are vertically transmitted to the subsequent generation, particularly among the fathers who experienced starvation. The seemingly contrasting results presented here suggest that social learning (from neighbors' experiences during the Famine) is less relevant for the younger cohort, likely because social learning occurs primarily among people around the same age.

[40] Fiscal transfers, government spending, and infrastructure investments are shown to be effective at reducing political opposition even in authoritarian regimes. For example, Voigtlander and Voth (2014) document that highway construction significantly raises regime support in Nazi Germany.

ernment. Authoritarian regimes often deploy propaganda and other information control tactics to affect political inferences and maintain high political trust. However, propaganda comes with risks. Citizens may observe independent information that falsifies the propaganda, and this could result in substantial political backfire.

One of such critical junctures is the Great Chinese Famine. Between 1958 and 1961, approximately 30 million citizens perished due to systematic misallocation of food resulting from the Great Leap Forward campaign. The state soon launched propaganda to advocate a *nature-driven* alternative explanation to the humanitarian disaster. Information that directly contradicts the state propaganda — experience of severe Famine in the absence of abnormal drought conditions — was quasi-randomly available to some citizens, but not others. Using a new dataset on a representative sample of the Chinese population, we find that five decades past the trauma, citizens who were exposed to the Famine still hold significantly higher level of political distrust. Our findings provide empirical evidence on how citizens form beliefs and attitudes about the government by extracting informative components from their personal experiences. In particular, when citizens experienced hunger in regions hit by little exceptional drought, they were much more likely to dismiss the propaganda message, and attribute the Famine to government failures rather than natural disaster, hence exhibiting even stronger political distrust.

Falsified propaganda could incur profound political costs. As dampened political trust stabilizes and endures through time, it becomes sustained political beliefs and ideology. We demonstrate that political distrust induced by the Famine has evolved into stable political ideology: across *time* — not only does the Famine impact on political distrust persist among the victims themselves, the impact is also transmitted to the subsequent generation; and across *domain* — the Famine impact extends to political attitudes not directly related to the event itself. The victims view a range of socioeconomic issues in China today as relatively more severe, suggesting a broad shift in their policy preferences and expectations on the government. Collective memory — both at the household level and for China as a whole — fosters the persistent and broad impact of the Famine experience. Famine victims' prevalent and persistent political distrust sanctions the government's poor performances, holding even an authoritarian regime accountable.

As with any study that relies on quasi-experimental variation, our estimated effects are "local" to our particular context. We believe this context is of special interest, as we study the political consequences induced by arguably one of the most tragic political failures in the 20th century. In particular, investigating the formation process of political trust and political attitudes for citizens in China merits important implications for how we should expect the regime to evolve in the coming decades. These findings may also be relevant to our understanding of other authoritarian regimes, where many similar instances of man-made disasters took place and the regimes' survivorship hinges on their ability to deny responsibilities (for example, the Soviet famine from 1932 to 1933, the Chernobyl nuclear explosion in 1986, and the North Korean famine from 1994 to 1998). With this said, one should exercise caution when generalizing from our results to the effects of political inference during traumatic events in other contexts. In particular, we conjecture that the degree of persistence of these effects may be context-dependent. Lack of political turnover in the authoritarian regime contributes to the persistence of political distrust and unfavorable attitudes. There is no regular and institutionalized channel to aggregate citizens' political distrust that would ultimately affect government policies and incumbent turnovers. This makes the Famine impact more likely to perpetuate in non-democratic regime.

Propaganda has limits. Traumas caused by political failures persistently shape citizens' political infer-

ences and dampen political trust, to the extent that specifically-aimed propaganda efforts led by an often effective authoritarian state cannot completely undo the impact. Moreover, propaganda reaches its limits especially under the circumstances in which the nature of the government's bad performance is exposed. When citizens realized that the government was responsible for inflicting the Famine and harming its own citizens, their trust in the government could be fundamentally and persistently altered. Our findings suggest that the capacity constraints of state propaganda may arise from conflicts among various information sources: *(i)* official propaganda claims; *(ii)* citizens' personal experiences in reality; and *(iii)* citizens' interpretation of their experiences (which depends on their prior beliefs and the context of their experiences). Individuals with high priors that the government is trustworthy may excuse the government officials for catastrophic outcomes when plausible alternative explanations are available. However, even strong authoritarian regimes such as China could not completely get away with the responsibility of causing the Great Chinese Famine when citizens' private information — local drought conditions — contradicts the state propaganda. The interaction across these factors complicates the political economy of the state's ability to influence citizens' political beliefs and attitudes. While Cantoni et al. (2017) and Chen and Yang (2019) find that indoctrination and media censorship can effectively shape citizens' political ideology and attitudes in the desired direction, the authoritarian state could face pushbacks or even backlashes when citizens' private information contradicts the state propaganda. Citizens in authoritarian regimes will inevitably accumulate personal experiences through future interactions with the state that may contradict what they were indoctrinated at school or exposed to on censored media, as demonstrated by the Famine survivors who failed to observe drought during the Famine. The relationship between citizen's personal experiences with the state, the manner in which citizen interprets these experiences, the state's explicit effort to (re)shape political beliefs and attitudes, and the state's capacity to do so, would be a fascinating area of future research.

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Figures and Tables

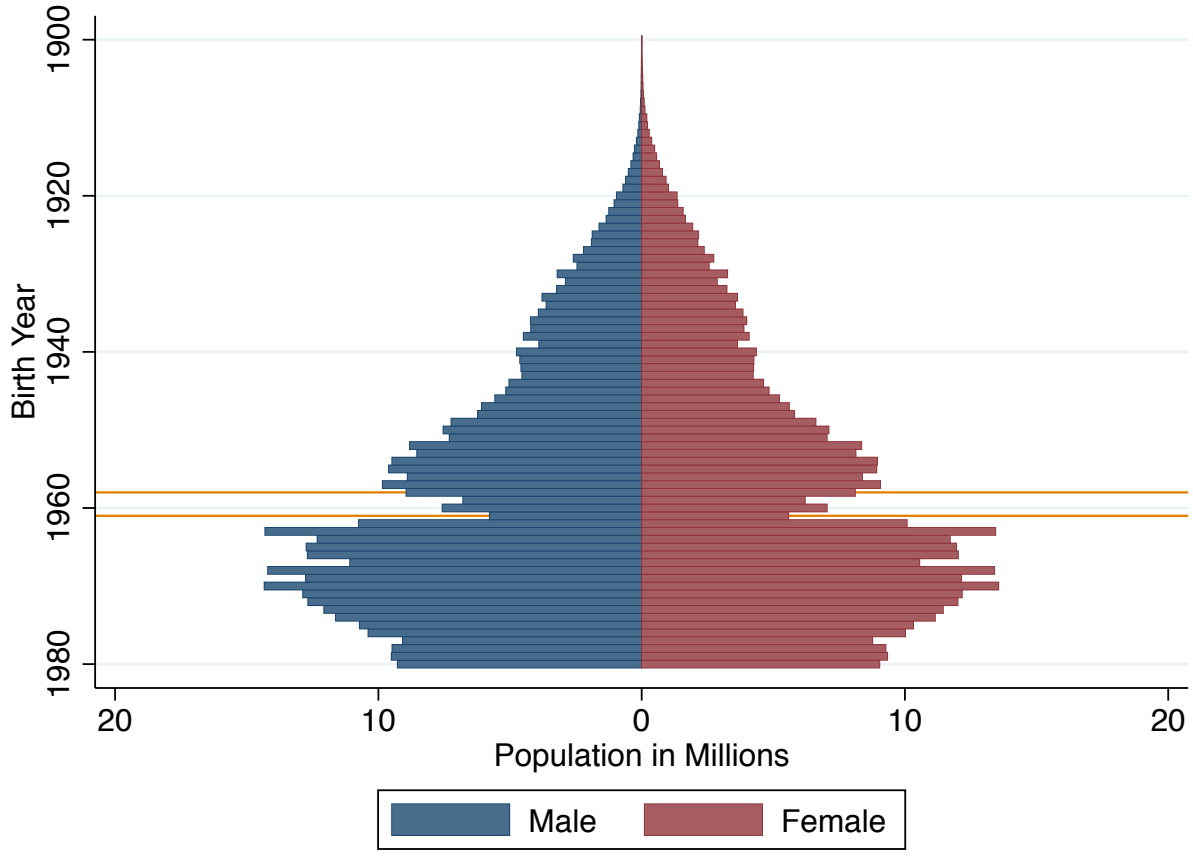

Figure 1: Population pyramid.

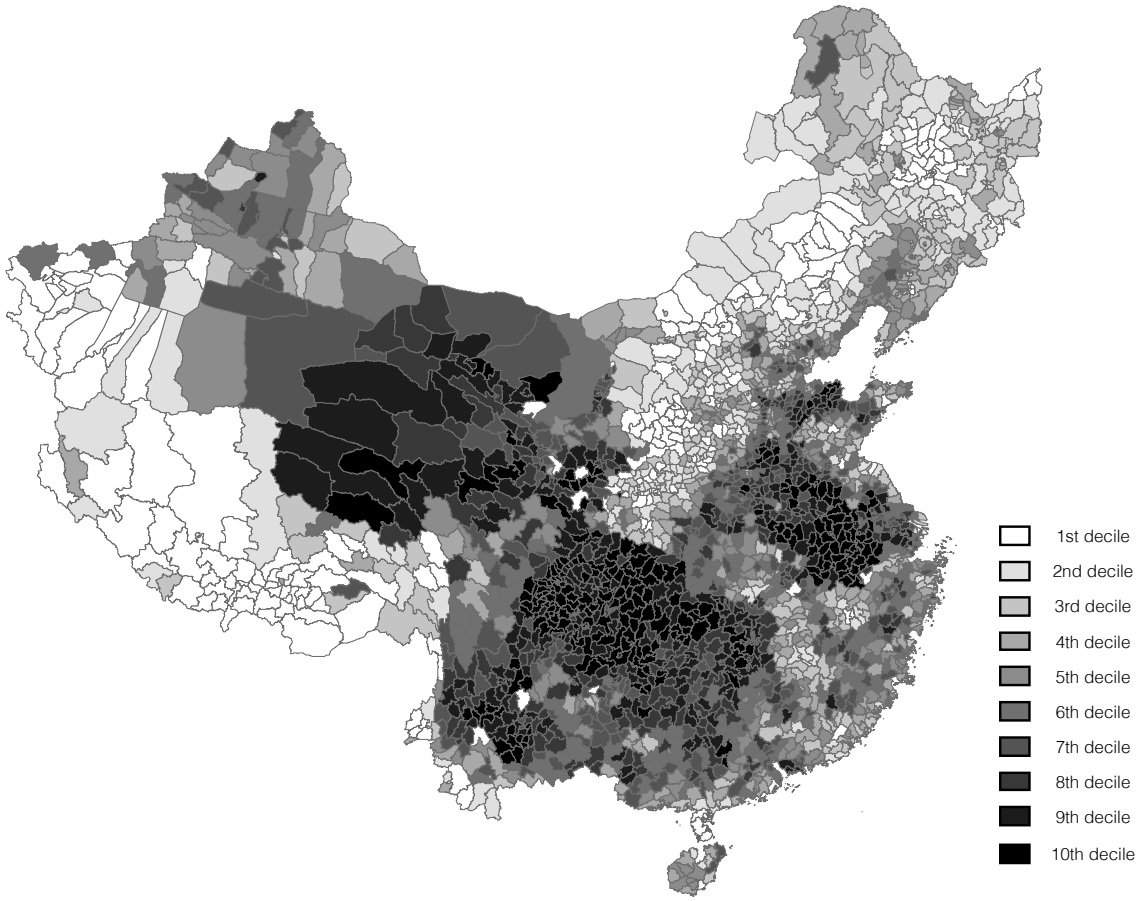

Figure 2: Spatial distribution of cohort loss index for cohorts born during the Great Chinese Famine (1958-1961). Higher index (darker shades) indicates larger loss in cohort dize during the Famine. Details on the construction of cohort loss index are described in Appendix B.1.

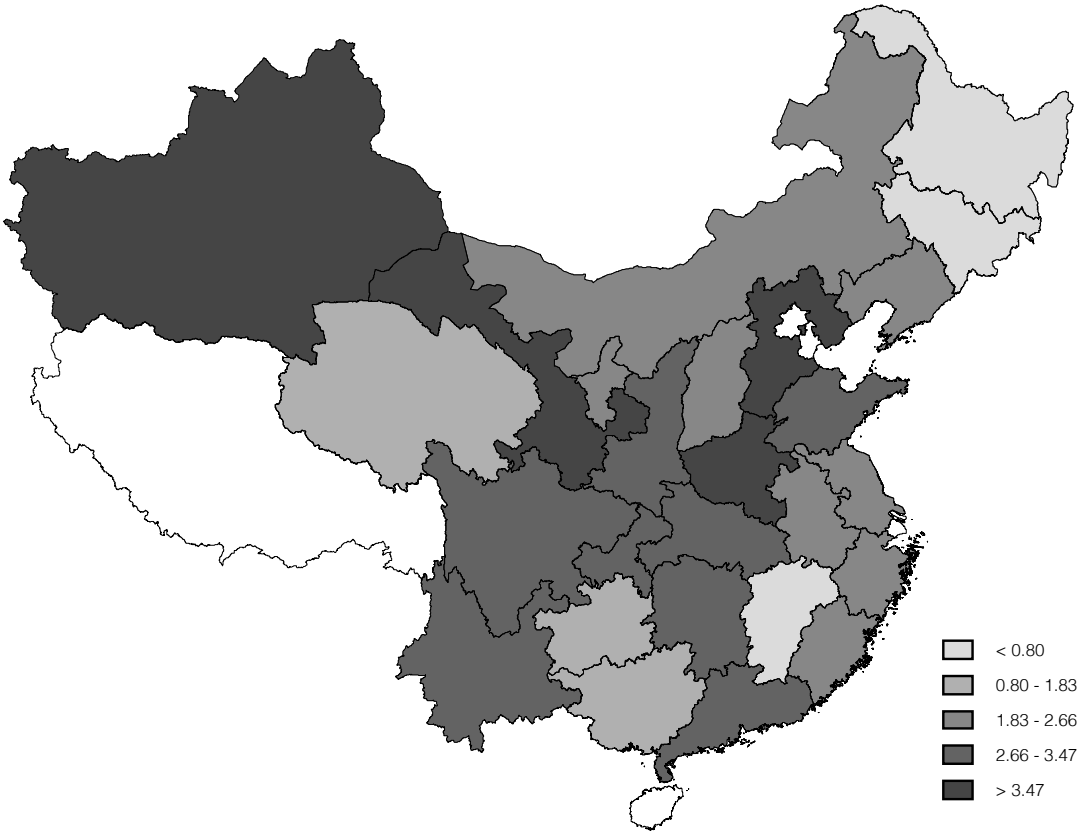

Figure 3: Spatial distribution of exceptional drought (standardized index) affecting agricultural production during the Great Chinese Famine. Higher drought index (darker shades) indicates greater level of exceptional drought. Details on the construction of drought index are described in Appendix B.2.

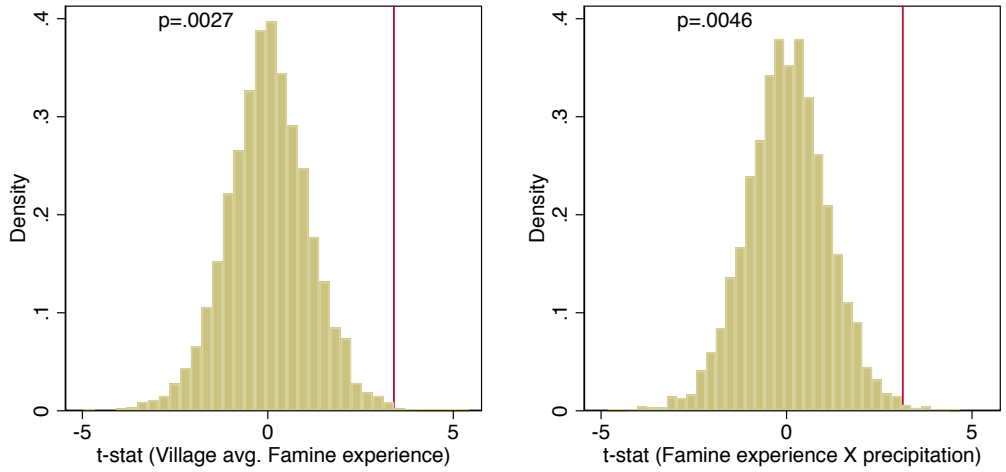

Figure 4: Pseudo-treatment vs. actual Famine experiences: the distribution of t-statistics resulting from regression estimates on "village average Famine experience" (left panel) and "village average Famine experience $\times$ precipitation during the Famine" (right panel) following the baseline specification, using 5,000 random assignments of the village average Famine experiences to villages, and annual precipitation levels during the Famine to counties, exceptional drought levels to provinces. The red vertical lines mark the as well as the t-statistics from actual village average Famine experiences and actual annual precipitation levels during the Famine. "p-values" report the share of the pseudo-treatment t-statistics that is larger than the actual t-statistics, in absolute value.

Table 1: Summary statistics & balance checks

	All		Starvation experience		Famine intensity × precipitation	
			No	Yes		
	Mean	Std.Dev.	Mean	Mean	Coefficient	p-value
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: *Personal characteristics*						
Age	62.2	8.5	61.3	65.3	-	-
Male	0.502	0.500	0.499	0.510	0.005	0.760
Han	0.919	0.272	0.923	0.907	0.004	0.929
# of siblings	3.582	1.997	3.578	3.594	-0.044	0.807
Migration at age 3	0.005	0.070	0.005	0.004	0.001	0.767
Height	162.3	8.2	162.3	162.0	-0.363	0.314
Weight	116.9	21.4	117.4	115.5	0.010	0.990
BMI	22.20	3.39	22.27	21.98	0.108	0.535
Panel B: *Parental characteristics*						
Father illiterate	0.737	0.440	0.723	0.781	0.044	0.199
Father CCP member	0.105	0.306	0.110	0.088	-0.011	0.489
Mother illiterate	0.942	0.234	0.933	0.971	-0.018	0.245
Mother CCP member	0.013	0.113	0.014	0.010	-0.003	0.548
Parent poli. label	0.058	0.234	0.055	0.070	0.016	0.377
Panel C: *Village characteristics*						
Village household #	862.2	1043	873.0	828.1	-21.8	0.931
Village agri. prod.	713.4	1473	723.0	683.0	575.0	0.117
Village non-agri. prod.	595.0	1813	619.5	518.4	563.9	0.177
Village avg. income	3421	2261	3510	3144	11.61	0.979
Natural disaster zone	0.292	0.455	0.275	0.343	-0.093	0.318
Natural resource zone	0.089	0.284	0.097	0.064	0.026	0.449
Panel D: *Famine experience*						
Hunger experience during Famine	0.245	0.430	0	1	–	–

Columns 1 and 2 report mean and standard deviation of personal, parental, and village characteristics among all individuals directly susceptible to the Famine experience (baseline sample). Columns 3 and 4 report mean levels of these characteristics among those who did not report starvation experiences during the Famine, and those who did, respectively. Column 7 reports the regression coefficients of village average Famine experience × precipitation during the Famine, following the baseline specification described in Section 4.1 (including all lower term coefficients, birth cohorts and province of current residence fixed effects), on the corresponding personal, parental, and village characteristics. Column 8 reports the p-values on the coefficient, against the null hypothesis that the corresponding coefficient estimate is zero. "Migration at 3yo" indicates whether individuals migrated to different cities than birthplaces at age 3. "Father Illiterate" "Father CCP Member" "Mother Illiterate" and "Mother CCP Member" are dummy variables indicating corresponding parental characteristics when the individual was 14 years old. For these variables, we restrict sample to those who are at least 14 years old at the beginning of the Famine, to make these parental characteristics pre-determined with respect to the Famine. "Parent Pol. Label" indicates whether individuals belong to families labeled as landlord or rich peasants during the Land Reform in 1950s. Number of observations: 9,226.

Table 2: Political inference from the Famine experiences

Dependent variable:	Distrust towards local government	
	Village avg. Famine experience	Village leave-self-out avg. Famine experience
	(1)	(2)
Panel A: *Annual precipitation during Famine*		
"Famine experiences measure"	1.476***	1.320***
	[0.432]	[0.439]
"Famine experiences measure"	0.434***	0.401***
× precipitation during Famine	[0.140]	[0.137]
Panel B: *Drought affecting agricultural production during Famine*		
"Famine experience measure"	0.803**	0.694**
	[0.322]	[0.338]
"Famine experience measure"	-0.349***	-0.317***
× drought affecting agri. production	[0.083]	[0.084]
Observations	9332	9332
Mean Famine exp.	0.243	0.243
Std.Dev. Famine exp.	0.230	0.232
Mean DV	4.649	4.649
Std.Dev. DV	2.506	2.506

*: Significant at 10%; **: 5%; ***: 1%. All regressions include the main effects on *drought levels* (either precipitation during Famine or drought affecting agricultural production), and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table 3: Heterogeneity by prior beliefs and access to information

Dependent variable:	Distrust towards local government					
	Access to information				Prior beliefs	
Subsamples:	Electricity coverage prior to 1978		Mean diff. in neighbor countries' Famine severity		Provinces passed by Communist Long March	
	Yes	No	$>$ median	$<$ median	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)
Village avg. Famine experiences	-0.639	2.945***	-0.306	1.725***	1.755***	-0.868
	[1.565]	[0.769]	[1.412]	[0.520]	[0.439]	[2.424]
Village avg. Famine experiences	-0.071	0.769***	-0.005	0.459**	0.584***	-0.229
$\times$ precipitation during Famine	[0.416]	[0.168]	[0.393]	[0.176]	[0.125]	[0.635]
Observations	3065	5260	4195	3924	5283	4068
Mean DV	4.564	4.658	4.594	4.713	4.579	4.715
Std.Dev. DV	2.517	2.505	2.555	2.469	2.443	2.582

*: Significant at 10%; **: 5%; ***: 1%. Each column applies corresponding sample restrictions as described in the table heading to the baseline sample: Columns 1 and 2 based on whether the villages had electricity coverage prior to 1978; and Columns 3 and 4 based on whether the mean differences in surrounding neighbor counties' Famine severity levels were above or below median in sample; Columns 5 and 6 based on whether the provinces at age 3 were passed by the Communist Party's Long March in 1934-35. All regressions include the main effects on precipitation during Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table 4: Scale of the Famine impact on political distrust

Experiences & factors	Effect size on political distrust	Avg. year of occurrence
Panel A: *Political inference from the Famine experiences*		
Famine *(political inference with max precipitation difference)*	0.939	1960
Famine *(political inference with 1 s.d. precipitation difference)*	0.464	1960
Panel B: *Important factors*		
Senior high school education or above	0.065	-
Not a member of CCP	0.208	-
Panel C: *Negative experiences with the government*		
Negative encounters with local government	0.650 - 0.850	2010
Forced relocation from original residence	0.343	1997
Under-compensated govt. land acquisition	0.396	2003

Famine experience is measured by village average Famine experience, valued at mean (0.243). Results from Panel B and C are based on calculations using the same CFPS sample as the baseline specifications (and Panel A). Negative encounters with local government include the experience of unfair policies, conflict with local government, unfair fees collected by local government, etc.

Table 5: Impact of Famine experience on broad political attitudes

	Individual policy attitudes							
Dependent variable:	Severity: corruption	Severity: pollution	Severity: inequality	Severity: unemployment	Severity: medical care	Severity housing	Severity social welfare	Anderson z-score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Village avg. Famine experiences	2.870*	2.233	0.748	2.034*	3.042**	2.511	3.754**	1.222*
	[1.570]	[1.507]	[1.006]	[1.092]	[1.171]	[1.511]	[1.611]	[0.615]
Village avg. Famine experiences	0.733*	0.599	0.055	0.499*	0.791**	0.688*	1.058**	0.312**
× precipitation during Famine	[0.385]	[0.365]	[0.256]	[0.287]	[0.283]	[0.386]	[0.383]	[0.148]
Observations	8046	8046	8046	8046	8046	8046	8046	8046
Mean DV	5.480	5.032	6.287	5.310	5.117	4,883	4.769	0.000
Std.Dev. DV	3.100	2.719	2.726	2.654	2.811	2.814	2.755	1.000

*: Significant at 10%; **: 5%; ***: 1%. Anderson z-score index is weighted by the inverse covariance of the standardized outcomes, computed following Anderson (2008). All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table 6: Integenerational transmission of Famine impact

Dependent variable:	Distrust towards local government	
Parent:	Father	Mother
	(1)	(2)
Panel A: *Intergenerational elasticity of political distrust*		
Political distrust $^{P}_{icp}$	0.147***	0.207***
	[0.040]	[0.026]
Political distrust $^{P}_{icp}$	0.088*	-0.017
$\times$ Famine experience $^{P}_{i}$	[0.050]	[0.074]
Panel B: *Transmission of political inference from Famine*		
Famine experience $^{P}_{i}$	0.543*	0.475**
	[0.309]	[0.170]
Famine experience $^{P}_{i}$	0.156*	0.499**
$\times$ precipitation during Famine $^{P}_{i}$	[0.078]	[0.225]
Observations	1418	1492
Mean DV	5.245	5.245
Std.Dev. DV	2.445	2.445

*: Significant at 10%; **: 5%; ***: 1%. Results based on the CFPS sample born after 1963 and whose parents were born before the Famine ended. P indicates the corresponding parents (father or mother) matched with children. Famine experience is measured by *personal Famine experience* indicator for either parent. All regressions include a full set of province of current residence and birth cohort fixed effects (not reported). Regressions in Panel A include the main effects on *Famine experience*$^{P}_{i}$ (not reported); regressions in Panel B include the main effects on *precipitation during Famine*$^{P}_{i}$ (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

ONLINE APPENDICES, NOT FOR PUBLICATION

Appendix A Additional features of the Great Chinese Famine

We now describe a number of additional features of the Great Chinese Famine that are relevant to our study.

A.1 Concentrated impact in rural areas

The Famine's impact was almost exclusively concentrated in rural areas. Approximately 95% of all Famine-related deaths occurred among rural *hukou* status holders. This arose partly because the Chinese Communist Party provided large amounts of food to urban areas during the Great Leap Forward in order to support rapid industrialization (Lin and Yang, 2000). Millions of Chinese became new employees of the state sector due to the heavy industrial investment.[1] These new urban workers placed substantial pressure on China's food-rationing system, which led to a rapidly increasing and unsustainable demand on rural food production and procurement (Lardy, 1987). In addition, the urban population (under the dictates of Maoism) had protected legal rights for certain amounts of grain consumption, whereas the rural peasantry were given no such rights; instead, they were subject to non-negotiable production quotas and forced to survive on residuals from the procurement. With the internal suppression of news, many city residents were unaware of the mass deaths that were occurring in the countryside, and this was essential in order to prevent organized opposition in the cities (Becker, 1996). For these reasons, we focus our attention on the rural population in our empirical analysis.[2]

A.2 Strict migration control

Migration (and hence endogenous sorting) based on famine severity can be a serious concern to the identification of persistent effect of famines.[3] Here, we demonstrate that this particular concern was less severe in the case of the Great Chinese Famine. Migration was strictly prohibited at two levels: *(i)* migration from rural to urban areas; *(ii)* migration within rural sectors.

During the Famine, living in an urban versus a rural area could mean the difference between life and death (Becker, 1996). As discussed previously, the Famine's impact lay primarily within the rural sector, while urban areas were largely immune from the excessive mortality. Despite the high incentive for hungry peasants to temporarily migrate to cities as refugees of the Famine, such migration was primarily prohibited due to the Household Registration System (namely, the *hukou* system). In 1958, the Chinese government officially promulgated the *hukou* system to control the movement of people between urban and rural areas. Internal passports were introduced, forbidding travel without appropriate authorization.[4] Rural residents

[1] In 1958, 21 million people were added to non-agricultural state payrolls, and total state employment reached a peak of 50.44 million in 1960, more than doubling the 1957 level; the urban population swelled by 31.24 million people (Lardy, 1987).

[2] Urban dwellers, in spite of the fact that many of them did not experience the Famine, did not serve as an ideal "comparison group" for the Famine-affected individuals in the rural areas. The urban population had drastically different experiences during the Famine compared to rural dwellers. In addition, they encountered different development trajectories and circumstances due to the rural-urban divide throughout China's development path. Finally, the urban population was impacted by the Cultural Revolution from 1966 to 1976, while rural households largely remained unaffected.

[3] Meng and Qian (2009) provides a detailed discussion on this concern.

[4] Individuals were broadly categorized as either "rural" or "urban" status based on location of residence. A worker seeking to move from the countryside to urban areas to take up non-agricultural work would have to apply for permission through the relevant bureaucracies. The number of workers allowed to make such moves was tightly controlled. Migrant workers were required up to six

could not leverage the high cross-county variation in Famine severity to smooth the Famine consequences. Village local leaders employed security controls to prevent villagers from leaving, or hungry outsiders from entering (Thaxton, 2008). In fact, many of the starving peasants tried to flee to the cities to beg for food, but tight security at entry points and regular inspections of residential documents on the streets led to deportation and subsequent death for many.[5]

A.3 Starvation as the main cause of death

Previous work has observed that the actual experience of starvation was at the center of excessive mortality during the Great Chinese Famine, unlike most other famines (see, among others, Fairbank (1987), Becker (1996), Dikötter (2010), and Meng, Qian, and Yared (2015)). In particular, Meng, Qian, and Yared (2015) note that rural China suffered from relatively low levels of infectious diseases even at the peak of the Famine's damage, primarily due to migration controls within rural sector, the prevalent adoption of DDT prior to the Famine, as well as the public health campaigns undertaken by the government immediately after the Communist Revolution. As Dikötter (2010) emphasizes, "People really did die of starvation – in contrast to many other famines where disease loomed large on the horizon of death." From the perspective of Famine survivors, this implied that hunger would be a common experience (or, syndrome) for those who were actually affected by the Famine. In other words, survivors of other famines may be able to avoid starvation experiences all together, as long as they survived the infectious diseases. Given the fact individuals are particularly sensitive to the physical and emotional pain associated with hunger experience, the Famine potentially affected its survivors beyond the biological domain, which is the main focus of our study.[6]

bureaucratic "passes" in order to work in provinces other than their own.

[5] Anecdotal accounts indicate that a small number of rural residents succeeded in getting into the urban sector during the Famine, mainly due to help received from their relatives residing in the cities.

[6] For example, Squire (1987) notes that long-term memory of certain past traumas and pains may be systematically intensified over time.

Appendix B Additional data sources and variables

B.1 Cohort loss

Various measurements of the Famine severity In order to obtain an objective measurement on Famine severity for each county, we estimate the relative size of "cohort loss" for cohorts born during the Great Chinese Famine (1958, 1959, 1960, and 1961) using 2000 Census. Similar method has been employed by previous studies on the Famine, such as Meng, Qian, and Yared (2015) and Garnaut (2014).

Conceptually, the overall impact of the Famine is comprised of three elements: *(i)* direct death toll (rise in mortality); *(ii)* unborn population (drop in fertility) and infant mortality; *(iii)* survivors who suffered during the Famine. We choose to focus on component *(ii)* for an objective measurement of Famine severity across regions, for the following reasons. First, estimations based on death toll (component *(i)*) reports are extremely vulnerable to data manipulation by the Chinese government. Many records revealing excessive deaths were ordered by the Chinese Communist Party to be destroyed or revised during and after the Famine. Retrospective estimation using contemporary Census data, which is sufficient for component *(ii)*, is a much more reliable strategy. Second, while our main measurement of hunger experience captures *(iii)*, component *(iii)* inherently relies on retrospective recollection, and there is no corresponding measurement that is absolutely objective. Third, the scale of unborn population and infant mortality directly reflects changes in food consumption patterns such as maternal nutrition and endogenous fertility decisions. These are arguably more sensitive to changes in food availability and the degrees of Famine severity.

Construction of the cohort loss index We now outline our *cohort loss* estimation procedure: *(I)* At county level, we use 1952-1954 and 1963-1965 cohort sizes to estimate non-Famine-period county-specific population linear time trend. We exclude the years immediately before and after the Great Chinese Famine period from constructing this non-Famine counterfactural cohort size trend, because the Famine was preceded by two years of below-average fertility, and followed by a short period of above-trend fertility likely due to post-Famine catching up.[7] *(II)* We use the estimated trend to project "counter-factual" cohort sizes for Famine-affected cohorts (1958-1961). *(III)* We construct the measurement of *cohort loss* for 1958 to 1961 cohorts as 1 minus the ratio between actual and projected cohort sizes.

Interpretations The *cohort loss* index indicates the scale of lost cohort in percentage terms: for example, a national average of 0.23 suggests that due to drop in fertility and rise in infant mortality, Famine-affected cohorts are on average 23% smaller in size than what they would have been if following the previous population trend. Figure 2 shows the distribution of cohort loss sizes across the nation, where darker shades indicate a higher degree of cohort loss in the corresponding counties. This map confirms the previous discussion that the Great Chinese Famine exhibits high level of regional variation in severity.

B.2 Exceptional drought that affected agricultural production *(detailed)*

Data sources In order to measure exceptional drought level during the Famine, we make use of two contemporary official archives from the People's Republic of China. First, we use the *Comprehensive Statistical*

[7] The famine is conventionally seen as having commenced in 1958 or 1959, but fertility levels in several provinces that were the focus of state grain collection efforts fell steadily from mid-1955 (e.g. Sichuan, Anhui, and Henan).

Data and Materials on 50 Years of New China (1999) compiled by the Department of National Economic Statistics at China's National Bureau of Statistics, to obtain annual data on total agricultural sown area for each province. Second, we use *Report of the Damage Caused by Disaster in China (1996)* compiled by China's National Bureau of Statistics, Department of Domestic Affairs, to obtain information on total areas affected by drought for each province for a given year. Overall, we have non-missing values for 26 of the 31 provinces in China. The 5 missing provinces are: *(i)* direct-controlled municipalities with limited agricultural production (Beijing, Tianjin and Shanghai); *(ii)* Tibet; *(iii)* province that was not officially established until late 1980s (Hainan).[8]

As a reporting convention, the heavy drought-affected area (*shouzai mianji*) is defined as the total agricultural plotting area in a region where drought causes more than 10% reduction in crop yields compared to normal years.[9] Compared to using raw precipitation data to measure drought, the key advantage of this drought measurement is to explicitly capture the drought that affected agricultural production, which is more relevant when citizens assessed to what degree natural disaster of drought had led to a drop in agricultural production (thus subsequent food shortage) during the Famine.

Construction of drought index For each province, we calculate the annual ratio of heavy drought-affected area to the total agricultural sown area. This ratio captures the relative scale of annual drought severity in each province. We use the maximum ratio during the Famine period (1960-1961) as the drought affecting agricultural production *during* the Famine. We calculate the mean of the ratios from 1950 to 1959 as the level of drought affecting agricultural production *prior* to the Famine.

We next divide drought level *during* Famine by the drought level *prior* to the Famine. This is intended to capture the fact that a high level of drought affecting agricultural production *during* the Famine was not informative to the citizens, unless such shocks were exceptionally high compared to those occurred during non-Famine years. For ease of interpretation, we normalize this ratio by first substracting its national minimum value, and then dividing by its standard deviation. We denote this normalized ratio as the index of drought level during the Famine.[10] All values of this index are positive, and the magnitude measures the distance away from the national minimum in the unit of one standard deviation. Figure 3 plots the drought index for the 26 provinces that we have data across China, where darker shades indicate higher level of exceptional drought during the Famine period.

Data availability constraints We rely on the total agricultural sown area and heavy drought-affected area to construct the drought level index because alternative historical data documenting the adverse effect of natural disaster on agricultural production is extremely limited in China, especially during the periods from 1949 to 1976. Moreover, we are constrained by the fact that no disaggregated data is reported below province level prior to 2000.

[8] Data from Chongqing was not independently reported since administratively it was part of Sichuan during the time of the Famine. We assign the municipality of Chongqing with values from Sichuan. The total agricultural sown area was missing for Sichuan and Hubei for a few years between 1950 and 1965. We conduct linear interpolations to fill in the missing values. The baseline results of the paper are robust to dropping the samples from Sichuan and Hubei altogether.

[9] China's National Bureau of Statistics, Department of Domestic Affairs does not report drought's effect on production at continuous scales.

[10] In Section 7.2, we show results from alternative specifications using different measurement of drought level, including the index constructed only using the drought level *during* the Famine (rather than the ratio over drought level *prior* to the Famine).

Data reliability constraints Data during the Mao-era were considered unreliable, since they were subject to systematic mis-reporting by the Maoist government. Data such as agricultural production and mortality rates during the Famine period could be particularly problematic, because the central government had strong incentive to forge these data in order to cover up the severity and political roots of the Famine.

We take several approaches to address the concerns regarding data reliability. First, we do not use the direct reportings on mortality rates and actual agricultural production during the Famine for any of our analysis. These data were exceptionally vulnerable to systematic mis-reporting, and even retrospective corrections by the post-Mao Statistics Bureau could be problematic. Instead, we use total agricultural sown area and natural disaster reportings from separate sources. These are considered to be less sensitive information as they do not directly reveal the scope of the Famine severity. Second, we use contemporary statistical compilations from the post-Mao government for both total agricultural sown area data (retrospectively published in 1999) and natural disaster reportings (retrospectively published in 1996). These two data sources have been carefully corrected retrospectively by China's National Bureau of Statistics, in particular to address systematic mis-reportings from the Mao-era.[11]

B.3 Alternative food sources: county-level buffer capacity against the Famine

In order to measure buffer capacity of alternative food sources in each county, we use *Global Agro-Ecological Zones (GAEZ)* data constructed by the Food and Agriculture Organization of the United Nations. GAEZ's crop and plantation suitability index is constructed via a two-stage procedure: *(i)* collect the characteristics of 154 different crops in order to determine environmental conditions for cultivation for each crop type; *(ii)* collect data on the conditions on physical environment for each of the 2.2 million grid cells across the globe. These conditions include: *(a)* 9 variables from global climatic database; *(b)* land and soil characteristics; *(c)* slope of soils by USGS.[12]

For the purpose of this study, we use the suitability index of *pasture grass* (edible wild vegetation) in low input level and rain-fed condition, with baseline measurement from 1961-1990. For each county, I obtain its corresponding index through geo-location. This is chosen for two reasons. First, these conditions mimic the relevant suitability environment during the Great Chinese Famine, when irrigation capacity and additional input availability were extremely limited. Second, suitability of pasture grass under such condition has little correlation with the suitability of agricultural crops under high input level and irrigation-fed conditions. Considerable endogeniety concerns would arise if we attempt to explain contemporary political distrust with any suitability measurement that is correlated with modern agricultural production, output capacity, and potential economic growth conditions.

[11] Meng, Qian, and Yared (2015) compare these post-Mao data compilations to historical data sources, and confirm that the retrospective compilations revised many statistics reported during the Mao-era.

[12] More detailed information about GAEZ can be found at `www.fao.org/nr/gaez/en/`.

Appendix C Propaganda poem during the Great Chinese Famine

Below is a translated excerpt of a propaganda poem published in *People's Daily* editorial special column on Nov.15th, 1960. This poem, along with many others, demonstrates Chinese Communist Party's official stance that the Great Chinese Famine was caused by severe natural disaster, rather than policy failures and systematic misallocation of food.

Even the dearest person cannot match our lovely Party!
Chairman Mao is our intimate friend,
caring for us when we in need!
...

Even for the past one hundred years,
it is rare to find a disastrous year like this.
Drought: the road is so dry that dust covers up our ankles!
...

We are going to fight through this difficulty and kill the enemies!
Let us open the south gate of the heaven,
and rush into the heaven's palace,
Ask the gods to bow their heads,
so that they will obey our demands...
...

All people under the heaven are one family,
and our Chairman Mao is so forward-looking ...
The members of our Communes,
their ambitions are as high as the sky!
So we will definitely declare victory over this disastrous year!
The gods are intentionally creating troubles for us,
and they set so many road blocks in front of us!
But we are not afraid!
Because we have the Party, we have Chairman Mao!

Appendix D Balance of characteristics between Famine and Non-Famine affected individuals

In Table **??**, Columns 7 and 8, we show differences between citizens who did not experience hunger during the Famine and those who did, *conditional* on birth cohort and province of residence fixed effects, and the p-values testing for the statistical significance of these *conditional* differences. Again, we want to emphasize that the list of characteristics we test here is by no means comprehensive. Factors not captured here may determine individuals having different experiences during the Famine.

D.1 Gender and household composition

Strong son-preference in Chinese traditional norms (particularly in rural areas) may induce parents to disproportionally allocate additional food to sons than to daughters in the crisis of food shortage, in order to preserve the male descendants' health and well-being. We show that gender did not drive the variation in Famine experience within a province and within a birth cohort. Nonetheless, since food allowance from the village communes was typically calculated at the household level, households with bigger sizes faced stronger pressure of food shortage. This shows up as one of the *only* observable differences between Famine and non-Famine affected individuals – those who experienced the Famine came from households with more children (measured by number of siblings).

D.2 Family background

We do not directly observe the income and assets of an adult individual's parents.[13] However, for each individual, we know the literacy status of both parents, which we use as a proxy for family background during the time of the Famine.[14] No significant differences in both parents' literacy status were observed. In addition, for each individual we know the "political label" of his parents or (more likely) grandparents. These "political labels" were assigned during the Communist Revolution in 1945-1950, based on household land holdings prior to the Revolution. The label mainly consisted of categories such as landlord, rich peasants, middle peasants, poor peasants, deprived peasants, etc. Once they were assigned, the labels apply to all members of the family and its descendants, and it typically cannot be revoked or revised. We show that there was no significant difference across the Famine and non-Famine individuals in terms of the political labels assigned to their parents or grandparents.

D.3 Political connections

In terms of political connections, we use three proxies: father's membership in the Chinese Communist Party (CCP), mother's membership, and the CCP membership of the individual of interest if he joined the Party prior to the Famine. The CCP membership demonstrates social connections and political eliteness:

[13] Unless the parents are surveyed by the CFPS-2010 or 2012 waves. However, given that we are focusing on individuals who are born before the end of the Famine (1963), it is very rare for these individuals' parents to be still alive and hence included in the CFPS survey.

[14] Literacy status is a more relevant proxy for educational attainment than actual years of schooling completed, given the extremely low access to formal and modern education in rural China prior to 1949 (our sample of interest is rural Chinese population born before 1962).

only less than 10% of the entire population are Party members. If political connection allowed individuals to have easier access to additional food during food shortage, one would suspect that CCP members were more likely to be immune from hunger experiences during the Famine. However, we show that individuals whose parents were CCP members or became Party members themselves prior to the Famine were no less likely to avoid the Famine experience within the province (or even within the county and village).[15]

D.4 Proxy for economic and social connections

Lastly, we use various proxies to measure individuals' social and economic connectedness locally. One may suspect that if individuals were more connected socially and economically with the rest of the village, he was also more likely to gain access to additional food during the Famine. We use individual's residence distance and/or travel time to the nearest high school, medical facility, and village business center to proxy for such connectedness. We show that no significant differences were found across the Famine and non-Famine individuals along these dimensions either.

D.5 Unusual balance in contrast with other Maoist traumas

In contrast with other traumatic events during the Maoist era, the Great Chinese Famine was particularly unique in its conditional balance on observable characteristics across the impacted and non-impacted groups. In Table A.2, we report p-values testing for the statistical significance of *conditional* differences for 4 additional traumatic experiences: *(i)* forced migration during Down-to-Countryside movement; *(ii)* cadre school participation; *(iii)* persecution of any sort, and *(iv)* being recruited into military service during the Maoist period. Column 1 replicates the p-values from Table **??**, showing the Famine benchmarks. These conditional differences account for average characteristics of province of residence, birth cohort, as well as the dichotomy between rural and urban. These experiences were reported in the same manner as the hunger experience in the CFPS-2010. In order to focus our attention on individuals susceptible to personally experiencing the Maoist traumas listed above, we restrict the sample to individuals born before 1978 (the year when economic and political reform started, and two years after the death of Mao, commonly considered as the end of Mao-era).

As can be seen, for each of these Maoist traumatic events, individuals who encountered such experiences differed from those who didn't along a number of key dimensions of their observable characteristics. Several factors likely contributed to the contrast between the Great Chinese Famine and these Maoist traumatic events. First, the Famine impacted the entirety of China, covering a much larger scale than many of these other events. Second, unlike other traumas and campaigns during the Maoist era, the intensity of the Famine left little leverage for individuals to actively escape its impact. Third, beyond the rural-urban polarity, the Famine was not targeted toward particular demographic and socioeconomic groups at the policy level, while this was certainly not the case for these other traumatic events.

[15] We acknowledge that with self-reported Famine experience as our only individual-level measure, we cannot distinguish between the baseline true experiences of the CCP member households during the Famine, *and* conditional on having experienced it, their likelihood of reporting such experiences. The above balance check analysis makes the implicit assumption that conditional on having experienced hunger during the Famine, there is no difference in the likelihood of reporting between individuals from CCP and non-CCP households.

Appendix E Validation of the Famine memory measurement

We use novel measurement of survivors' personal memory on hunger experiences during the Famine, which allows us to exploit rich levels of variations in Famine exposure. Here, we present evidence that indicates the validity of the Famine memory measurement.

E.1 Aggregated memory coincides with objective measurement of Famine severity

Another way to test the reliability of our Famine experience measurement is to check whether its cross-county distribution resembles that of alternative (and more conventional) regional Famine severity measurement. Therefore, we estimate the following Logit model: we predict individual Famine experience using the county level *cohort loss* index introduced in Appendix B.1, controlling for a full set of birth cohort and province fixed effects. The marginal effect (evaluated at the means) indicates that a 5 percentage point increase in *cohort loss* in a particular county is associated with an 18.4 percentage point increase in the likelihood of reporting individual Famine experience. The scale of this marginal effect explains almost the entire variation of individual Famine experiences across counties within a particular province.

E.2 Memory of the Famine is persistent

Individuals can have extraordinarily long lasting memory of traumatic experiences from the past. Evidence from oral history and anthropology confirms that despite the fact that half a century has passed since the actual event, many survivors still hold vivid memory of the Famine period today (for example, who and how many people perished in the village, who stole food and broke the rule in order to obtain additional crops, etc).[16] For instance, one particular Famine survivor said in a home interview in January 2014:

> Even when I eat meals today, I would not allow any left-over food in my bowls. I always finish up all the food, and I would never waste any food. Young people would say we are too frugal. But I do so because I always think back on the feelings of starvation and desperation during the Famine – those feelings I will never be able to forget.

E.3 High concentration in reported hunger years

As mentioned previously, our question about hunger experience did not explicitly mention the Great Chinese Famine. Respondents were required to report the exact years they experienced starvation if they reported that they have experienced starvation previously. Conditional on having reported hunger experience, approximately 97% of the respondents indicated that their hunger experiences took place in 1958, 1959, 1960 or 1961, exactly coinciding with the timeframe of the Great Chinese Famine. Unlike many other famines in human history, starvation was the main cause of death during the Great Chinese Famine (see Appendix A.3 for detailed discussions). The high concentration of reported hunger years that we see here confirms that starvation during the Famine was indeed a highly salient event to those who suffered from

[16] Caochangdi Work Station (located in Beijing, China) and its "Private Memory Project" contribute significantly to the systematic collection of oral history records on the Famine survivors. More details on Caochangdi can be found at `http://blog.sina.com.cn/u/2181292250`, last accessed on November 14th, 2014.

it. The precise association between reported hunger years and the actual years of the Famine also demonstrates the reliability of our measurement of Famine experience.

E.4 Cohort trend in memory confirms biological constraints

Although memory of the Famine is overall persistent, the stickiness of core memory entries is not biologically developed until children have reached beyond a certain age. Hence, we *do* expect strong birth cohort trends in the self-reported hunger experience during the Famine. In particular, younger cohorts at the time of the Famine should exhibit lower chance of remembering the Famine and its details, even if they were actually starving. This upward cohort trend is confirmed in Figure A.1. The graph plots birth cohort against the proportion of individuals in our sample who reported having experienced starvation during the Famine. The proportion reporting hunger experiences during the Famine steadily increases as we move from younger to older cohorts at the time of the Famine, and it eventually stabilizes at around 30% as we move beyond birth cohort of 1952 (namely, age 10 at the end of the Famine in 1962). This pattern confirms our *a-priori* expectation of biological and cognitive limitations of memory during very young ages, demonstrating that our hunger measurement does not merely capture noise. We take into account of these cross-cohort differences in hunger experiences by including a full set of birth cohort fixed effects in all our specifications.

Appendix F Interpretation of the self-reported political distrust

Given the authoritarian regime in China, one worries that the self-reported political distrust towards local government in a face-to-face survey contains significant reporting biases – respondents fail to report distrust truthfully due to fear of the regime. We take several approaches to address this concern and to aid our interpretation of self-reported political trust.

F.1 Internal validity

We first show that the self-reported distrust in the local government carries high internal validity. If respondents have encountered negative interactions with the local government during the year before the CFPS survey took place (for example, being treated unfairly by the government, having conflict with government, etc.), such experiences are strongly associated with high level of reported political distrust.[17] On average, having experienced one of such negative encounters moves the reported distrust by 1 unit (out of a scale of 10), and the t-statistics of the correlations well exceed 10 for most of the negative experiences recorded. In addition, major life disturbances that involve the government (for example, forced relocation away from original residence, and under-compensated government land acquisitions, etc.) are on average associated with 0.4 unit of increase in reported political distrust.[18] This indicates that self-reported political distrust measured in CFPS exhibits meaningful variation – political distrust is high among individuals whom we expect to hold unfavorable attitudes towards the government.

F.2 Benchmarking political distrust within CFPS survey

Next, we present suggestive evidence that respondents in our CFPS survey did not exhibit substantial self-censorship when they answered questions regarding distrust in the local government. In the CFPS survey, along with the question on trust in the local government, we also asked respondents to report their trust in their parent, neighbors, Americans, strangers, and doctors. All of these were measured on a 0-10 scale, with 0 indicating extreme trust, and 10 indicating extreme distrust.

Table A.3 presents the mean, variance, and mode of each of these self-reported trust measurement for three subsamples of the respondents. Panel A shows the entire adult population in CFPS sample (nearly nationally representative, both rural and urban above 18 years old). Panel B restrict the sample to rural population only. Panel C restrict the sample to Famine susceptible individuals, the same subsample that we use for the baseline specifications in this paper.

As can be seen from the table, similar to other types of self-reported distrust (for example, towards strangers, Americans, etc.), political distrust does not exhibits an abnormally compressed distribution, unusual lumping at certain "politically correct" answers, or other patterns of self-censorship. Across these subsamples, there exists a wide range in how people report their trust towards various agents and entities. In particular, respondents reported local government officials as the third least trustworthy, just after

[17] Survey respondents self-reported negative experiences with the local government (based on the categories that we provided) after the elicitation of trust and political attitudes. One needs to be aware of the potential biases related to this self-reported measurement of experience. For instance, those who did not trust the government in the first place may be more likely to recall and report negative experiences with the government.

[18] Reporting of these events are less vulnerable to the subjective reporting biases due to prior political distrust. The smaller magnitudes of these events are likely due to the fact that they typically occurred 10 to 15 years prior to the survey.

strangers and Americans. The tendency to avoid revealing distrust in the local government officials does not seem to be a major concern here. In particular, reported distrust in the local government has the highest level of variation among all trust measurements. There is no lumping in density at extremely high trust levels. Although there is a mass accumulated at the center value of scale 5 (about 25% of population), a considerable number reported political trust at either tails.

F.3 Comparing with political distrust in other surveys

One may still worry that self-reported political distrust may be systematically biased downwards because of the following reasons: *(i)* face-to-face interview; and *(ii)* political sensitivity due to China's authoritarian regime. We address these concerns by comparing the self-reported political distrust elicited by the CFPS with similar political distrust measured by two additional surveys. We again show that the political distrust measured in CFPS does not exhibit self-censorship patterns, when we compare it with similar measurement via anonymous online surveys in China, and face-to-face survey in other developing countries.

First, we compare the self-reported political distrust in the CFPS with a similar survey on trust among elite college students in Peking University that we conducted in 2013.[19] We used an online survey to ask students' level of trust in a range of political entities. The original questions were on a 1-5 scale. Hence, we convert the CFPS questions to a 1-5 scale in order to make the results comparable across surveys. From now on, we report trust measurement using the following scale: 1 indicates extreme trust, and 5 indicates extreme distrust.

The reported distrust level towards various government bodies among Peking University students were higher than the rural adult subsample in CFPS that we focus on here. In the CFPS, rural residents directly susceptible to the Famine reported an average distrust level of 3.57 towards the local government. Students from Peking University, in contrast, report distrust levels of on average 2.02 towards central government, 2.38 towards provincial government, and 2.83 towards local government. Although we cannot differentiate to what degree are these differences driven by face-to-face interview or elite college education, the comparison shows that the CFPS sample does not seem to systematically report low levels of distrust towards the local government.

Second, we compare the self-reported political distrust among Chinese citizens against the political distrust reported by comparable demographic groups from other developing countries, measured by the *Life In Transition Survey* (LITS). LITS employs the same face-to-face interview method as CFPS. The countries covered by LITS are comparable to China in the sense that they are all developing countries, many formerly communist regimes, that underwent significant social, economic and political transitions in the recent decades.[20] Table A.4 compares the reported distrust in the local government in CFPS with similar distrust measurements in LITS, where we restrict the sample to the same birth cohorts that we primarily focus on in this study. Again, all the distrust measurements are converted to a uniform 1-5 scale, where 5 indicates extreme distrust. The political distrust measured in the CFPS has comparable mean and variance with that of the LITS.

[19] This survey was designed for a separate project. Please see Cantoni et al. (2017) for more details on the survey and the related results.

[20] The following countries are surveyed by LITS: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Former Yugoslav Republic of Macedonia (FYROM), Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Poland, Romania, Russia, Serbia and Montenegro, Slovak Republic, Slovenia, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan.

F.4 Unfavorable attitudes toward central vs. local governments

Recent studies have argued that the authoritarian regime in China exhibits a much higher tolerance towards citizen's criticisms against the *local* government cadres than *central* officials (see, among others, Lorentzen (2013), King, Pan, and Roberts (2013)). As long as Chinese citizens demonstrate a clear distinction in their unfavorable attitudes toward the central versus local government, they may actually face much lower pressure to self-censor high level of distrust in the local government officials than previously speculated. This is perhaps the reason why we were not allowed to directly ask respondents to rate their trust towards central government in the CFPS survey, and that we need to rely on policy preferences concerning entire China as an indirect measurement of respondents' attitudes towards the central government.

Appendix G Correction for survival selection

We address the survival selection by employing a similar method introduced in Meng and Qian (2009). We re-estimate our difference-in-differences model after dropping individuals at the lowest quantiles of the distribution of a range of variables, through which selection into survival may be operating: *(i)* direct outcome of political distrust that we primarily focus on in this study; *(ii)* individual's height; and *(iii)* local availability of alternative food sources. Across these dimensions, selection into survival was most prevalent in the lowest quantiles – if individuals in this range of the distribution were more likely to perish conditional on having experienced the Famine, then we observed disproportionally more individuals who did not experience Famine in this region of the distribution.

The estimate results after we have corrected for survival selection are presented in Table A.13, where we replicate our baseline estimation in Column 1, and Columns 2-4 correspond to the three selection dimensions that we outline above.

G.1 Selection based on political distrust

First, we focus on selection into survival directly through political distrust. Those who were more distrusting towards the government may be disproportionally more likely to survive. Contrast with those who blindly trusted the government provision of food, more distrusting individuals may invest in private food storage. This created a selection mechanism that exhibited the pattern that we have identified. Specifically, among individuals who avoided the Famine experience altogether, they did not face Famine mortality and selection into survival. Nonetheless, among those who experienced hunger, selection into survival became a problem: the more trusting individuals among them perished during the Famine, while the more distrusting ones survived.

Since selection into survival was particularly prevalent in the lowest quantiles of political distrust (namely, the most trusting individuals), we re-estimate our baseline specification after dropping the bottom 10% percentile of political distrust within each province.[21] The results are presented in Table A.13, Column 2. The estimations stay relatively unchanged comparing to the baseline estimation using the full sample, which is shown in Column 1. Note that when we drop the lowest quantiles of the distribution of political distrust variable, we simultaneously alter the distribution of treatment variable of the Famine experience. However, the historical drought levels were measured at the province level, which remain unchanged after the survival selection correction. In other words, while the correction method affects the composition of the Famine and non-Famine affected individuals within a given province, the second difference that compares cross-individual differences across regions is not affected.

It is also worth noting that the selection into survival based on political distrust may operate in the opposite direction as well. If the Famine survivors were politically more connected, then they would trust government more. In other words, conditioning on having experienced the Famine, we may observe disproportionally more individuals with high level of trust towards the government among survivors. Such selection into survival attenuated our results. Correspondingly, we might consider our estimation as a lower bound of the Famine impact.

[21] Note that given the political distrust variable is measured on 0-10 scale, dropping the lowest 10th percentile is effectively dropping the individuals who report lowest level of distrust towards the local government.

G.2 Selection based on height

While informative, dropping the lowest quantiles of the direct outcome of political distrust can be problematic, because one needs to assume that there is no heterogeneity in effect sizes along the spectrum of prior political distrust. This assumption is difficult to test since we do not observe pre-Famine political distrust. This problem can be partially mitigated by using alternative variables such as biological traits to correct for survival selection, so long as the biological trait of height is not perfectly collinear with the individual's political distrust and attitudes. As demonstrated by Meng and Qian (2009), higher stature was an important (and direct) factor that increased survival likelihood. Thus, we re-estimate the difference-in-differences model after dropping observations at the bottom 10th percentile of the distribution of height.[22] The estimation results are shown in Table A.13, Column 3. Comparing to our baseline estimation using full sample (Column 1), coefficient estimates enlarge for both the main effect of the Famine experiences and the interaction between the Famine experiences and exceptional drought level, suggesting that survival selection may actually cause *attenuation* biases.

G.3 Selection based on alternative food sources

Lastly, we use county level availability of alternative food sources to address the survival selection biases. Anthropologists recorded the widespread practice of villagers eating wild vegetation during the Famine to combat food shortage (e.g. Thaxton (2008)). Thus, counties with high suitability to grow edible wild vegetation provided natural alternative food sources as an additional buffer against food shortage. As a result, selection into survival based on political trust and political connections became less severe in those regions: the access to wild vegetation allowed even the politically less connected individuals or those who failed to invest in private food storage to eventually survive the Famine.

Following this logic, we first construct our measurement of the local availability of alternative food sources (edible wild vegetation), which we introduce in Appendix B.3. We then re-estimate our baseline specification after dropping the counties where wild pasture grass suitability index lies more than 1.5 times the size of a standard deviation below corresponding *provincial* mean level. Similar conclusion holds if we use alternative cutoffs, such as 2 times the size of a standard deviation.[23] In other words, we drop the counties altogether where survival selection on political connection and distrust was the most prevailing. As shown in Table A.13, Column 4, the estimates are similar as compared to our baseline estimation using the full sample. This correction for survival selection is also more preferred methodologically, because we drop observations at the county-level, which preserves both the distribution of individual level variation in the Famine exposure within the remaining counties, and the exceptional drought during the Famine that we observe at the provincial level. Hence, both levels of variation in our baseline difference-in-differences specification remain intact.

[22] Similar conclusion holds if we use alternative cutoffs, such as bottom 20th percentile.

[23] Using *provincial* mean level as a threshold (rather than that of the *entire* country) alleviates the problem that certain provinces would have more dropped counties than others.

Appendix H Appendix figures and tables

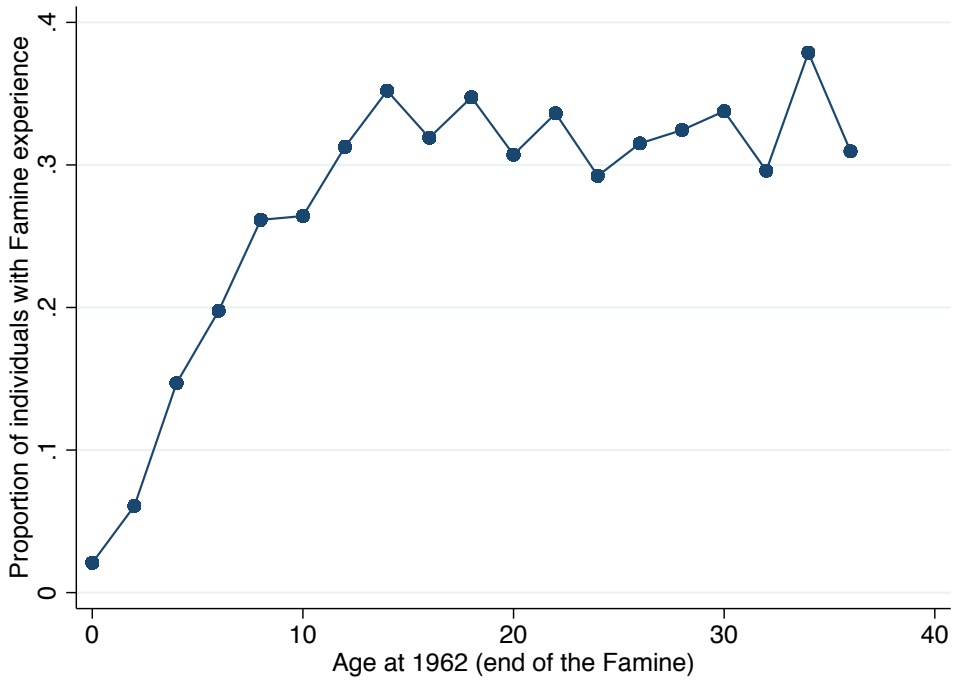

Figure A.1: Proportion of individuals who reported hunger experiences during the Famine among those were susceptible to the Famine, plotted by age at 1962 (the end of the Famine).

Table A.1: Estimated impacts of drought

Variable	Drought prior to the Famine (1)	Drought during the Famine (2)	Drought after the Famine (3)	Exceptional drought during the Famine (4)
Panel A: *Famine severity*				
Hunger experience during Famine	-0.427	0.001	-0.065	0.004
	[0.611]	[0.138]	[0.295]	[0.020]
Cohort loss during Famine	0.144	0.202	0.018	-0.391
	[0.607]	[0.165]	[0.335]	[0.021]
Panel B: *Provincial characteristics at 1960*				
Population natural growth rate	-97.96	-43.88	44.64	-2.927
	[104.4]	[28.33]	[59.70]	[3.750]
Gross regional product (total)	36.01	39.92	66.20	0.941
	[162.8]	[44.84]	[91.53]	[5.817]
Gross regional product (agriculture)	-21.48	17.11*	-19.31	1.797
	[37.09]	[9.826]	[20.83]	[1.281]
Gross regional product per capita	0.242	-0.233	0.350	-0.022
	[0.606]	[0.163]	[0.338]	[0.021]
Employment rate	-0.378	-0.049	-0.285*	0.011
	[0.268]	[0.090]	[0.151]	[0.010]
Local fiscal revenue (total)	0.965	1.424	2.521	0.057
	[5.255]	[1.475]	[2.939]	[0.191]
Local fiscal revenue (tax)	-0.932**	-0.078	-0.381	0.008
	[0.373]	[0.124]	[0.190]	[0.017]
Panel C: *Provincial characteristics at 2012*				
Population natural growth rate	-20.89	-1.038	-13.15	0.714
	[12.76]	[3.766]	[7.148]	[0.458]
Gross regional product (total)	-87379	20372	-30795	2941.1
	[74127]	[20932]	[42877]	[2656.2]
Gross regional product (agriculture)	-3749.1	3011.5**	-1794.7	341.29*
	[5527.3]	[1430.2]	[3148.2]	[186.22]
Gross regional product per capita	-52.57	-12.99	1.648	-1.338
	[69.05]	[19.37]	[39.71]	[2.481]
Employment rate	0.243	0.049	-0.148	-0.020
	[0.495]	[0.134]	[0.364]	[0.018]
Local fiscal revenue (total)	-1050	82.51	-337.2	21.28
	[737.9]	[214.7]	[431.4]	[27.13]
Local fiscal revenue (tax)	-993.5	257.4	-279.3	42.18
	[774.4]	[217.8]	[415.6]	[27.25]
Panel D: *Growth from 1960 to 2012*				
Population natural growth rate	-22.13	-5.995	-2.612	-0.373
	[16.86]	[4.728]	[9.991]	[0.619]
Gross regional product (total)	-1758	24.68	-788.5	27.35

Continued on next page

Variable	Drought prior to the Famine (1)	Drought during the Famine (2)	Drought after the Famine (3)	Exceptional drought during the Famine (4)
	[814.2]	[249.8]	[479.7]	[31.38]
Gross regional product (agriculture)	-206.8	11.35	-47.99	5.821
	[197.1]	[56.40]	[114.1]	[7.102]
Gross regional product per capita	-451.7	121.7	-214.1	12.79
	[425.2]	[119.2]	[243.3]	[15.32]
Employment rate	0.776	0.734	1.703	-0.032
	[2.330]	[0.647]	[1.954]	[0.085]
Local fiscal revenue (total)	-743.1**	-126.7	-322.6*	-1.925
	[304.3]	[94.42]	[182.3]	[12.45]
Local fiscal revenue (tax)	2.504	0.042	0.498	-0.034
	[2.072]	[0.622]	[1.037]	[0.085]
Panel E: *Growth from 1980 to 2012, conditional on 1960 level*				
Population natural growth rate	-2.024**	0.191	-0.600	0.086***
	[0.884]	[0.281]	[0.540]	[0.030]
Gross regional product (total)	-350.6	-31.18	-109.5	3.063
	[219.9]	[65.69]	[131.2]	[8.265]
Gross regional product (agriculture)	-41.37	4.461	30.23	2.739
	[55.82]	[16.68]	[31.81]	[2.004]
Gross regional product per capita	-89.00	-19.72	-3.378	-1.907
	[143.7]	[41.98]	[83.94]	[5.268]
Employment rate	1.288	0.381	0.327	-0.019
	[0.916]	[0.312]	[1.019]	[0.038]
Local fiscal revenue (total)	-385.7	-96.01	-29.01	4.754
	[339.8]	[100.1]	[201.9]	[12.69]
Local fiscal revenue (tax)	-1.877	0.372	0.370	0.075
	[1.996]	[0.507]	[0.941]	[0.068]

All results are based on data from provincial statistics database from *China Data Center* at the University of Michigan. Number of observations (for all columns and all panels): 25.

Table A.2: Balance checks of other Maoist traumas

Variable	FAMINE (1)	Down-to-countryside (2)	Cadre school (3)	Persecution (4)	Military (5)
Panel A: *Personal characteristics*					
Male	0.823	0.393	0.002	0.000	0.000
Han	0.511	0.495	0.021	0.170	0.199
# of siblings	0.003	0.000	0.041	0.142	0.000
Migration at Age 3	0.677	0.035	0.001	0.554	0.166
Height	0.345	0.487	0.004	0.000	0.000
Weight	0.951	0.034	0.011	0.000	0.000
BMI	0.876	0.018	0.156	0.176	0.000
Panel B: *Parental characteristics*					
Father Illiterate	0.186	0.070	0.118	0.892	0.013
Father CCP Member	0.945	0.770	0.682	0.325	0.004
Mother Illiterate	0.071	0.044	0.108	0.760	0.014
Mother CCP Member	0.344	0.670	0.691	0.272	0.000
Parent Poli. Label	0.583	0.310	0.580	0.000	0.000
Panel C: *Village characteristics*					
Village household #	0.561	0.038	0.839	0.826	0.000
Village agri. prod.	0.560	0.990	0.443	0.498	0.592
Village non-agri. prod.	0.923	0.232	0.830	0.875	0.453
Village avg. income	0.464	0.679	0.098	0.511	0.675
Natural disaster zone	0.244	0.002	0.014	0.071	0.117
Natural resource zone	0.379	0.179	0.146	0.773	0.301

Columns 1-5 report the p-values for t-tests of differences in means across group with corresponding experiences and without, conditional on birth cohort and province of residence fixed effects; standard error are clustered at the province level (number of clusters: 25). "Migration at 3yo" indicates whether individuals migrated to different cities than birthplaces at age 3. "Father Illiterate" "Father CCP Member" "Mother Illiterate" and "Mother CCP Member" are dummy variables indicating corresponding parental characteristics when the individual was 14 years old. For these variables, we restrict sample to those who are at least 14 years old at the beginning of the Famine, to make these parental characteristics pre-determined with respect to the Famine. "Parent Pol. Label" indicates whether individuals belong to families labeled as landlord or rich peasants during the Land Reform in 1950s. For Column 1, number of observations: 9,226. For Columns 2-5, number of observations: 23,400.

Table A.3: Self-reported distrusts measured by CFPS

Distrust towards:	Local govt.	Parents	Neighbors	Americans	Strangers	Doctors
Panel A: *All adults*						
Mean	5.09	0.95	3.64	7.54	7.87	3.40
Std. Dev.	2.49	1.73	2.42	2.49	2.13	2.28
Mode	5.00	0.00	5.00	10.00	10.00	5.00
Panel B: *Rural adults*						
Mean	4.98	1.01	3.62	7.61	7.89	3.32
Std. Dev.	2.49	1.77	2.25	2.46	2.13	2.28
Mode	5.00	0.00	5.00	10.00	10.00	5.00
Panel C: *Famine susceptible individuals*						
Mean	4.65	1.24	3.58	7.75	7.90	3.33
Std. Dev.	2.51	1.94	2.28	2.43	2.19	2.31
Mode	5.00	0.00	5.00	10.00	10.00	5.00

For all self-reported distrust measures, respondents report a rating from 0 to 10, where 0 indicates extreme trust, and 10 extreme distrust. Panel A uses the sample of all adults older than 18 years old in CFPS (total number of observations: 24,797). Panel B uses all adults older than 18 years old who lived in rural sector at age 3 (total number of observations: 21,309). Panel C uses adults living in rural sector at age 3, and born before 1962 (total number of observations: 9,226).

Table A.4: Political distrust measured in various surveys

Distrust towards:	Avg. reported distrust
Panel A: *China Family Panel Study (CFPS)*	
Local government	3.57
Panel B: *Life in Transition Survey (LITS)*	
Presidency/monarchy	2.90
Government/cabinet of ministers	3.34
Regional government	3.15
Local government	3.06
The parliament	3.43

For all distrust measures, we convert the original measures to a rating scale from 1 to 5, where 1 indicates extreme trust, and 5 extreme distrust. The original survey questions in CFPS questions are based on 0-10 scale. The original survey questions in LITS are based on 1-5 scale, with 1 indicating extreme distrust, and 5 extreme trust. For CFPS, we restrict the sample to Famine susceptible individuals (rural residence at age 3 and born before 1962). For LITS, we restrict the sample to cohorts born before 1962.

Table A.5: Drought vs. flood during the Famine

Dependent Variables:	Distrust towards local government		
	(1)	(2)	(3)
Village avg. Famine experiences	0.778**	-0.560	0.345
	[0.324]	[0.332]	[0.468]
Village avg. Famine experiences	-0.342***		-0.295***
× drought during Famine	[0.084]		[0.092]
Village avg. Famine experiences		0.265	0.189
× flood during Famine		[0.170]	[0.172]
Observations	8902	8917	8902
Mean DV	4.649	4.649	4.649
Std.Dev. DV	2.506	2.506	2.506

*: Significant at 10%; **: 5%; ***: 1%. Each column applies corresponding cohort restrictions as described in the table heading to the baseline sample. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.6: Own Famine experience vs. neighbors' experiences

Dependent Variables:	Distrust towards local government	
	(1)	(2)
Village avg. Famine experience	1.476***	
	[0.432]	
Village avg. Famine experience	0.436***	
× precipitation during Famine	[0.140]	
Village leave-self-out avg. Famine experience		1.007*
		[0.491]
Village leave-self-out avg. Famine experience		0.345**
× precipitation during Famine		[0.137]
Own Famine experience		0.396*
		[0.202]
Own Famine experience		0.070
× precipitation during Famine		[0.059]
Observations	9332	9332
Mean DV	4.649	4.649
Std.Dev. DV	2.506	2.506

*: Significant at 10%; **: 5%; ***: 1%. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25. Corresponding p-values are reported for the coefficient estimates on *Famine experience* × *drought level*.

Table A.7: Political trust, general trust, and performance evaluation

Dependent variables:	Distrust towards local government		Distrust towards neighbors *(placebo)*	
	(1)	(2)	(3)	(4)
Performance evaluation		0.389***		-0.086***
		[0.053]		[0.029]
Village avg. Famine experiences	1.460***	1.328**	0.063	0.252
	[0.430]	[0.526]	[0.747]	[0.716]
Village avg. Famine experiences	0.434***	0.391**	-0.084	-0.024
× precipitation during Famine	[0.138]	[0.155]	[0.187]	[0.182]
Observations	9351	8456	9414	8508
Mean DV	4.649	4.649	6.417	6.417
Std.Dev. DV	2.506	2.506	2.275	2.275

*: Significant at 10%; **: 5%; ***: 1%. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.8: Heterogeneous effects by gender

Dependent Variables:	Distrust towards local government	
	Male	Female
	(1)	(2)
Village avg. Famine experiences	1.607***	1.235*
	[0.494]	[0.605]
Village avg. Famine experiences	0.452***	0.388**
× precipitation during Famine	[0.153]	[0.176]
Observations	4692	4659
Mean DV	4.653	4.646
Std.Dev. DV	2.471	2.542

*: Significant at 10%; **: 5%; ***: 1%. Each column applies corresponding sample restrictions as described in the table heading to the baseline sample. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.9: Marriage market matching - Famine experience

	Spouse having experienced Famine			
Own gender:	Male		Female	
	(1)	(2)	(3)	(4)
Panel A: *Own Famine experience*				
Famine experience	0.405***	0.404***	0.485***	0.484***
	[0.030]	[0.030]	[0.032]	[0.031]
Panel B: *Marriage market conditions*				
Famine experience	0.209***	0.209***	0.317***	0.317***
	[0.037]	[0.037]	[0.047]	[0.047]
Famine severity among potential spouses	0.141***	0.141***	0.203***	0.203***
	[0.014]	[0.014]	[0.012]	[0.012]
Famine experience ×	0.054**	0.054**	-0.044	-0.043
Famine severity among potential spouses	[0.022]	[0.022]	[0.029]	[0.029]
Parental controls	No	Yes	No	Yes
Observations	2858	2858	2748	2748
Mean DV	0.217	0.217	0.259	0.259
Std.Dev. DV	0.412	0.412	0.438	0.438

*: Significant at 10%; **: 5%; ***: 1%. Famine experience is measured by *personal Famine experience* indicator. Columns 2 and 4 control for parental characteristics: father's education attainment, mother's education attainment, and ancestor's political label (indicator of whether individuals belong to families that are labeled as landlord or rich peasants during the Land Reform in 1950s). To maintain a balanced sample, we restrict sample to individuals who have non-missing value in all the control variables that we use for this exercise (parents' literacy status and ancestry's political label) even in the specification that we do not include control variables. Results remain almost unchanged when we include these individuals with missing control variables. *Famine severity among potential spouses* index is constructed as the standardized proportion of individuals who experienced the Famine within a corresponding village of residence *and* among cohorts who are born no more than 5 years apart. All regressions include a full set of county of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.10: Marriage market matching - career choices

Own gender:	Spouse employed by govt. related entities			
	Male		Female	
	(1)	(2)	(3)	(4)
Famine experience	-0.009	-0.009	-0.049**	-0.047**
	[0.012]	[0.012]	[0.019]	[0.018]
Parental controls	No	Yes	No	Yes
Observations	1383	1383	1497	1497
Mean DV	0.171	0.171	0.219	0.219
Std.Dev. DV	0.377	0.377	0.414	0.414

*: Significant at 10%; **: 5%; ***: 1%. Famine experience is measured by *personal Famine experience* indicator. Columns 2 and 4 control for parental characteristics: father's education attainment, mother's education attainment, and ancestor's political label (indicator of whether individuals belong to families that are labeled as landlord or rich peasants during the Land Reform in 1950s). To maintain a balanced sample, we restrict sample to individuals who have non-missing value in all the control variables that we use for this exercise (parents' literacy status and ancestry's political label) even in the specification that we do not include control variables. Results remain almost unchanged when we include these individuals with missing control variables. All regressions include a full set of county of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.11: Drought during and before the Famine

Dependent variable:	Distrust towards local government			
Drought measures:	Average annual precipitation		Drought affecting agricultural production	
	During Famine	Prior to Famine	During Famine	Prior to Famine
	(1)	(2)	(3)	(4)
Village avg. Famine experiences	0.153**	0.064	-0.137***	0.044
× "drought measures"	[0.064]	[0.078]	[0.023]	[0.116]
Observations	9351	9351	8902	8902
Mean DV	4.649	4.649	4.649	4.649
Std.Dev. DV	2.506	2.506	2.506	2.506

*: Significant at 10%; **: 5%; ***: 1%. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.12: Robustness: alternative fixed effects & clustering choices

Dependent variable:	Distrust towards local government		
Fixed effects:	Province + cohort	County + cohort	Province × cohort
	(1)	(2)	(3)
Panel A: *Province level clustering*			
Village avg. Famine experiences	1.460***	1.113**	1.517***
	[0.430]	[0.440]	[0.541]
Village avg. Famine experiences	0.434***	0.277*	0.460**
× precipitation during Famine	[0.138]	[0.127]	[0.167]
Regular p-value	(0.005)	(0.039)	(0.011)
Wild bootstrapped p-value	(0.004)	(0.094)	(0.007)
Panel B: *County level clustering*			
Village avg. Famine experiences	1.460**	1.113**	1.517**
	[0.570]	[0.562]	[0.641]
Village avg. Famine experiences	0.434***	0.277*	0.460**
× precipitation during Famine	[0.164]	[0.162]	[0.182]
Panel C: *Cohort level clustering*			
Village avg. Famine experiences	1.460***	1.113*	1.517***
	[0.453]	[0.578]	[0.458]
Village avg. Famine experiences	0.434***	0.277*	0.460***
× precipitation during Famine	[0.121]	[0.160]	[0.119]
Panel D: *Province & cohort two-way clustering*			
Village avg. Famine experiences	1.460***	1.113*	1.517***
	[0.476]	[0.625]	[0.535]
Village avg. Famine experiences	0.434***	0.277	0.460***
× precipitation during Famine	[0.150]	[0.180]	[0.160]
Observations	8903	8903	8903
Mean DV	4.649	4.649	4.649
Std.Dev. DV	2.506	2.506	2.506

*: Significant at 10%; **: 5%; ***: 1%. All regressions include the main effects on precipitation during the Famine (not reported). Each column include a particular set of fixed effects (not reported), as described in the table headings. Robust standard errors in brackets. Panel A clusters standard errors at province level (number of clusters: 25); regular p-values for the coefficient estimates on *Famine experience × drought level* are reported; corresponding p-values calculated using wild bootstrap procedure (Camerer, Gelbach, and Miller (2008)) are also reported. Panel B clusters standard errors at county level (number of clusters: 159). Panel C clusters standard errors at cohort level (number of clusters: 44). Panel D implements two-way clustering of standard errors at province and cohort level (number of clusters: 25×44).

Table A.13: Robustness: correction for survival selection

Dependent variables:	Distrust towards local government			
	Baseline (full sample)	Selection based on political distrust	Selection based on physical height	Selection based on alt. food sources
	(1)	(2)	(3)	(4)
Village avg. Famine experiences	1.460***	0.663*	1.301***	1.558***
	[0.430]	[0.341]	[0.421]	[0.471]
Village avg. Famine experiences	0.434***	0.228**	0.418***	0.469***
× precipitation during Famine	[0.138]	[0.094]	[0.136]	[0.140]
Observations	9351	8030	7547	9156
Mean DV	4.649	5.296	4.678	4.650
Std.Dev. DV	2.506	2.054	2.494	2.506

*: Significant at 10%; **: 5%; ***: 1%. Column 1 uses the full sample of Famine susceptible individuals as in baseline specification. Column 2 drops individuals at the bottom 10th percentile of the distribution of political distrust from each province. Column 3 drops individuals at the bottom 10th percentile of the distribution of height. Column 4 drops individuals who lived in counties with pasture grass suitability index more than 1.5 times of a standard deviation lower than corresponding provincial average level. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.14: Robustness: rule out confounding effects of health, education, and income

Dependent variables:	Distrust towards local government				
	Baseline	Drop survivors younger than 5 at Famine	Individual biological controls	Individual non-biological controls	Biological & non-biological controls
	(1)	(2)	(3)	(4)	(5)
Village avg. Famine experiences	1.460***	2.075***	1.433***	1.549***	1.477***
	[0.430]	[0.437]	[0.473]	[0.423]	[0.450]
Village avg. Famine experiences	0.434***	0.597***	0.429***	0.456***	0.438***
× precipitation during Famine	[0.138]	[0.132]	[0.147]	[0.139]	[0.145]
Observations	9351	7583	8863	8757	8326
Mean DV	4.649	4.592	4.649	4.649	4.649
Std.Dev. DV	2.506	2.488	2.506	2.506	2.506

*: Significant at 10%; **: 5%; ***: 1%. Column 1 replicates results from baseline specification. Column 2 drops individuals younger than 5 years old at the end of the Famine. Columns 3-5 uses the baseline sample. Column 3 includes individual biological controls (height and weight). Column 4 includes individual non-biological controls (indicator of high school completion and net personal income measured in CFPS-2010). Column 5 includes both individual biological and non-biological controls. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.

Table A.15: Placebo test – persistent differences in local government qualities

Dependent Variables:	Distrust towards local government		
	Cohorts born *before* 1962	Cohorts born *btw* 1962 *and* 1978	Cohorts born *after* 1978
	(1)	(2)	(3)
Famine severity in the village	1.292***	0.291	-0.618
	[0.349]	[0.486]	[0.824]
Famine severity in the village	0.369***	0.100	-0.161
× precipitation during Famine	[0.117]	[0.148]	[0.208]
Observations	9351	7521	3789
Mean DV	4.649	5.178	5.375
Std.Dev. DV	2.506	2.467	2.396

*: Significant at 10%; **: 5%; ***: 1%. The *Famine severity in the village* measure is constructed as the proportion of individuals who reported hunger experiences during the Famine among those who were directly susceptible, within a given village of residence *and* gender cell. Each column applies corresponding cohort restrictions as described in the table heading to the baseline sample. All regressions include the main effects on precipitation during the Famine, and a full set of province of current residence and birth cohort fixed effects (not reported). Robust standard errors in brackets, clustered at the province level. Number of clusters: 25.