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Abstract

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Keywords: Land Reform; Redistribution; Free Rider; War Mobilization; China.

JEL classification Numbers: D71, D74, D91, H56, I38, P32, N45.

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1 Introduction

Free-rider problems pose a fundamental challenge to collective action ([Olson Jr 1971](#); [Tullock 1971](#)), yet history is filled with cases of large-scale, organized mobilization. What mechanisms enable individuals to overcome the incentive to defect and instead participate? Economic research shows that organizations can mitigate free-riding by imposing costly commitments and stigmatizing behaviors, which serve to screen members and strengthen internal cohesion ([Iannaccone 1992](#); [Berman 2000](#)). While much of this literature focuses on religious sects or terrorist organizations, similar dynamics apply to mass mobilization in modern warfare. States often attempt to rally citizens by providing public goods or implementing redistributive policies ([Alesina et al. 2020](#); [Caprettini and Voth 2023](#)). However, redistribution can also increase the opportunity cost of participation, potentially exacerbating the free-rider problem. This paper examines how the Chinese Communist Party used land reform—framed as a class-based, violent redistribution against landlords—as a strategy to overcome free-riding and mobilize peasants for war.

In the early 20th century, the Nationalist Kuomintang (KMT) and the Chinese Communist Party (CCP) advanced competing visions for China’s political future. The two parties first cooperated during the First United Front (1924–1927) to eliminate regional warlords, but the alliance collapsed into civil war from 1927 to 1937. They later formed the Second United Front (1937–1945) to jointly resist the Japanese invasion. Following Japan’s defeat in 1945, civil war between the CCP and the KMT resumed. By 1949, the CCP had emerged victorious and established control over mainland China. This outcome was far from predetermined. At the outset of the civil war in 1945, the CCP commanded only one million troops; by the end of the conflict, that number had grown to over four million. How did the CCP manage to mobilize millions of peasants so rapidly? A crucial part of the answer lies in its implementation of land reform—a campaign that redistributed land from landlords to peasants and became a powerful instrument of political consolidation and military mobilization.

Following Japan’s defeat in August 1945, the CCP seized a strategic window of opportunity: while KMT forces remained concentrated in the southwest, CCP forces rapidly advanced into counties across North and Northeast China—territories that had been under Japanese occupation

during World War II. In these newly acquired areas, the CCP launched a sweeping land reform campaign beginning in May 1946. Although centrally directed by the Party, land reform was carried out through mass mobilization. CCP-led work teams were dispatched to villages to classify households into five categories—landlords, rich peasants, middle peasants, poor peasants, and landless peasants—based on landholdings. Landlords were publicly labeled as “class enemies,” legitimizing grassroots violence and encouraging poor peasants to seize land and, in some cases, to execute landlords. In response, many displaced landlords fled and regrouped under KMT protection, forming militias such as the Homecoming Legions (Huanxiang Tuan). These groups, often operating in coordination with KMT troops, launched counterattacks on CCP-controlled areas in an effort to reverse land reform and punish participating peasants.

While land reform provided strong material incentives for rural mobilization, it also raised the opportunity cost of military participation: newly landed peasants had more to lose by leaving their land to join the army. This created a classic free-rider problem, where individuals could benefit from redistribution without contributing to the CCP’s war effort. To address this dilemma, the CCP employed class struggle not just as ideological rhetoric but as a mechanism to increase the cost of neutrality. Peasants—especially poor peasants—faced the risk of losing both their newly acquired land and their lives if landlords returned. In contrast, joining the CCP army offered a way to reduce those risks. Although military service involved the danger of battlefield death, it increased the likelihood of protecting one’s land and securing survival should the CCP prevail. By embedding redistribution within a broader revolutionary process that made disengagement costly, the CCP successfully converted land reform beneficiaries into active political and military participants.

Using the full death records of CCP soldiers, I measure peasants’ military participation and assess the impact of land reform along both the extensive and intensive margins. The extensive margin captures whether counties that implemented land reform experienced increased soldier deaths. Estimates from a two-way fixed effects model and a staggered difference-in-differences design suggest that land reform increased soldier deaths by 7 to 16 percent. To assess the intensive margin, I use the pre-reform Gini coefficient of landholdings as a proxy for redistribution scale. The results reveal a heterogeneous intensive margin: land reform had a positive effect on mobilization in counties with a Gini below 0.68, but a negative effect above this threshold. This suggests that

in highly unequal counties, the increased opportunity cost of leaving newly acquired land offset the mobilization gains from redistribution, leading to a higher incidence of free-riding behavior.

To further test whether the introduction of class struggle altered the mobilization effect, I incorporate a time-varying measure of each county's proximity to KMT forces to capture the threat of reprisal from Homecoming Legions. The results reveal clear geographic heterogeneity: counties located within 158 kilometers of KMT forces exhibited a positive extensive margin, while those within 83 kilometers showed a positive intensive margin. In these frontline areas, the combination of economic incentives and fear of retaliation outweighed the opportunity cost of enlistment. To probe this mechanism further, I collected data on landlord counterattacks from county gazetteers. The evidence shows that land reform significantly increased the likelihood of reprisals in counties closer to KMT forces, and such reprisals were more frequent in areas where land redistribution was more extensive. These findings suggest that class struggle triggered by land reform reinforced the mobilizing effect in regions facing a credible threat of retaliation.

Several robustness checks confirm the validity of the main findings. First, I fix the death location of soldiers to rule out biases from logistical capacity or differing expectations of war outcome. Second, I exclude officers from the sample and focus only on common soldiers. In both cases, the results remain consistent. I also leverage the KMT's policy reversal in August 1948, when it officially acknowledged CCP-led land reform and withdrew support for landlord claims. After this shift, neither the extensive nor intensive margin varied with proximity to KMT forces, confirming that the effect of land reform on mobilization was contingent on the perceived threat of class-based retaliation. Finally, I examine two alternative explanations for the heterogeneous effects. One is that nearby counties had lower per capita landholdings, making the economic incentives from land reform stronger. The other is that coercive capacity may have been higher in frontline regions. I test both hypotheses and find few evidence that either factor drives the observed patterns.

This paper contributes to our understanding of the relationship between inequality, redistribution, and political transitions. These dynamics have played central roles in transformative episodes such as the French Revolution, the emancipation of serfs in Russia, and numerous long-standing social movements across the developing world—including in China, Vietnam, Brazil, the Philip-

pines, Venezuela, and South Africa ([Albertus 2015](#)). As [Acemoglu and Robinson \(2000\)](#) argue, the extension of political rights can be interpreted as a strategic response by elites to preempt revolutionary threats arising from inequality. In democratic contexts, land reform has been shown to shape electoral outcomes and local political alignments ([De Janvry et al. 2014](#); [Larreguy et al. 2015](#); [Caprettini et al. 2021](#)). In authoritarian regimes, a growing body of evidence likewise suggests that redistribution is often politically motivated ([Albertus 2015](#)). This paper reaffirms the link between inequality and social conflict, but also highlights a more paradoxical dynamic: under radical ideological frameworks and deliberate class struggle, redistribution can serve not as a remedy for conflict, but as a catalyst for it.

Communist and fascist regimes emerged in the early 20th century as radical responses to war, inequality, and social dislocation ([Acemoglu et al. 2022](#)). Despite their ideological opposition, both systems successfully mobilized mass participation—often through a combination of redistributive promises, nationalistic or class-based propaganda ([Voigtländer and Voth 2014](#); [Adena et al. 2015](#)), and strict organizational discipline. Understanding how these regimes overcame collective action problems and built mass support is central to the political economy of authoritarian mobilization. Foreign occupation often played a catalytic role: U.S. military intervention contributed to the rise of communist insurgencies in Vietnam ([Dell and Querubin 2018](#)), while the Nazi occupation of Italy and the Japanese invasion of China intensified local support for communist resistance ([Fontana et al. 2018](#); [Chen and Kung 2020](#)). Yet despite its ideological prominence, redistribution—especially in the form of land reform—has received comparatively little attention as a mechanism for mass mobilization. This paper addresses that gap by providing empirical evidence on how the Chinese Communist Party strategically deployed land redistribution during the civil war to mobilize rural populations for armed struggle.

The existing literature on land reform has primarily focused on its long-run implications for property rights and agricultural productivity ([Grantham 1997](#); [Bogart and Richardson 2009, 2011](#); [Dell 2012](#); [Montero 2022](#); [Albertus 2023](#)). While redistribution can enhance both equity and efficiency in rural economies ([Besley and Burgess 2000](#); [Galán 2024](#)), its implementation is often obstructed by powerful landlords who can block reforms and associated public investment ([Galor et al. 2009](#)). Moreover, when land reform includes generous compensation for elites, its redistribu-

tive effect—and potential to transform rural power structures—is greatly diminished ([Banerjee 1999](#)). This paper shifts attention away from these long-term economic outcomes and instead examines the short-run political logic of radical redistribution under revolutionary conditions.

This study also contributes to a growing body of research on war mobilization. [Caprettini and Voth \(2023\)](#) show that the New Deal fostered patriotic sentiment in the United States during WWII, thereby facilitating military recruitment. Unlike that context of interstate war, this paper focuses on civil war, in which political stakes are often existential, and individuals must weigh complex risks and incentives tied to rival regimes. Other research has examined how elite networks help foment armed conflict ([Gould 1991](#); [Rogall 2021](#); [Bai et al. 2023](#)), or how media technologies—such as newspapers and radio—can be harnessed to enhance recruitment ([Yanagizawa-Drott 2014](#); [Adena et al. 2015](#); [Enikolopov et al. 2020](#); [Dippel and Heblich 2021](#)). Some studies also emphasize coercion as a driver of participation ([Lyall and Zhukov 2021](#); [Rozenas et al. 2022](#)).

2 Historical Background

2.1 Land Reform in North China 1946-1949

At the end of World War II, China entered a renewed phase of civil conflict between the Nationalist government (KMT) and the Chinese Communist Party (CCP). Following Japan’s surrender in August 1945, a power vacuum emerged across vast areas of northern and northeastern China. While the KMT’s main forces were concentrated in the southwest, the CCP quickly advanced into former Japanese-occupied territories, securing large rural regions before the Nationalists could reassert control. This strategic advantage allowed the CCP to establish administrative authority over approximately 99.5 million people across more than one million square kilometers of land (Appendix A).

Building on its territorial control in the north, the CCP launched a sweeping land reform campaign between 1946 and 1949, in which land and property owned by landlords were confiscated and redistributed to poor and landless peasants. The campaign formally began on May 4, 1946, but

its implementation varied across regions depending on the pace of military occupation. Figure 1 (left) shows the geographic coverage of counties that carried out land reform prior to December 1949—concentrated heavily in north and northeastern China. An estimated 25 million hectares of land—more than half of China’s cultivated farmland—were redistributed from landlords to peasants by June 1949, affecting approximately 125 million people, or one-third of the rural population (Noellert 2020). Figure 2 further illustrates the temporal progression of the campaign in CCP-controlled areas. Land reform in the rest of mainland China—represented by unshaded areas—was carried out later, between 1950 and 1953.

While one might expect large-scale violence to result from extreme inequality, landholdings in north China prior to the reform were not particularly unequal (Qin 1993; Kung et al. 2012). On average, the top 10% of households—comprising landlords and rich peasants—held no more than 30% of the land, and the typical landlord family owned only about 5.77 acres (Long and He 2018). As Elvin (1970) observed, early 20th-century rural China was characterized by “a multitude of smallholders whose relative fortunes were constantly rising and falling; a society in which the typical landlord owned only a few acres more than his poorest neighbours.” Figure 1 (right) presents county-level Gini coefficients for landholding inequality in the reform areas. The figure shows significant regional variation: inequality was relatively high in parts of Northeastern China but considerably lower in the North, with an overall average Gini coefficient of 0.33.

Although land inequality prior to the reform was relatively modest, the land reform campaign nonetheless brought about a profound transformation of China’s rural property structure through a highly organized and participatory process that combined administrative oversight with mass mobilization. Under the leadership of the CCP, work teams were dispatched to villages to classify households into five categories—landlords, rich peasants, middle peasants, poor peasants, and landless peasants—based on landholdings and other properties.¹ These teams then mobilized poor and landless peasants to form peasant associations, which served as the primary agents of land redistribution. With guidance from the CCP and protection from its military forces, these associations organized public “struggle meetings” in which landlords were put on trial before the entire village

¹In the sample counties, the average shares of households classified as landlords, rich peasants, middle peasants, poor peasants, and landless peasants were 3.31%, 4.19%, 33.53%, 46.11%, and 12.85%, respectively.

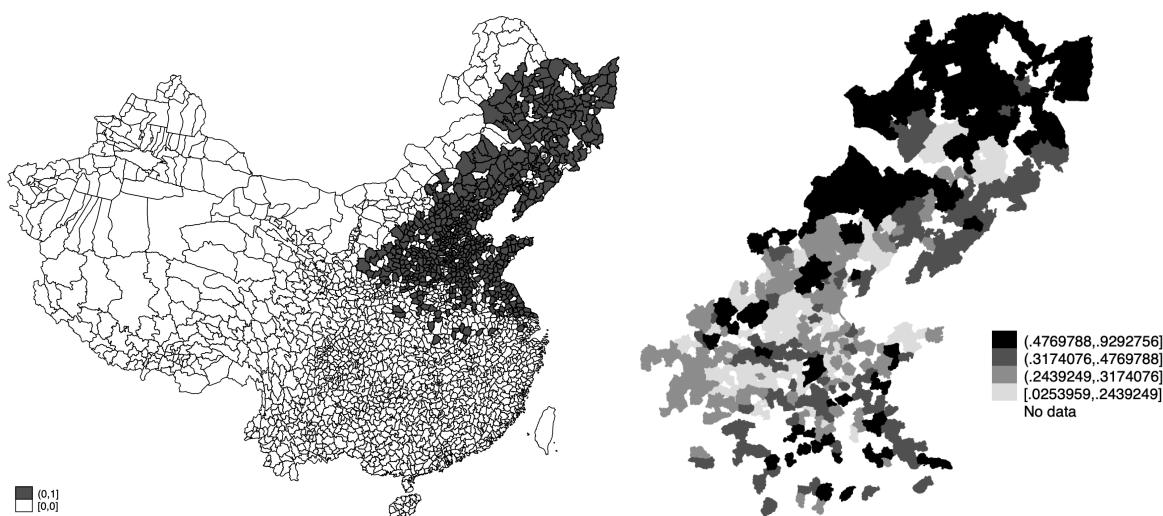


Figure 1: Counties exposed to the land reform from 1946 to 1949 and pre-reform land inequality

Source: County Gazetteers.

Notes: The analysis focuses exclusively on counties where land reform was implemented before the end of 1949. In the map on the left, values of 1 indicate counties where land reform occurred before December 1949, while values of 0 indicate no reform during that period. The map on the right displays the Gini coefficient of landholding inequality, calculated across five social classes at the county level. For counties with missing data, values are imputed using prefecture or provincial averages.)

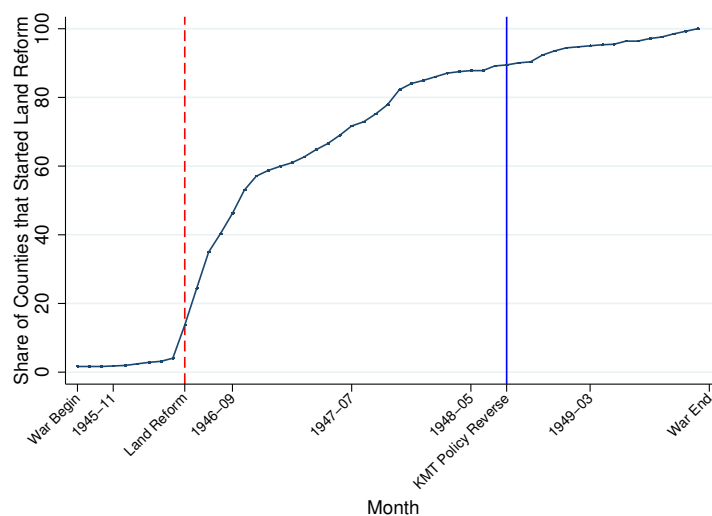


Figure 2: Progress of Land Reform

Source: County Gazetteers.

Notes: The figure shows the share of counties that had initiated land reform in regions where the CCP implemented such reforms prior to December 1949. The campaign officially began on May 4, 1946. In a significant shift, the Nationalist (KMT) government announced in August 1948 that it would no longer support landlords' claims to land in areas where land reform had been carried out by the CCP.

(Hinton 1966; Teiwes 1987). Following these meetings, land and other property were confiscated from landlords and redistributed among poor peasants and landless peasants households. Figure 4 shows per capita landholdings by class before and after the reform. Landless peasants saw their holdings increase by more than 1000%, poor farmers by 240%, while rich peasants and landlords lost an average of 41% and 80% of their land, respectively. As a result, the Gini coefficient of landholding fell sharply from 0.33 to 0.05, indicating a near-perfectly equal distribution of land across households.

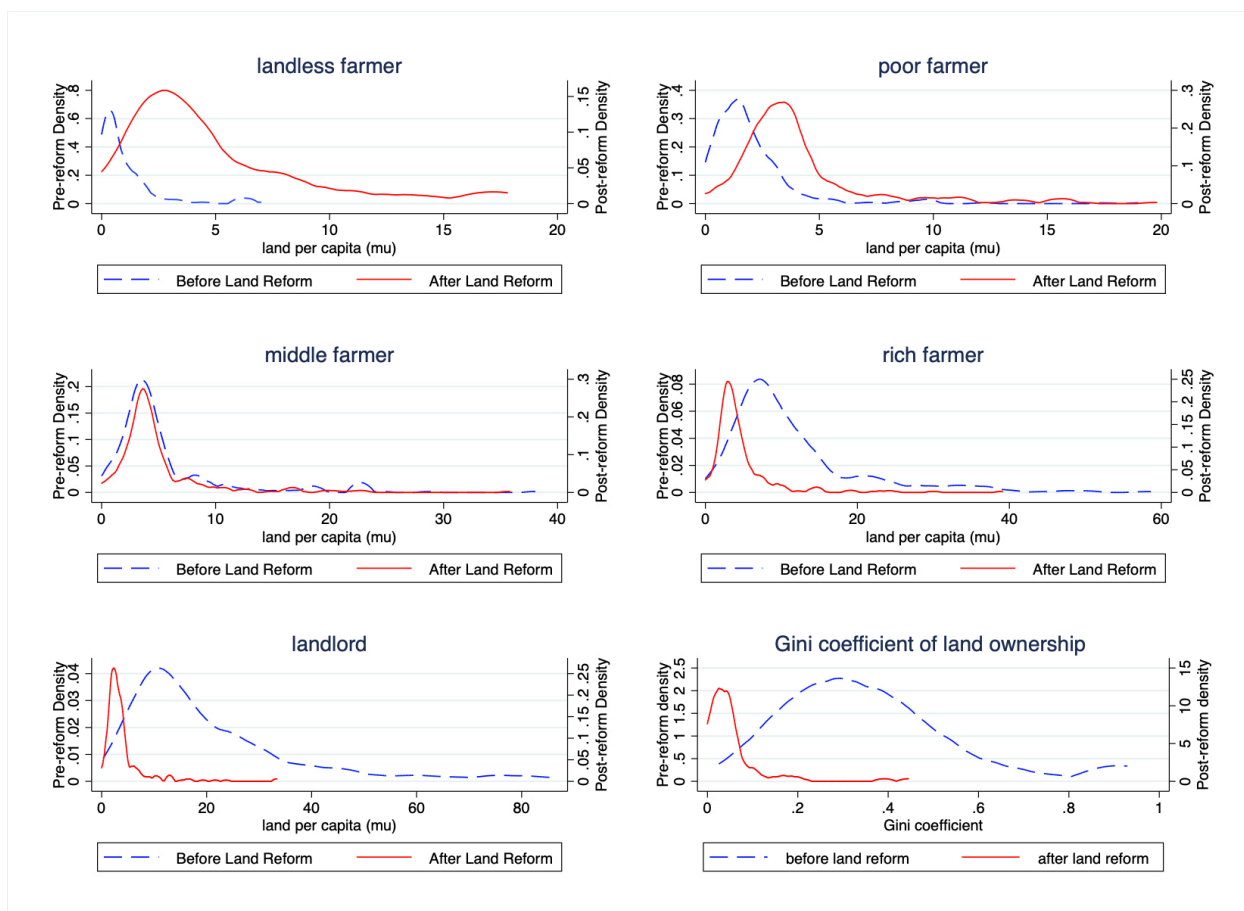


Figure 3: Land Ownership Before and After Land Reform

Source: County Gazetteers.

Notes: In each subfigure, the blue dashed line represents per capita landholding before the land reform, while the red line indicates landholding after the reform. One mu is equivalent to 761.4 square meters.

2.1.1 Class Conflict Arising from Land Reform

By publicly targeting landlords and rich peasants as “class enemies,” the CCP legitimized grassroots violence and mobilized poor peasants to enforce revolutionary justice. Under the slogan that “the masses may use whatever forms of struggle they want,” peasant associations—organized and guided by CCP work teams—held public “struggle meetings” where landlords were humiliated, beaten, and, in some cases, executed. Rough estimates suggest that 10% of landlords were killed during these meetings (Dikötter 2015; Noellert 2020). While the exact number of landlord deaths before 1949 remains unknown, estimates indicate that between 1 and 2 million people died in land reform campaigns between 1949 and 1953, with an additional 4 million sent to labor camps (Teiwes 1987).

This violence, however, did not proceed unopposed. Landlords who lost property often fled and regrouped under the protection of KMT forces, forming militias such as the Homecoming Legion (Huanxiang Tuan). These legions, in coordination with the KMT military, launched counterattacks on CCP-controlled areas in an effort to reverse land reform and exact revenge on peasants. In one such incident in Cangshan County, Shandong Province, the Homecoming Legion executed 1,595 peasants in a single incident, including 197 who were reportedly buried alive. The threat of such retribution created a credible risk for peasants who had benefited from land reform. Fig. 4 shows the attacks launched by Homecoming Legions, revealing that attacks surged after the land reform in May 1946 and gradually subsided after 1948. The map in Fig. 4 demonstrates that these attacks were concentrated in Shandong, Hebei, and northern Jiangsu, regions with significant KMT military presence.

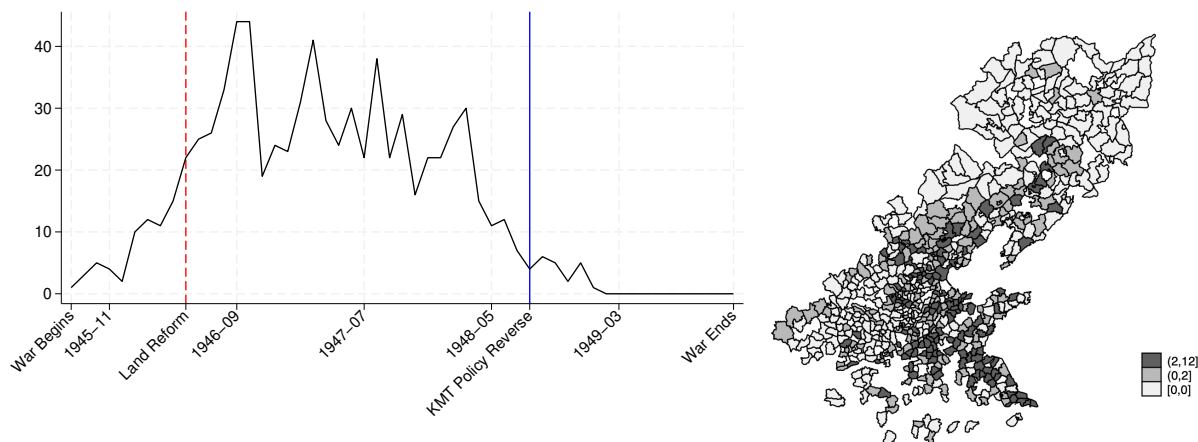


Figure 4: Number of Attacks by Homecoming Legions in Land-Reformed Counties

Source: County Gazetteers.

Notes: The left figure shows the frequency of attacks on land-reformed regions by Homecoming Legions. The map below illustrates the geographic distribution of these attacks.

2.2 Why Did Peasants Fight? Economic Incentives, Opportunity Costs, and Class Struggle

2.2.1 Economic Incentives

Land reform directly reshaped peasants' material incentives. By redistributing land and property from landlords to poor and landless farmers, the CCP dramatically improved the economic position of the rural majority. In some counties, the Party promoted slogans such as “Join the liberation army to safeguard your land,” explicitly linking redistribution to military recruitment (Li 2018). Per capita landholdings for landless peasants increased by over 1000%, while landlords lost up to 80% of their property. In this context, fighting for the CCP was not just ideological—it was a means of defending newly acquired assets.

2.2.2 Rising Opportunity Costs and the Free-Rider Problem

Paradoxically, the redistribution of land also increased the opportunity cost of military participation. Once peasants acquired land, remaining in the village to cultivate it became a more

economically attractive option than joining the army. This created a classic free-rider problem: individuals could benefit from land reform without contributing to the CCP's military efforts. As [Jiang and Duan \(2005\)](#) documents, it remained difficult to recruit newly landed peasants into the army, and coercive measures were sometimes required. This posed a strategic dilemma for the CCP: how to convert material rewards into active political and military commitment. The growing reluctance to enlist—driven not by disloyalty but by rational economic calculation—revealed that material incentives alone were insufficient to sustain rural mobilization.

2.2.3 Class Struggle as a Tool to Reduce Free-Riding

To overcome the free-rider problem inherent in land redistribution, the CCP employed class struggle not only as an ideological tool but also as a practical tool to raise the cost of non-participation in both land reform and war mobilization. Anecdotal evidence suggests that some poor peasants hesitated to accept redistributed land or even secretly returned it to landlords, fearing retaliation if the KMT regained control ([Zhou 1948](#)). However, through a combination of coercion, propaganda, and the credible commitments, the CCP was able to implement land redistribution rapidly—typically completing the process within three months.

Once land reform was underway, neutrality or non-participation was no longer a safe option for peasants. For peasants—especially poor peasants—remaining in the village without visibly supporting the CCP became increasingly risky: if landlords returned, they stood to lose both their newly acquired land and their lives. In contrast, joining the CCP's army offered a way to mitigate these risks. Although military service entailed the danger of death in combat, it also increased the chances of securing one's land—and survival—should the CCP prevail. In this context, class struggle fundamentally altered the expected payoffs of different choices. By raising the cost of disengagement and embedding rural populations in a visible and often violent revolutionary process, the CCP effectively reduced free-riding and incentivized active participation in both land reform and the broader military campaign.

3 Data

3.1 Death Records of Communist Soldiers

Since systematic enlistment data for the CCP’s army is not accessible, I instead use martyrs data.² The death records of CCP forces were collected from an official website (Chinamartyr.gov.cn), which contains a list of 566,162 Communist soldiers who died between 1945 and 1949 during the Chinese Civil War. The records include names, gender, hometowns, birth years, divisions, military ranks, and dates and places of death. I calculate the death toll for each month and county based on the soldiers’ hometowns and dates of death.

3.2 Land Reform and Pre-reform Land Distribution

Land reform data are drawn from county and prefecture gazetteers, which were compiled in the 1990s to document major historical events. These gazetteers provide the earliest systematic records of land asset distribution in Chinese history, including details on land ownership by social class before the land reforms of 1946–1953.

According to these sources, the CCP initiated land reform in 627 counties prior to December 1949. These counties define the scope of my study. I manually collected data on the starting month of land reform for 685 of these counties. The timing of reform serves as a measure of the extensive margin, capturing when counties were incorporated into the CCP’s redistribution campaign.

To assess the intensive margin—the scale and depth of redistribution—I compiled information on land ownership by class from 349 county gazetteers. This enables me to construct the pre-reform Gini coefficient of land distribution, which capture the intensity of economic transformation within each county. The method for calculating the Gini coefficient of land ownership is identical to that used in ([Alesina et al. 2020](#)).

²Only about 20% of county gazetteers report aggregated enlistment numbers for a specific period or for the entire duration of the war.

$$Gini = \frac{maxCDF - CDF(land)}{maxCDF - minCDF}$$

$$CDF(land) = \sum_{class} pop_{class} * CumulativeLand_{class}$$

Here, *maxCDF* refers to the cumulative distribution function (CDF) under a scenario of perfect equality, where land is evenly distributed across all population subgroups—that is, each individual owns the same share of land. Conversely, *minCDF* represents the CDF under extreme inequality, where all land is owned by landlords. *CDF(land)* denotes the observed CDF of land distribution in a given county. The term *pop_{class}* refers to the number of individuals in each social class, including landless peasants, poor peasants, middle peasants, rich peasants, and landlords. *CumulativeLand_{class}* is calculated as the cumulative land held by a given class and all classes ranked below it in the hierarchy. For counties where land ownership data are missing, I impute values using prefecture-level averages. If prefecture data are also unavailable, I use provincial-level averages instead. Figure 1 (right) displays the pre-reform Gini coefficients of land distribution across counties.³

3.3 Distance to KMT Forces

To capture the possibility of retaliation and intensity of class struggle during land reform, I construct a measure of each county’s proximity to KMT military forces. As shown in the regression results in Table B1, these attacks were significantly more frequent in counties closer to KMT positions. In such regions, land reform beneficiaries had stronger incentives to defend the new social order.

I construct this proximity measure using data from *The 158 Armies in the History of the Kuomintang* (Zhang and Liu 2007), which documents the monthly locations of all KMT army units (see Appendix F for details). Based on these records, I identify the locations of KMT military bases and trace their movements over time. For each county and each month, I compute the minimum distance to the nearest KMT force.

³I use the pre-reform Gini coefficient of land ownership as a proxy for actual land gain (measured as a share of total agricultural land) because the two variables are highly correlated (correlation coefficient = 0.78), and post-reform data required to calculate land transfers are less commonly reported in county gazetteers. See Appendix D for details.

Figure 5 plots the kernel density of the shortest distance to KMT forces across 627 counties. From the start of land reform in May 1946 to the policy reversal in August 1948, the distribution of distances remained relatively stable, reflecting the military stalemate between the two sides. After January 1949, the CCP quickly gained the upper hand—defeating KMT forces in North China and crossing the Yangtze River in April—resulting in the rapid collapse of KMT control on the mainland.

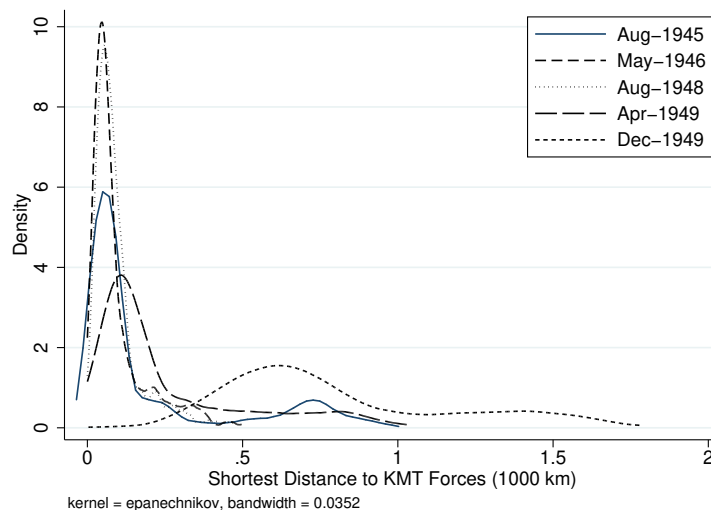


Figure 5: Distribution of Shortest Distance to KMT Forces by Month

Source: [Zhang and Liu \(2007\)](#).

3.4 Control Variables

I include a range of control variables to account for demographic, geographic, political, and economic differences across counties. Summary statistics for all variables are reported in Table 1.

First, basic demographic and geographic characteristics include population size in 1947, land area, and distance to major rivers. Political and commercial importance is measured by whether the county served as a prefectural capital and a regional trade center. The level of modern industrial development is proxied by the number of registered modern industrial firms. To capture variation in human capital and information access, I include the number of primary school students in the 1920s and the number of local newspapers.

Second, I control for the presence and strength of the two major political parties. KMT influence is measured by the number of senior officials in the central KMT government who were born in the county, reflecting the strength of personal networks, which played a key role in KMT governance. CCP influence is proxied by whether the county hosted a guerrilla base.

Third, I account for the influence of other political actors. Foreign influence is captured by the presence of treaty ports and distance to Soviet-aligned states (including North Korea and Mongolia).⁴ Given the Soviet Union’s substantial financial and military support for the CCP during the Chinese Civil War (Yang 2010), proximity to these borders may shape local political dynamics. I also control for the strength of local kinship organizations by including the number of genealogical book editions published in each county, as powerful clans may have resisted both land reform and mobilization efforts, and were often targets of CCP repression.

Finally, I include agricultural controls, such as annual weather conditions and crop suitability indices for wheat and rice cultivation.

3.5 Sample Selection and Pre-Trend Analysis

Land reform and conscription could only begin after a county was taken over by the CCP. As a result, the analysis uses an unbalanced panel of 627 counties, covering the period from the time each county was seized by the CCP for the first time until August 1948, when the Kuomintang (KMT) reversed its stance on the CCP’s land reform. Given that war often involves strategic choices by all parties, sample selection may be inevitable. In particular, the CCP may have deliberately prioritized counties with greater land inequality—where support from the peasantry would be more readily mobilized—for occupation and reform. If so, this would raise the risk of overestimating the effect of land reform on mobilization.

To assess potential sample selection bias, I estimate an ordered probit model to examine whether the timing of CCP occupation and the timing of land reform are systematically related to the two key treatment variables—(1) the pre-reform Gini coefficient of land ownership and (2) distance to

⁴Most treaty ports had been formally abolished by 1945, but foreign-owned businesses may have continued to exert economic influence in those areas.

Table 1: Summary Statistics

Variable	Obs	Mean	S.D	Min	Max	Data Source
ln (Soldier Deaths+1)	19313	1.295	1.168	0	6.144	A
Dist to KMT (1000 km)	19313	0.092	0.101	0.000	0.967	B
Pre-reform Gini	624	0.375	0.194	0.025	0.929	C
Dist to KMT, May 1946	627	88.538	91.569	0.007	511.693	B
ln Pop	608	-1.792	0.938	-6.568	0.433	D
ln Area	596	0.515	1.001	-4.101	4.195	D
Dist to Rivers (km)	627	31.853	31.721	0.124	203.514	E
Capital County	627	0.080	0.271	0	1	F
Trade Center	627	0.215	0.411	0	1	G
ln (Firms+1)	627	0.281	0.613	0	4.644	H
ln (Newspaper+1)	627	0.205	0.550	0	4.454	I
ln (Students+1)	627	0.053	0.120	0	1.269	J
ln (KMT Officials+1)	627	0.480	0.605	0	2.944	K
Guerrilla Base I	627	0.027	0.163	0	1	F
Guerrilla Base II	627	0.571	0.495	0	1	F
Treaty Port	612	0.029	0.169	0	1	L
Dist to Soviet (km)	627	355.212	180.798	0.319	1306.703	E
ln (Clans+1)	627	0.537	0.832	0	5.011	I
ln Weather, 1944	627	1.083	0.480	0	1.609	N
ln Weather	627	1.129	0.276	0	1.609	N
ln Rice	627	1.952	0.152	0.693	2.079	O
ln Wheat	627	1.219	0.443	0	2.079	O
land per capita	567	4.701	4.154	0.256	35.562	P
land value per capita (high)	345	171.165	176.168	2.037	1869.455	P
land value per capita (low)	345	84.204	92.309	1.282	934.727	P

Source: A. [Chinamartyr.gov.cn](http://chinamartyr.gov.cn), (2021); B. [Zhang and Liu \(2007\)](#); C. County Gazetteers; D. [Neizhengbu \(1947\)](#); E. China Data Online; F. Fu and Liu 2017; G. [Skinner et al. \(2008\)](#); H. [Du \(1991\)](#); I. Shanghai Lib; J. [Stauffer \(1922\)](#); K. [Liu \(1995\)](#); L. [Keller and Shiue \(2021\)](#); N. [State Meteorological Society \(1981\)](#); O. [FAO, The \(2021\)](#); P. [Kong \(1944\)](#).

The first series of guerilla bases established by the CCP was from 1927 to 1937, and most of the bases were located in south China. In the second period during the Sino-Japanese War (1937-1945), the CCP established guerilla bases in the northern region to fight against the Japanese invaders.

KMT forces—as well as other county-level covariates.

Column (1) in Table 2 shows that counties located farther from KMT forces were taken over earlier by the CCP. This is consistent with strategic logic: CCP forces were more likely to gain control in areas with weaker KMT presence. The timing of CCP occupation is also correlated with several county characteristics. To address concerns about sample selection, I conduct a robustness check using a balanced panel of all 2,200 counties from August 1945 to August 1948. As shown in Table C2, the results remain robust.

Column (2) investigates the timing of land reform. As expected, it is highly correlated with the timing of CCP occupation. Importantly, the timing of reform is not significantly associated with the pre-reform Gini coefficient but is negatively correlated with distance to KMT forces in May 1946. This suggests that the CCP may have strategically prioritized counties farther from KMT military positions for earlier land reform. However, because distance to KMT forces is a time-varying variable, its correlation with reform timing is less likely to pose a major problem.

Columns (3) and (4) examine the relationship between the two treatment variables and pre-treatment characteristics. The pre-reform Gini coefficient is positively correlated with land area and negatively correlated with population size and the presence of CCP guerilla bases during the Sino-Japanese War. Distance to KMT forces in May 1946 is correlated with population size and area. Finally, in Column (5), I examine whether the monthly change in distance to KMT forces is predicted by pre-treatment characteristics. The results indicate that such changes are only correlated with the number of newspapers—a proxy for information dissemination—suggesting limited endogeneity. All these county characteristics are included as controls in the subsequent analysis to mitigate confounding bias.

Table 2: Balance Checks

Model	Ordered Probit	Ordered Probit	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
VARIABLES	Occupation Rank	Land Reform Rank	Pre-reform Gini	Distance to KMT May, 1946	Change in Distance to KMT
<i>Occupation Rank</i>		0.002*** (0.000)			
<i>Gini</i>	-0.461 (0.522)	0.382 (0.551)			
<i>Dist to KMT, May1946</i>	-0.004*** (0.001)	-0.005*** (0.001)			
<i>ln Pop</i>	-0.208* (0.118)	-0.312** (0.126)	-0.041*** (0.009)	-29.652*** (4.235)	0.002 (0.004)
<i>ln Area</i>	-0.071 (0.087)	-0.027 (0.091)	0.047*** (0.007)	17.631*** (3.249)	0.002 (0.001)
<i>Dist to Rivers</i>	-0.004 (0.003)	0.003 (0.003)	0.000 (0.000)	0.147 (0.100)	0.000 (0.000)
<i>Capital County</i>	1.066*** (0.290)	0.312 (0.271)	-0.012 (0.023)	-0.531 (10.471)	0.009 (0.013)
<i>Trade Center</i>	0.254 (0.194)	0.016 (0.179)	-0.007 (0.015)	1.291 (6.844)	0.007 (0.009)
<i>ln(Firms + 1)</i>	0.162 (0.148)	-0.230 (0.161)	-0.007 (0.013)	-0.821 (5.788)	0.004 (0.006)
<i>ln (Newspapers + 1)</i>	-0.060 (0.176)	-0.033 (0.181)	0.023 (0.014)	0.506 (6.453)	0.003** (0.001)
<i>ln (Studedents + 1)</i>	0.883 (0.691)	0.592 (0.699)	0.028 (0.059)	-18.925 (27.072)	-0.003 (0.007)
<i>ln (KMT Officials + 1)</i>	-0.043 (0.141)	-0.003 (0.143)	-0.017 (0.012)	-0.959 (5.399)	-0.006 (0.005)
<i>Guerilla Base I</i>	2.787*** (0.766)	0.340 (0.729)	0.056 (0.048)	10.061 (21.061)	0.008 (0.011)
<i>Guerilla Base II</i>	-1.482*** (0.251)	-1.119*** (0.245)	-0.116*** (0.018)	0.002 (8.425)	0.001 (0.007)
<i>TreatyPort</i>	-0.319 (0.452)	0.386 (0.553)	-0.009 (0.040)	2.689 (18.389)	0.000 (0.013)
<i>Dist to Soviet</i>	0.002*** (0.001)	0.000 (0.001)	-0.000 (0.000)	0.028 (0.027)	0.000 (0.000)
<i>ln (Clans + 1)</i>	0.200** (0.100)	-0.142 (0.100)	-0.004 (0.008)	1.360 (3.797)	-0.003 (0.002)
<i>ln Weather, 1944</i>	-0.408** (0.207)	-0.468** (0.194)	-0.009 (0.016)	-10.110 (7.268)	
<i>ln Weather</i>					0.000 (0.001)
<i>ln Rice</i>	0.997 (0.616)	0.613 (0.582)	-0.004 (0.049)	2.812 (22.501)	-0.009 (0.014)
<i>ln Wheat</i>	-0.037 (0.221)	-0.452* (0.236)	0.022 (0.019)	-6.921 (8.561)	-0.003 (0.004)
Region FE	Y	Y	Y	Y	Y
Month FE	N	N	N	N	Y
Observations	593	593	593	596	17,771
R-squared			0.369	0.505	0.191

Notes: This table reports results assessing potential sample selection bias and the relationship between treatment variables and pre-treatment county characteristics. Columns (1) and (2) use ordered probit models to examine whether the timing of CCP occupation and land reform is systematically related to the two key treatment variables—the pre-reform Gini coefficient of land ownership and distance to KMT forces—as well as other county-level covariates. Columns (3) and (4) explore how the treatment variables themselves are associated with pre-treatment characteristics. Column (5) tests whether monthly changes in distance to KMT forces are predicted by pre-existing county characteristics.

4 Empirical Analysis

4.1 Specification

The difference-in-difference design is as follows,

$$\begin{aligned} \ln \text{SoldierDeath}_{ct} = & \alpha L_{ct} + \beta_1(L_{ct} \times \text{Gini}_c) + \beta_2(L_{ct} \times \text{dist_KMT}_{ct}) \\ & + \beta_3(L_{ct} \times \text{Gini}_c \times \text{dist_KMT}_{ct}) \\ & + \theta(\text{dist_KMT}_{ct}) + R_j \times \eta_t + \Gamma(X_c \times \eta_t) + \zeta_c + \eta_t + \epsilon_{ct} \end{aligned} \quad (1)$$

Where *Soldier Death*_{ct} refers to the number of CCP’s soldiers who were from county *c* and died in month *t*. $\ln(\text{Soldier Death}_{ct} + 1)$ is used as the dependent variable. L_{ct} is a dummy variable equal to 1 following the start of the land reform in county *c*. Gini_c is the prior-reform Gini coefficient in land ownership in soldiers’ home county *c*. dist_KMT_{ct} denotes the shortest distance between county *c* and KMT military bases in month *t*. X_c consists of a series of control variables. ζ_c and η_t refer to county and month fixed effects. $R_j \times \eta_t$ indicates region-by-month fixed effects.⁵ Standard Errors are clustered at the county level.

4.2 Extensive Margin

I first examine the extensive margin of land reform—specifically, whether counties that implemented land reform experienced an increase in soldier deaths during the subsequent battles. In Table 3, Columns (1) to (3) present estimates from a two-way fixed effects (TWFE) specification. Column (1) includes county and month fixed effects. Column (2) adds region-by-month fixed effects, while Column (3) further incorporates county-level control variables interacted with month fixed effects to flexibly adjust for time-varying confounders. Columns (4) to (6) report estimates from a doubly robust difference-in-differences estimator following [Sant’Anna and Zhao \(2020\)](#). Across both estimation strategies, the estimated average treatment effects on the treated (ATT) remain statistically significant and quantitatively consistent, with coefficients on land reform ranging from 0.07

⁵During the wartime, the study regions were governed by administrative units known as “ju” rather than provinces.

to 0.16. These imply that land reform increased soldier deaths by approximately 7 to 16 percent in treated counties. The results suggest that land reform was associated with a meaningful rise in battlefield casualties, reflecting a substantial shift in mobilization along the extensive margin.

Table 3: The Impact of Land Reform on Death Numbers

VARIABLES	<i>lnSoldierDeath</i>					
	TWFE			Double Robust		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.104*** (0.027)	0.084*** (0.025)	0.070*** (0.026)	0.136*** (0.0501)	0.159*** (0.0514)	0.149*** (0.0566)
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>RegionFE</i> $\times$ <i>MonthFE</i>	N	Y	Y	N	Y	Y
<i>Controls</i> $\times$ <i>MonthFE</i>	N	N	Y	N	N	Y
Observations	19,940	19,940	18,961			
R-squared	0.170	0.235	0.290			
Number of counties	627	627	596			

Notes: This table reports the average treatment effect on the treated (ATT) of land reform *L*. Columns 1–3 present estimates from the two-way fixed effects (TWFE) model, while Columns 4–6 report double robust difference-in-differences estimates. The outcome variable is the log of the number of soldier deaths. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

The positive coefficient indicates that counties implementing land reform experienced higher soldier deaths, which may reflect several underlying mechanisms. First, soldiers who had joined before the land reform may have fought more fiercely after their families received land, strengthening their ideological commitment and willingness to sacrifice. Second, land reform likely expanded the CCP’s recruitment base, encouraging more rural residents to enlist. Third, the newly recruited soldiers may have been especially motivated and thus more likely to volunteer for dangerous missions or be deployed in high-risk operations. These mechanisms—enhanced commitment among existing troops, increased enlistment, and greater combat intensity among new recruits—jointly help explain the observed rise in casualties.

To explore which mechanisms drive these results, I plot the average treatment effect on the treated (ATT) by both event time (relative to treatment) and calendar time in Fig. 6. In the left subfigure, the ATT becomes significantly positive within the first three months following land reform. Another cluster of positive effects appears around the 12th and 14th–16th months. The

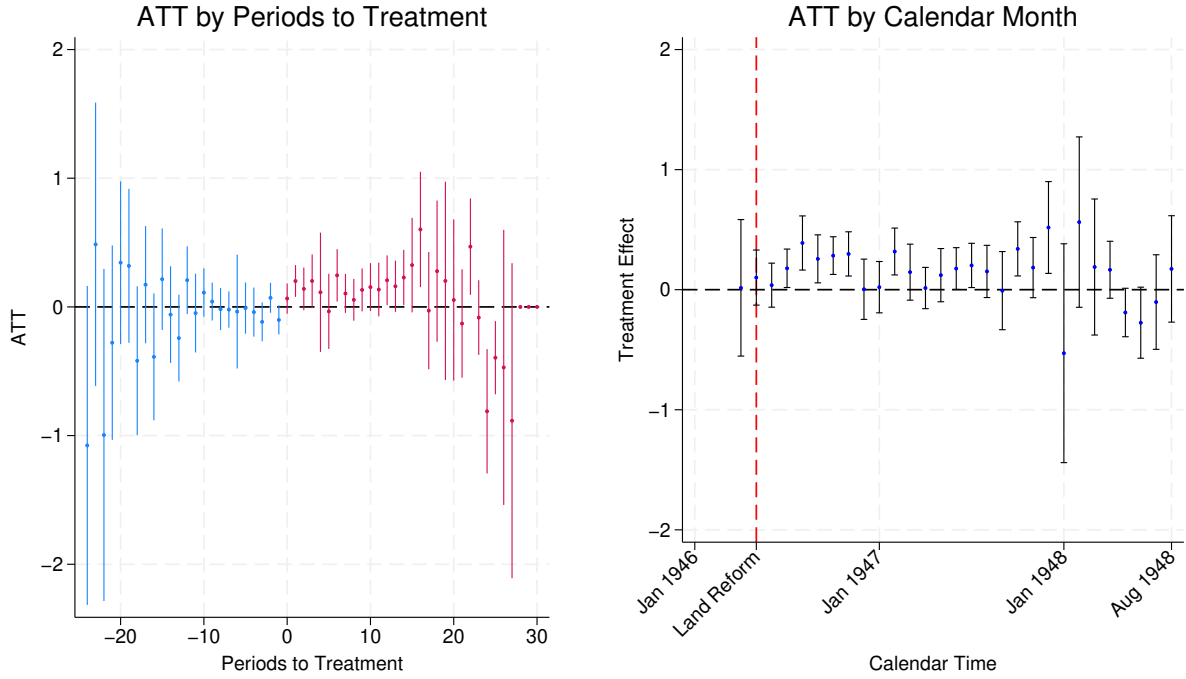


Figure 6: Average Treatment Effect on The Treated (ATT) of Land Reform By Time

Notes: The figure presents the average treatment effect on the treated (ATT), with the left panel showing estimates by event time (relative to treatment) and the right panel by calendar time. The estimates correspond to Column (6) of Table 3.

early increase in ATT likely reflects intensified fighting by soldiers who had enlisted prior to the reform, while the later spike suggests increased recruitment and heightened combat commitment among newly enlisted soldiers. Since actual battles occurred in calendar time rather than relative time, the right subfigure presents ATT estimates by calendar month. The ATT is significantly positive from August to December 1946, aligning closely with seven major battles.⁶

Given that land reform relied on a clear classification of each household and individual by class, I also examine the extensive margin of soldier deaths by the population share of each class. Table C1 shows that a higher share of landlords or rich peasants is associated with a reduced extensive margin. When the population share of landlords exceeds 9.03% or that of rich peasants exceeds 13.25%, the estimated effect becomes negative. A greater presence of these upper classes implies

⁶The seven battles include those in Middle Jiangsu, Dingtao County, Datong and Jining, Zhangjiakou, Xinkailing, Hua County, and North Su County. Fig. A.2 presents the timeline of major battles, while Fig. A.3 displays the monthly death toll of CCP soldiers.

more land available for redistribution to peasants. This redistribution may have increased the opportunity cost of participating in the war for peasants, thereby reducing mobilization incentives. To further assess the overall effect of land reform, I next examine the intensive margin, using the pre-reform Gini coefficient as a proxy for the scale of redistribution.

4.3 Intensive Margin

I then examine the intensive margin of land reform on war mobilization. Treatment intensity is proxied by pre-reform inequality, measured using the Gini coefficient. The marginal effect of land reform is expressed as $\alpha + \beta_1 \times \text{Gini}_c$. A positive value would suggest that greater inequality—indicating a larger scope for land redistribution—led to either increased enlistment in the CCP’s army or more committed fighting. This reflects the net influence of two opposing forces: the economic incentive from receiving land and the opportunity cost of joining the army. A positive result would imply that the incentive effect dominates the opportunity cost.

Table 4 presents the results of this analysis, using soldier death counts as a proxy for mobilization. Columns (1)–(3) examine the interaction between land reform and pre-reform inequality. The coefficient on the baseline land reform indicator (α) is positive and statistically significant across all three specifications, indicating that land reform, on average, increased soldier deaths. However, the negative and statistically significant interaction terms (β_1) in Columns (2) and (3) suggest that this effect diminishes in counties with higher pre-reform inequality. That is, land reform was less effective at mobilizing soldiers in more unequal regions. The marginal effect of land reform, $\alpha + \beta_1 \times \text{Gini}$, is estimated as $0.160 - 0.235 \times \text{Gini}$ in Column (3). The implied threshold is a Gini coefficient of 0.68: in counties with Gini values below 0.68, the net effect of land reform on mobilization is positive, suggesting that the incentive effect outweighed the opportunity cost. In contrast, in counties with Gini values above 0.68, the opportunity cost of mobilization may have dominated, reducing the effectiveness of land reform in generating wartime participation. The potential for negative effects suggests that the mobilization impact of land reform may be heterogeneous—an issue explored in greater detail in the next section.

Table 4: The Impact of Land Reform Intensity on Death Numbers

VARIABLES	<i>lnSoldierDeath</i>		
	(1)	(2)	(3)
<i>L</i>	0.140*** (0.049)	0.199*** (0.049)	0.160*** (0.050)
<i>L</i> $\times$ <i>Gini</i>	-0.102 (0.097)	-0.300*** (0.101)	-0.235** (0.108)
County FE	Y	Y	Y
Month FE	Y	Y	Y
<i>RegionFE</i> $\times$ <i>MonthFE</i>	N	Y	Y
<i>Controls</i> $\times$ <i>MonthFE</i>	N	N	Y
Observations	19,829	19,829	18,850
R-squared	0.170	0.236	0.291
Number of counties	624	624	593

Notes: The table reports the marginal effect of land reform intensity on CCP soldier deaths. Pre-reform land ownership inequality, measured by the Gini coefficient, serves as a proxy for the potential scope of land redistribution in each county. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

4.4 Heterogenous Extensive and Intensive Margins: The Role of Class Struggle

I then examine the potential for class struggle in soldiers' home counties, proxied by their proximity to KMT forces. I use distance to KMT forces as a proxy for class struggle risk because the observed class struggle data captures realized outcomes, not the ex ante threat environment that shaped strategic decisions by peasants and the CCP. The heterogeneous extensive margin is given by $\alpha + \beta_2 \times dist_KMT_{ct}$. Following land reform, counties located closer to KMT forces may have faced greater fears of retaliation or counter-revolution, thereby heightening the perceived urgency of class struggle and strengthening the motivation for mobilization. While geographic proximity also correlates with logistical exposure to recruitment and battlefield activity, I interpret it here primarily as capturing the intensified class-based tensions in frontline regions. To partially account for this alternative channel, I include proximity as a control and focus on its interaction with land reform timing.

Columns (1)–(3) of Table 5 examine the role of proximity to KMT forces as a proxy for the

Table 5: Heterogenous Extensive and Intensive Margins: the Role of Class Struggle in War Mobilization

VARIABLES	<i>lnSoldierDeath</i>					
	Heterogenous Extensive Margin			Heterogenous Intensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.165*** (0.035)	0.188*** (0.035)	0.148*** (0.033)	-0.058 (0.068)	0.019 (0.069)	0.025 (0.068)
<i>L</i> $\times$ <i>Gini</i>				0.559*** (0.169)	0.404** (0.163)	0.298* (0.166)
<i>L</i> $\times$ <i>Gini</i> $\times$ <i>dist_KMT</i>				-5.745*** (1.110)	-5.060*** (1.086)	-3.899*** (1.072)
<i>L</i> $\times$ <i>dist_KMT</i>	-0.755*** (0.249)	-1.210*** (0.262)	-0.939*** (0.219)	2.078*** (0.610)	1.370** (0.621)	1.027* (0.553)
<i>dist_KMT</i>	-0.695*** (0.178)	0.181 (0.227)	0.074 (0.198)	-0.922*** (0.166)	-0.195 (0.214)	-0.226 (0.217)
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>RegionFE</i> $\times$ <i>MonthFE</i>	N	Y	Y	N	Y	Y
<i>Controls</i> $\times$ <i>MonthFE</i>	N	N	Y	N	N	Y
Observations	19,940	19,940	18,961	19,829	19,829	18,850
R-squared	0.174	0.238	0.292	0.176	0.241	0.293
Number of counties	627	627	596	624	624	593

Notes: The table reports the heterogeneous extensive and intensive margins of land reform on CCP soldier deaths. The variable *dist_KMT* denotes the shortest distance between a county and the nearest KMT forces in each month. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

perceived risk of class struggle. The interaction term $L \times dist_KMT$ is negative and statistically significant across all specifications, supporting the hypothesis that counties closer to KMT forces—those facing greater threats of retaliation—experienced greater mobilization following land reform. The marginal effect of land reform is given by $\alpha + \beta_2 \times dist_KMT$, which in Column (3) equals $0.148 - 0.939 \times dist_KMT$. The implied cutoff is 158 kilometers: counties located within 158 kilometers of KMT forces experienced a positive extensive margin, suggesting that land reform increased mobilization primarily in nearby areas.

Columns (4)–(6) extend the analysis by introducing a triple interaction between land reform, the Gini coefficient, and distance to KMT forces to test the heterogeneous intensive margin. In Column (6), the heterogeneous intensive margin is $0.025 + 0.298 - 3.899 \times dist_KMT$. The cutoff value is approximately 83 kilometers. This implies that only in counties sufficiently close to KMT forces (within 83 km) did more intense land reform translate into increased soldier deaths. In contrast, in counties farther away, greater land redistribution may have had a dampening effect on

mobilization.

To further explore how the effect of land reform intensity varies with proximity to KMT forces, I replace the continuous distance measure with a series of distance-to-KMT dummies, grouped in 10-kilometer intervals. Fig. 7 presents the results. The left panel displays the coefficients for the interaction between the land reform dummy and the distance dummies. These coefficients remain significantly positive up to approximately 150 kilometers—with some exceptions—indicating that the extensive margin of mobilization was generally stronger in counties closer to the frontlines. The right panel displays the coefficients for the triple interaction between the land reform dummy, the pre-reform Gini coefficient, and the distance dummies. These coefficients are significantly positive for counties located within 70 kilometers of KMT forces. In terms of magnitude, the results indicate that the intensive margin—reflecting how strongly redistribution conditions the impact of land reform—is also concentrated in this closer range.

How should we interpret these results? Theoretically, the underlying economic incentives and opportunity costs of fighting are unlikely to vary systematically with the distance between soldiers' home counties and KMT forces. What does vary is the perceived risk of retaliation—the threat that nearby homecoming legions and KMT forces might reverse land reform or punish those who supported it. In counties closer to KMT forces, this threat likely heightened the urgency of political participation, reinforcing the stakes of the conflict and motivating greater mobilization. In these regions, the combination of economic incentives and fear of retribution outweighed the opportunity cost of enlistment. By contrast, in more distant counties where the perceived threat was lower, individuals may have been more inclined to free-ride, and the opportunity cost of mobilization may have outweighed both the material benefits of land reform and the perceived need to defend it.

Why is the cutoff for the intensive margin (80 km) shorter than that for the extensive margin (180 km)? The extensive margin captures the average increase in soldier deaths following land reform, potentially reflecting a combination of factors—including rational incentives, coercion, propaganda, and other unobserved mechanisms. In contrast, the intensive margin isolates how redistribution intensity interacts with economic incentives, opportunity costs, and the perceived risk of class conflict. The sharper cutoff at 70–83 kilometers aligns with the geographic

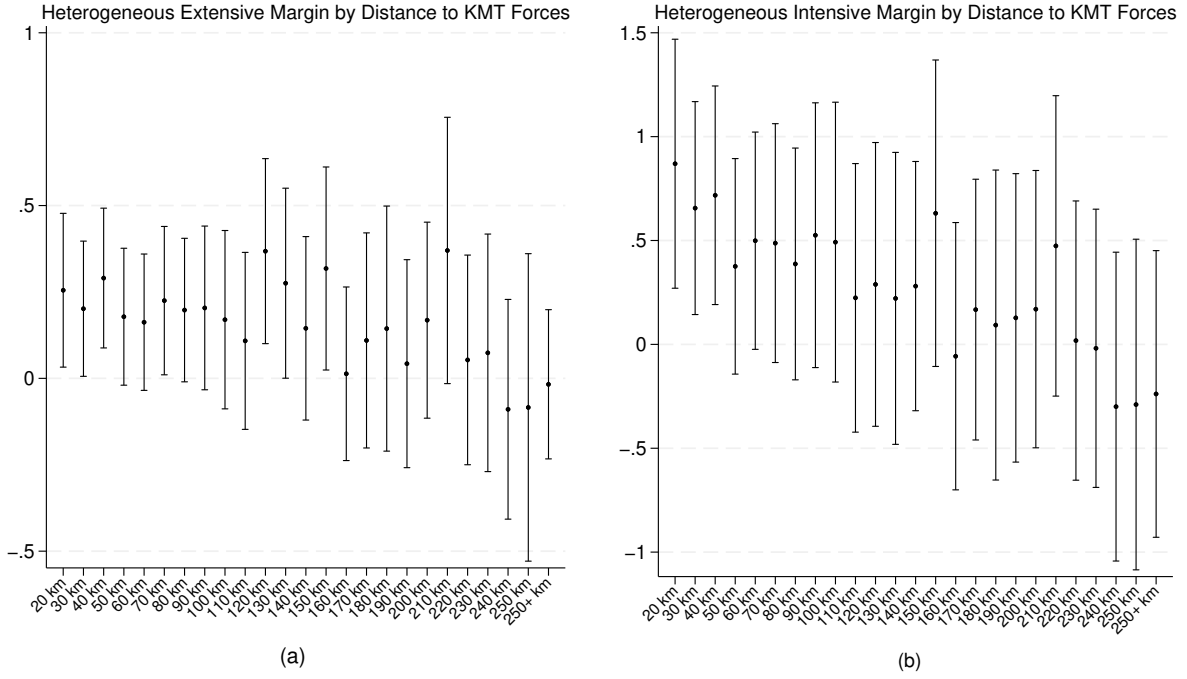


Figure 7: Heterogeneous Extensive and Intensive Margins of Land Reform by Distance to KMT Forces

Notes: The left panel displays the coefficients from the interaction between the land reform dummy and distance-to-KMT-forces dummies, where distance is grouped in 10 km intervals. The right panel shows the coefficients from the triple interaction between the land reform dummy, pre-reform Gini coefficient, and the same distance dummies. The two figures illustrate how the extensive and intensive margins vary with proximity to KMT forces. The regression tables are in Appendix C.

reach of counter-revolutionary violence. As shown in Fig. B.2, most attacks by Homecoming Legions occurred within 100 kilometers of KMT forces, suggesting that logistical constraints limited the operational range of retaliation.⁷ This supports the interpretation that only counties within this radius faced a credible threat of class struggle, while those farther away did not.

⁷Anecdotal evidence indicates that troops during this period could march up to 100 kilometers in a single day.

4.5 Robustness Checks

4.5.1 Robustness Check: Fix Death Locations

One concern regarding the distance to KMT forces is that it may also capture differences in logistical capacity. Anecdotal evidence suggests that once a soldier joined the CCP’s army, they were typically assigned to nearby units. Therefore, the higher extensive and intensive margins observed in regions closer to KMT forces may simply reflect logistical arrangements rather than strategic mobilization.

An alternative explanation is that peasants farther from KMT camps may have been more optimistic about the CCP’s eventual victory, as they were less frequently exposed to the visible presence of KMT power. This optimism could reduce their perceived need to participate, under the belief that victory was likely regardless of their individual contribution. In contrast, those living closer to KMT forces—more aware of the opposition’s strength—might view their participation as more essential to ensuring the CCP’s success.

To address these alternative interpretations, I incorporate a third dimension indicating where soldiers died, redefining the unit of analysis to county–death location–month. As shown in Table 6, the cutoff distances for both the extensive and intensive margins converge to 58 km, and the results remain robust.

4.5.2 Robustness Check: Concern about the Distance Measure

One potential concern with the monthly changing distance to KMT forces is that, as CCP troops advanced from north to south, soldiers from early-reformed areas may have been promoted to leadership positions within the army. Such promotions could reduce their likelihood of dying in combat. If this were the case, the observed declines in both the extensive and intensive margins with distance to KMT forces might simply reflect the CCP’s internal promotion dynamics, rather than differences in mobilization or exposure to conflict.

To address this concern, I exclude all officers—defined as individuals holding any formal position

Table 6: Robustness Check: Fix Death Locations

VARIABLES	<i>lnSoldierDeath</i>					
	Heterogenous Extensive Margin			Heterogenous Intensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.037** (0.017)	0.019 (0.018)	0.021 (0.017)	-0.026 (0.030)	-0.016 (0.032)	-0.010 (0.032)
<i>L × Gini</i>				0.187** (0.076)	0.105 (0.078)	0.085 (0.082)
<i>L × Gini × dist_KMT</i>				-2.131*** (0.711)	-1.698** (0.701)	-1.323** (0.656)
<i>L × dist_KMT</i>	-0.231 (0.184)	-0.185 (0.186)	-0.360** (0.147)	0.557 (0.368)	0.463 (0.375)	0.157 (0.330)
<i>dist_KMT</i>	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
Death Location	Y	Y	Y	Y	Y	Y
<i>RegionFE × MonthFE</i>	N	Y	Y	N	Y	Y
<i>Controls × MonthFE</i>	N	N	Y	N	N	Y
Observations	35,701	35,701	34,565	35,581	35,581	34,445
R-squared	0.086	0.099	0.125	0.087	0.100	0.126
Number of counties	578	578	556	575	575	553

Notes: Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

within the army, who made up 21 percent of the sample—and restrict the analysis to common soldiers only. Table 7 presents the results using this subsample. The cutoff distances for the extensive margin become 143 km and 80 km, and the estimates remain robust, consistent with the patterns documented in Section 4.4.

4.5.3 Robustness Check: The Reverse of KMT’s Landlord Policy

By 1948, the KMT leadership had come to recognize that “the livelihood of ignorant and unwashed peasants was in some fundamental way related to the debility of their own government and the dynamism of the Communists” (Eastman 1984). In August of that year, KMT President Chiang Kai-shek publicly announced that in areas previously controlled by the CCP, if retaken by KMT forces, the government would acknowledge the CCP-led land reform and would not support landlords’ claims to reclaim their land. Without KMT military backing, the Homecoming Legions were no longer able to retake counties or retaliate against farmers. Moreover, the CCP had actively sought to eliminate these legions. As shown in Fig. 4, reprisals by Homecoming Legions had largely

Table 7: Robustness Check: Concern about the Distance Measure

VARIABLES	<i>lnSoldierDeath</i>					
	Heterogenous Extensive Margin			Heterogenous Intensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.161*** (0.033)	0.164*** (0.033)	0.131*** (0.033)	-0.030 (0.068)	0.028 (0.066)	0.016 (0.067)
<i>L × Gini</i>				0.473*** (0.169)	0.316** (0.159)	0.275* (0.162)
<i>L × Gini × dist_KMT</i>				-5.148*** (1.061)	-4.323*** (1.002)	-3.622*** (1.058)
<i>L × dist_KMT</i>	-0.806*** (0.221)	-1.039*** (0.228)	-0.919*** (0.211)	1.762*** (0.582)	1.193** (0.557)	0.912 (0.559)
<i>dist_KMT</i>	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>RegionFE × MonthFE</i>	N	Y	Y	N	Y	Y
<i>Controls × MonthFE</i>	N	N	Y	N	N	Y
Observations	19,940	19,940	18,961	19,829	19,829	18,850
R-squared	0.145	0.208	0.263	0.147	0.210	0.264
Number of counties	627	627	596	624	624	593

Notes: The outcome variable is the logged number of soldier deaths in a given county-month. The sample excludes officers and includes only common soldiers. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

ceased by this point.

If class-based reprisals had effectively ceased, the mechanisms driving the earlier results should no longer be operative. Table C5 examines the heterogeneous extensive and intensive margins by distance to KMT forces following the KMT's reversal of its landlord policy. Columns (1)–(3) show no significant heterogeneity in the extensive margin. More interestingly, Columns (4)–(6) indicate that more distant regions now exhibit a higher intensive margin. This likely reflects the fact that, by this point, KMT forces had been pushed back to a few cities and parts of southern China, increasing the average distance to KMT forces for all previously reformed areas, as shown in Fig. 5.

More clearly, Fig. 8 shows that neither the extensive nor intensive margin varies systematically with distance to KMT forces. This suggests that once class-based reprisals ceased, the patterns documented in Section 4.4 no longer held.

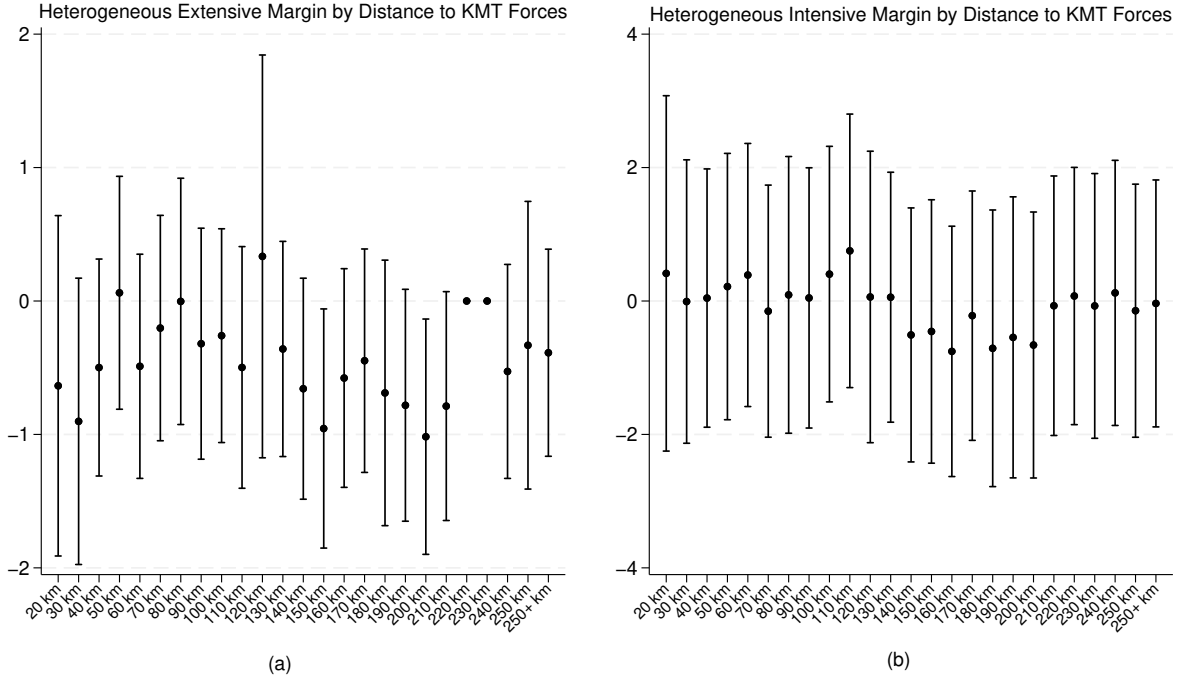


Figure 8: Heterogeneous Extensive and Intensive Margins of Land Reform by Distance to KMT Forces After August 1948

Notes: The left panel displays the coefficients from the interaction between the land reform dummy and distance-to-KMT-forces dummies, where distance is grouped in 10 km intervals. The right panel shows the coefficients from the triple interaction between the land reform dummy, pre-reform Gini coefficient, and the same distance dummies. The two figures illustrate how the extensive and intensive margins vary with proximity to KMT forces.

5 Mechanism

5.1 Class Struggle

Why do the extensive and intensive margins of land reform on soldier deaths vary with distance to KMT forces? I argue that the key mechanism lies in the varying perceived risk of class struggle faced by soldiers' home counties, which was shaped by their proximity to KMT forces. As shown in Table C6, the extensive margin of land reform on Homecoming Legion attacks is positive but statistically insignificant under a two-way fixed effects model, and significantly negative using a doubly robust staggered adoption design. In contrast, the intensive margin is consistently and significantly positive. This suggests that land reform did not, on average, provoke widespread

retaliation by the Homecoming Legions—armed groups of displaced landlords seeking revenge. However, in counties where land confiscation was more severe, both the likelihood and intensity of reprisal attacks increased. This pattern supports the view that landlords evaluated the expected costs and benefits of retaliation, and only under conditions of substantial expropriation did the perceived benefits of revenge outweigh the associated risks.

In Table 8, I replace the outcome variable with the number of Homecoming Legion attacks and the number of peasants killed. Panel A reports the heterogeneous extensive margin of land reform. In Panel A, the heterogeneous extensive margin of land reform on homecoming legion attacks is $0.008 - 0.082 \times dist_KMT$ in column (3) and $0.019 - 0.143 \times dist_KMT$ in column (6), with cutoff values at 98 km and 133 km, respectively. These results suggest that violent land reform significantly increased the likelihood of reprisals in regions closer to KMT forces. Panel B reports the heterogeneous intensive margin $-0.046 + 0.156 - 0.713 \times dist_KMT$ in column (3) and $-0.049 + 0.198 - 0.824 \times dist_KMT$ in column (6), with cutoff values at 154 km and 181 km. These results indicate that in nearby counties with more severe redistribution, landlords were more likely to organize violent retaliation. This pattern is consistent with the idea that larger-scale land confiscation heightened both grievance and capacity for reprisal—particularly where proximity to KMT forces enabled such action. In more distant regions, by contrast, both extensive and intensive margins became negative, likely because landlords lacked the means to organize attacks without support from nearby KMT forces. Notably, the cutoff distances for Homecoming Legion attacks are larger than those observed for CCP soldier deaths. This discrepancy suggests that the spatial reach of landlord reprisals extended farther than the mobilization effects of class conflict. One interpretation is that while landlords could leverage broader networks with KMT forces to enact violence, peasant mobilization required a more immediate and credible threat of retribution to spur political participation.

5.2 Alternative Explanation: Land Per Capita

One alternative hypothesis is that proximity to KMT forces does not necessarily signal a heightened risk of class conflict, but rather reflects variation in the potential benefits and costs of fighting.

Table 8: Mechanism: Class Struggle

VARIABLES	Attack			$\ln Killings$		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. heterogeneous extensive margin						
L	0.018*** (0.007)	0.013* (0.007)	0.008 (0.008)	0.034*** (0.013)	0.022 (0.014)	0.019 (0.015)
$L \times dist_KMT$	-0.097*** (0.032)	-0.100*** (0.039)	-0.082** (0.038)	-0.136*** (0.051)	-0.138** (0.058)	-0.143** (0.068)
$dist_KMT$	0.023 (0.017)	-0.028 (0.031)	-0.071* (0.041)	0.077*** (0.028)	-0.016 (0.043)	-0.048 (0.061)
Observations	19,940	19,940	18,961	19,940	19,940	18,961
R-squared	0.012	0.023	0.060	0.008	0.020	0.059
Number of counties	627	627	596	627	627	596
Panel B. heterogeneous intensive margin						
L	-0.018 (0.014)	-0.026* (0.015)	-0.046*** (0.016)	-0.010 (0.026)	-0.024 (0.028)	-0.049 (0.032)
$L \times Gini$	0.107*** (0.032)	0.113*** (0.032)	0.156*** (0.036)	0.132** (0.056)	0.135** (0.056)	0.198*** (0.065)
$L \times Gini \times dist_KMT$	-0.379* (0.204)	-0.550*** (0.212)	-0.713*** (0.231)	-0.388 (0.356)	-0.585 (0.364)	-0.824* (0.426)
$L \times dist_KMT$	0.019 (0.113)	0.113 (0.120)	0.194 (0.124)	-0.040 (0.193)	0.075 (0.207)	0.162 (0.240)
$dist_KMT$	0.029* (0.016)	-0.047 (0.030)	-0.091** (0.040)	0.091*** (0.027)	-0.031 (0.042)	-0.060 (0.059)
Observations	19,829	19,829	18,850	19,829	19,829	18,850
R-squared	0.014	0.024	0.063	0.008	0.020	0.059
Number of Counties	624	624	593	624	624	593
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
$Region\ FE \times Month\ FE$	N	Y	Y	N	Y	Y
$Controls \times Month\ FE$	N	N	Y	N	N	Y

Notes: *Attack* denotes the number of attacks carried out by Homecoming Legions against each county in a given month. *lnKillings* is the natural logarithm of the number of individuals killed by these groups during such attacks. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

To evaluate this possibility, I draw on a 1944 survey conducted by the KMT government, which recorded both land area and land prices at the county level. Figure 9 illustrates the relationship between distance to KMT forces and land (value) per capita. While land per capita is positively correlated with distance, land value per capita shows a negative correlation. The results show that counties farther from KMT forces tended to have more land per capita, while those closer had higher land values per capita. This suggests that in distant regions, peasants may have expected to gain larger plots from redistribution, whereas in closer regions, they may have received smaller but more valuable parcels.

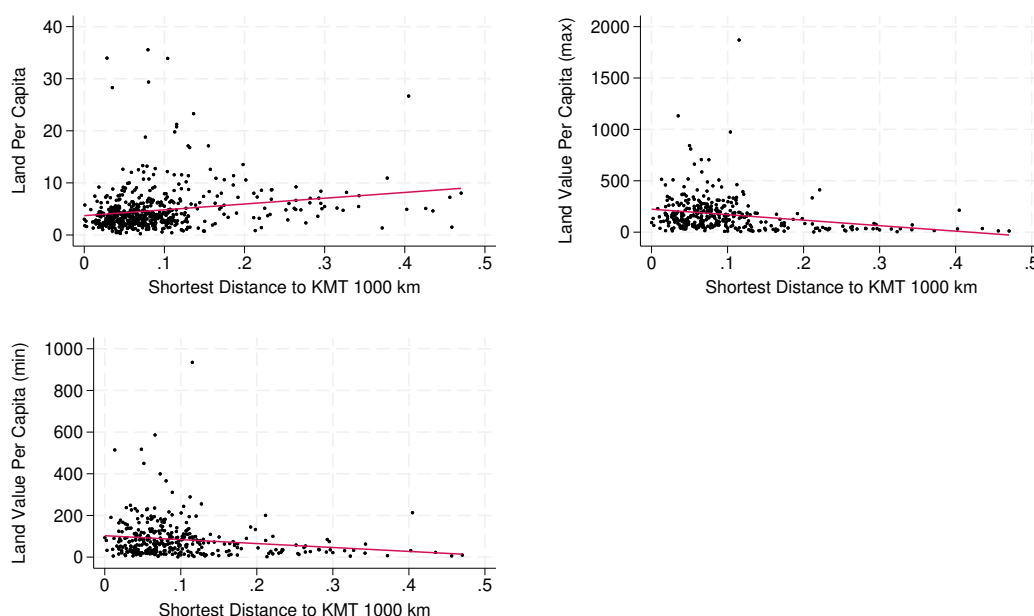


Figure 9: The Correlation between Land (value) Per Capita and Distance to KMT Forces (July 1948)

Notes: The figure illustrates the correlation between land (or land value) per capita and the distance to KMT forces as of July 1948. The top-left panel plots land per capita against distance. The top-right panel uses estimated land value per capita based on a higher valuation. The bottom panel also uses estimated land value per capita, but based on a more conservative (lower) valuation. The source is ([Kong 1944](#)).

To assess whether land endowment explains the main findings, I replace distance to KMT forces with land (value) per capita in the interaction terms of the main regressions reported in Table 9. In columns (1), (3), and (5), the extensive margin of land reform does not vary significantly with land or land value per capita. Similarly, column (2) shows no significant variation in the intensive margin when using land per capita. However, columns (4) and (6) indicate that the

intensive margin increases with land value per capita: the estimated heterogeneous effects are $-0.442 + 0.003 \times \text{land value}$ and $-0.396 + 0.004 \times \text{land value}$, respectively. These results imply that the intensive margin becomes positive only when land value per capita exceeds 147 or 99, suggesting that mobilization incentives increased when the absolute material gains from land reform were sufficiently large. Since land value per capita is negatively correlated with proximity to KMT forces, these findings partially serve as an explanation for the heterogeneous intensive margin of land reform on soldier deaths. Nonetheless, because land endowment does not vary over time, it cannot fully account for the dynamic patterns observed in the main results.

Table 9: Mechanism: Land Per Capita

VARIABLES	<i>lnSoldierDeath</i>					
	land		land value (high)		land value (low)	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.061 (0.039)	-0.014 (0.241)	0.053 (0.040)	0.338*** (0.079)	0.033 (0.039)	0.285*** (0.083)
<i>L × Gini</i>		0.415 (0.801)		-0.780*** (0.177)		-0.681*** (0.197)
<i>L × Gini × land per capita</i>		0.033 (0.048)		0.003*** (0.001)		0.004* (0.002)
<i>L × land per capita</i>	0.002 (0.005)	-0.015 (0.014)	0.000 (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.001* (0.001)
<i>dist_KMT</i>	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>Region FE × Month FE</i>	Y	Y	Y	Y	Y	Y
<i>Controls × Month FE</i>	Y	Y	Y	Y	Y	Y
Observations	17,891	9,350	11,009	11,009	11,009	11,009
R-squared	0.294	0.455	0.292	0.295	0.292	0.295
Number of id	566	592	344	344	344	344

Notes: The table reports whether the extensive and intensive margins vary with land (or land value) per capita. Columns (1) and (2) use land per capita as the measure of *land per capita*, while columns (3) and (4) use estimated land value per capita based on a higher valuation. Columns (5) and (6) apply a lower estimation of land value per capita. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

5.3 Alternative Explanation: Coercion

Another alternative hypothesis is that the CCP may have exerted more effort in counties closer to KMT forces. If true, soldiers from these counties may have been mobilized under coercion, leading to higher death tolls. Anecdotal evidence suggests that coercion during land reform was

often carried out by local CCP cadres. As [Hao et al. \(2025\)](#) documents, one of the key objectives of land reform was to expand CCP membership in order to strengthen the Party’s control at the local level. To evaluate this possibility, I compile county-level data on CCP membership from local gazetteers and use both the number of CCP members and their growth rate to proxy the intensity of CCP presence across regions. As shown in Fig. 10, CCP membership is negatively associated with distance to KMT forces, while its growth rate is positively correlated with distance—suggesting a greater CCP presence near the frontlines but faster expansion in more remote areas.

In Table 10, I replace distance to KMT forces with CCP membership and its growth rate in the interaction terms. Across columns (1), (3), and (5), the extensive margin of land reform does not vary significantly with either CCP membership or its growth. For the intensive margin, only column (4) shows a significant interaction: the estimated effect is $0.297 - 0.307 \times \text{CCP growth}$, which implies that the intensive margin becomes positive only when CCP yearly growth is below 97%. Given that CCP growth was generally lower in areas closer to KMT forces, this result may offer partial support for a coercion-based mechanism. However, since the effect is only observed in one specification and with marginal significance, coercion does not appear to be a primary driver of the patterns observed in the main analysis.

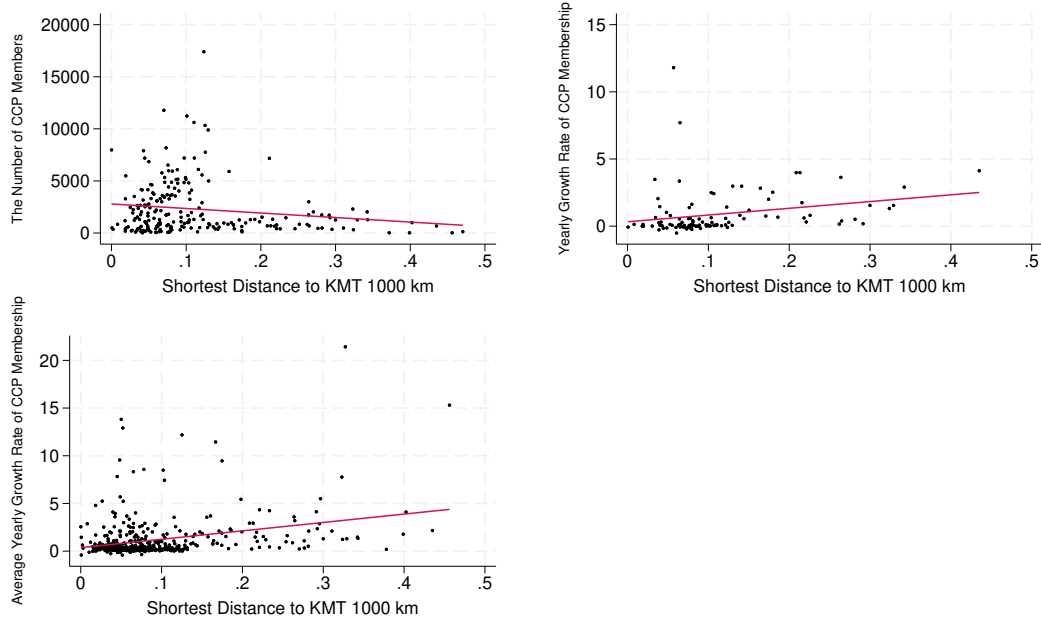


Figure 10: The Correlation between CCP Membership and Distance to KMT Forces (July 1948)

Notes: The figure illustrates the correlation between CCP membership and the distance to KMT forces as of July 1948. The top-left panel plots the CCP members against distance. The top-right panel uses the yearly growth rate of CCP membership. The bottom panel also uses the average growth rate of CCP membership from 1945 to 1949.

Table 10: Mechanism: Coercion

VARIABLES	<i>lnSoldierDeath</i>					
	CCP members		CCP growth (yearly)		CCP growth (average)	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.189 (0.155)	0.032 (0.864)	0.140* (0.078)	-0.193 (0.369)	0.035 (0.032)	0.068 (0.318)
<i>L × Gini</i>		-0.485 (2.114)		0.490 (1.273)		-0.277 (0.906)
<i>L × Gini × CCP</i>		0.049 (0.248)		-0.307* (0.164)		1.400 (0.932)
<i>L × CCP</i>	-0.015 (0.022)	0.014 (0.112)	-0.007 (0.012)	0.140* (0.080)	-0.010 (0.008)	-0.479 (0.392)
<i>dist_KMT</i>	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>Controls × Month FE</i>	Y	Y	Y	Y	Y	Y
<i>Prov FE × Month FE</i>	Y	Y	Y	Y	Y	Y
Observations	6,123	6,987	2,734	2,585	13,235	6,646
R-squared	0.325	0.397	0.343	0.437	0.304	0.477
Number of counties	405	554	145	193	402	422

Notes: The table examines whether the extensive and intensive margins of land reform vary with the level or growth of CCP membership. Columns (1) and (2) use the documented number of CCP members in each county by year. Columns (3) and (4) replace this with the annual growth rate of CCP membership. Columns (5) and (6) use the average growth rate of CCP membership from 1945 to 1949. The source are county gazetteers. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

6 Conclusion

How do authoritarian regimes overcome collective action problems and mobilize mass support? This paper investigates how the Chinese Communist Party (CCP) strategically employed land reform during the civil war to mobilize rural populations for military participation. Using soldier death records from CCP troops, I find that land reform significantly increased the extensive margin of mobilization. However, the intensive margin reveals important heterogeneity: in counties with more unequal land distribution, larger-scale redistribution raised the opportunity cost of enlistment and led to greater free-riding.

Crucially, the mobilizing effect of land reform was shaped by the threat of reprisal. In front-line counties near Kuomintang (KMT) forces—where landlords were more likely to return and retaliate—redistribution had a stronger impact on mobilization. These findings help explain why violent class struggle was not just an ideological tool but a necessary mechanism for wartime mobilization. More broadly, this study sheds light on how authoritarian regimes use redistribution to align mass participation with regime survival—a pattern that echoes across many social movements throughout the 20th century.

While this paper emphasizes the strategic function of redistribution during wartime, further research could explore how recipients perceived and internalized these policies: did land reform cultivate genuine ideological commitment, or was support largely instrumental and contingent? As more local archives and personal narratives become available, scholars will be better positioned to understand how state-led redistribution reshaped not only political and economic structures, but also cultural norms, social hierarchies, and belief systems.

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A Areas Controlled by the CCP and KMT, August 1945 – June 1946

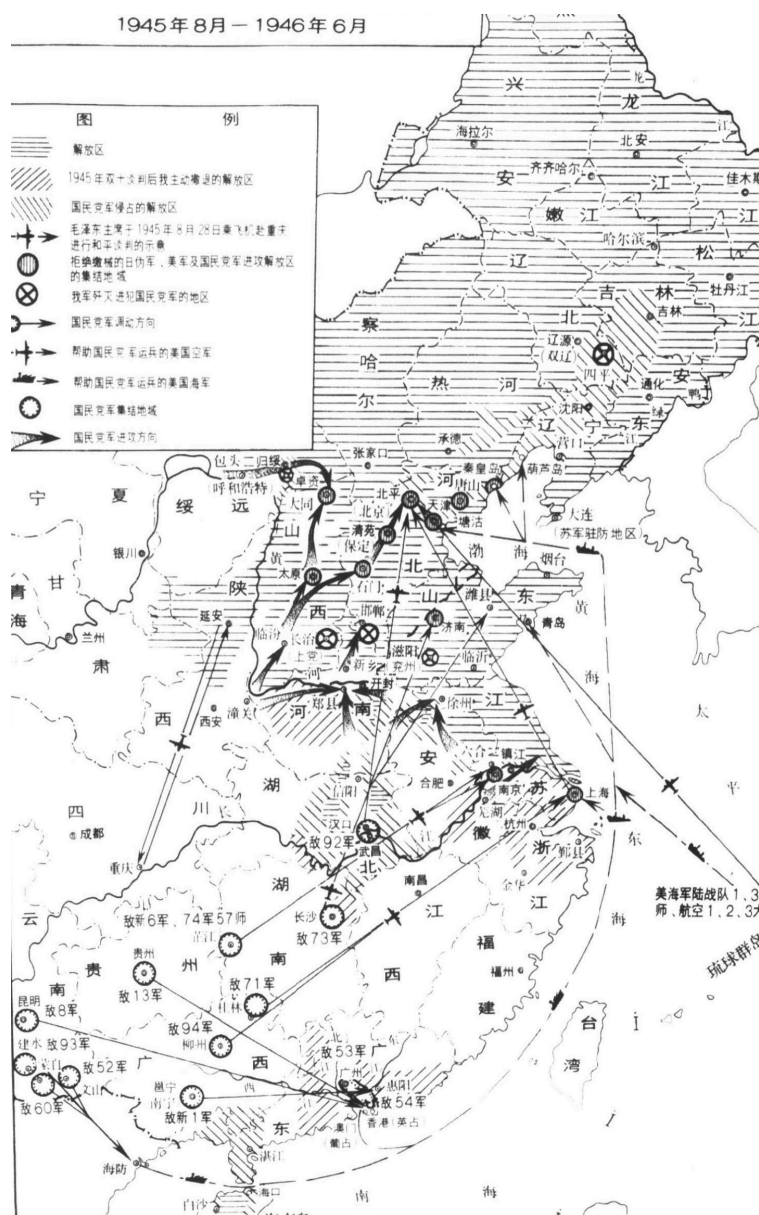


Figure A.1: Areas Controlled by the CCP and KMT, August 1945 – June 1946

Source: Editorial Committee of the Atlas of the 100 Years of the Communist Party of China. (2021). Atlas of the 100 Years of the Communist Party of China. China Cartographic Publishing House.

Notes: This map depicts the territorial divisions between the CCP and KMT as of August 1945 to June 1946. The shaded regions indicate areas under CCP control, while the unshaded (white) regions were held by the KMT. This division was largely shaped by the aftermath of World War II, during which Japan had occupied extensive areas of China. Following Japan's surrender, the KMT was unable to quickly reestablish control over northern and northeastern China due to the vast distances and logistical constraints, despite receiving assistance from the United States in transporting troops by ship to northern ports.

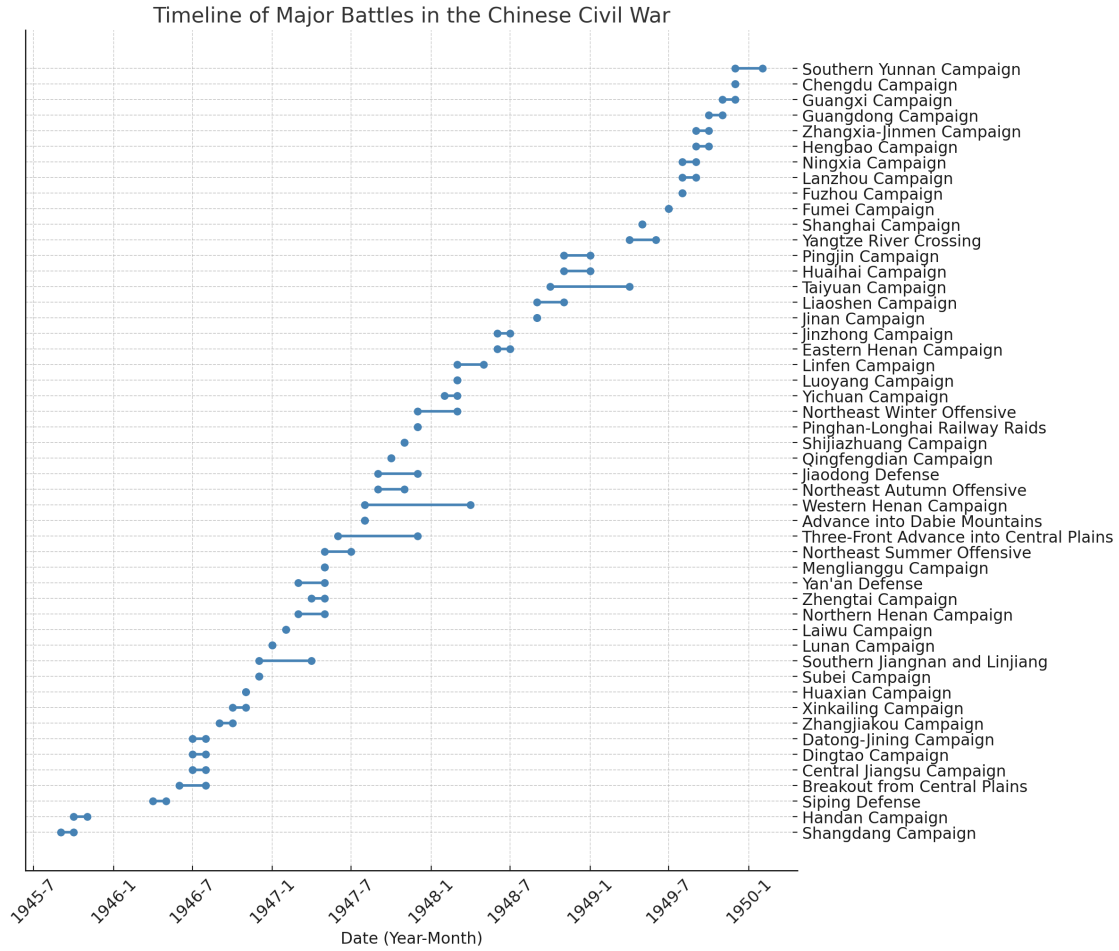


Figure A.2: Timeline of Battles in the Chinese Civil War

Notes: The figure presents a month-level timeline of major battles during the Chinese Civil War.

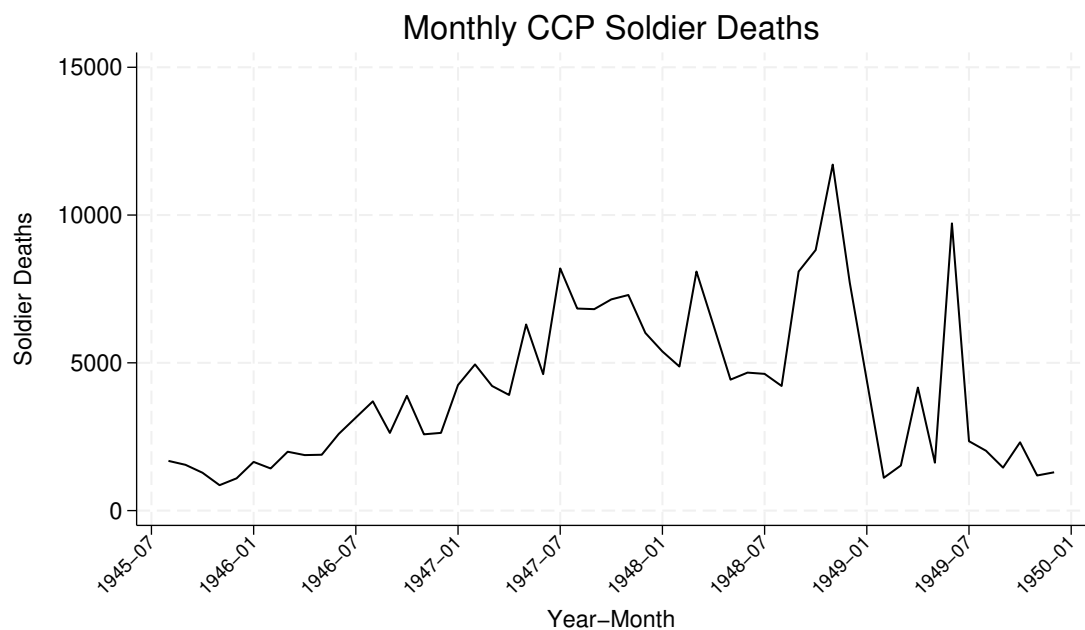


Figure A.3: The Monthly Death Records in the Chinese Civil War

Notes: The figure presents a month-level death records during the Chinese Civil War.

B Class Struggle In Wartime Rural Region

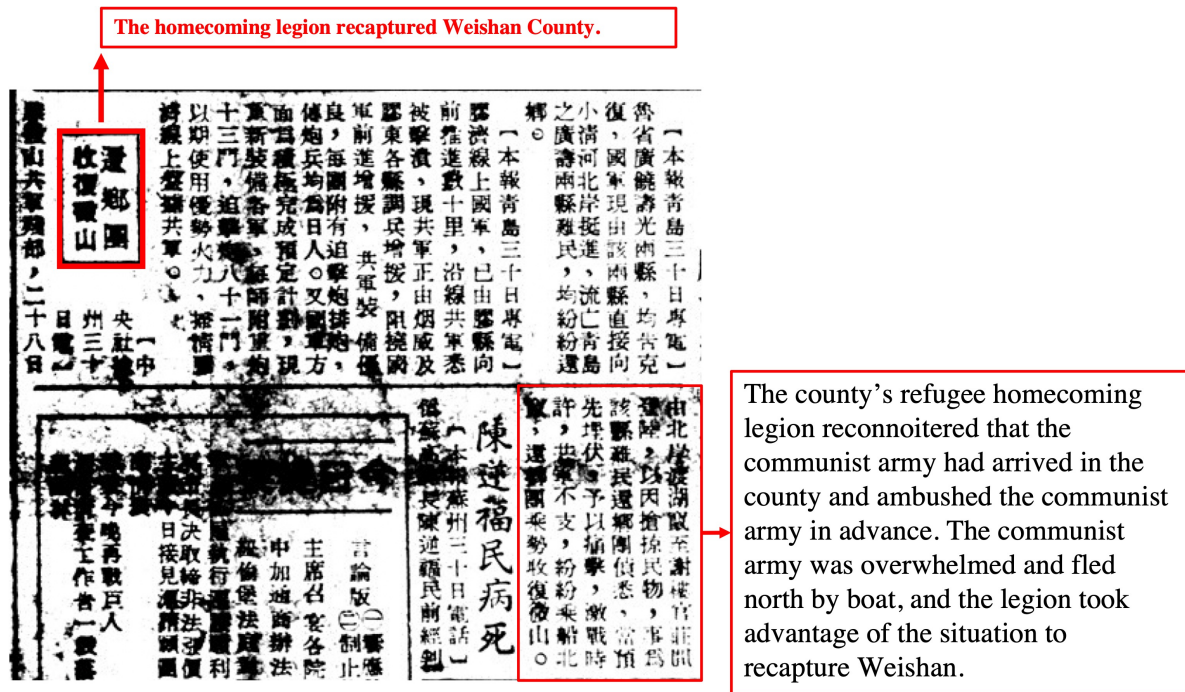


Figure B.1: The Homecoming Legion

Source: Xinwenbao, October 1, 1946.

Note: Although the newspaper report, published under KMT-controlled media, did not provide details on how returning landlords carried out reprisals against farmers and Communist supporters, other historical sources document widespread instances of mass killing.

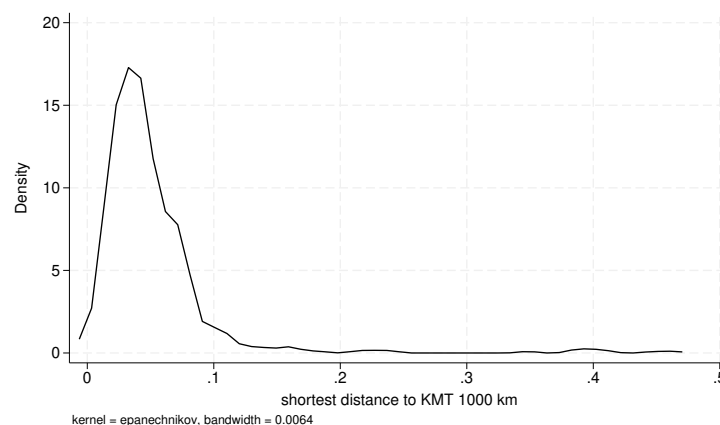


Figure B.2: The Kernel Density of Distance to KMT Forces when Homecoming Legions Attacked a County

Notes: The figure displays the kernel density of distance to KMT forces in months when Homecoming Legions attacked a county.

Table B1: Correlation Between Distance to KMT Forces and Homecoming Legions' Attacks

VARIABLES	(1) Attacks by Homecoming Legions	(2)	(3)
Distance to KMT	0.029* (0.016)	-0.076** (0.033)	-0.089** (0.042)
County FE	Y	Y	Y
Month FE	Y	Y	Y
Controls $\times$ Month FE	N	Y	Y
Region FE $\times$ Month FE	N	N	Y
Observations	19,940	18,961	18,961
R-squared	0.012	0.052	0.060
Number of Counties	627	596	596

Notes: The table reports regression results examining the relationship between attacks by Homecoming Legions and distance to KMT forces. Column (3) shows a significant negative correlation, suggesting that such attacks were more likely to occur in counties closer to KMT military positions. This implies that Homecoming Legions could only carry out counterattacks in coordination with nearby KMT forces.

C Heterogeneous Extensive and Intensive Margins

Table C1: Heterogeneous Extensive Margin by The Population Share of Class

VARIABLES	<i>lnSoldierDeath</i>			
	(1)	(2)	(3)	(4)
<i>L</i>	0.154*** (0.042)	0.137*** (0.050)	0.083 (0.072)	-0.061 (0.105)
<i>L</i> $\times$ <i>Landlord</i>	-1.705*** (0.654)			
<i>L</i> $\times$ <i>Rich Peasants</i>		-1.034* (0.608)		
<i>L</i> $\times$ <i>Middle Pesants</i>			-0.038 (0.188)	
<i>L</i> $\times$ <i>Poor Peasants</i>				0.245 (0.193)
County FE	Y	Y	Y	Y
Month FE	Y	Y	Y	Y
<i>RegionFE</i> $\times$ <i>MonthFE</i>	Y	Y	Y	Y
<i>Controls</i> $\times$ <i>MonthFE</i>	Y	Y	Y	Y
Observations	18,850	18,850	18,850	18,850
R-squared	0.291	0.291	0.291	0.291
Number of counties	593	593	593	593

Notes: The table reports the heterogeneous effects of land reform on the extensive margin of soldier deaths, conditional on class population shares. *L* is equal to 1 after land reform was launched in a county. *Landlord*, *Rich Pesants*, *Middle Peasants*, and *Poor Peasants* represent the population share of each respective class.

Table C2: Heterogenous Extensive and Intensive Margins: the Role of Class Struggle in War Mobilization (all counties)

VARIABLES	<i>lnSoldierDeath</i>					
	Heterogenous Extensive Margin			Heterogenous Intensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.468*** (0.024)	0.436*** (0.027)	0.338*** (0.032)	0.377*** (0.054)	0.397*** (0.057)	0.264*** (0.064)
<i>L × Gini</i>				0.154 (0.129)	0.001 (0.128)	0.135 (0.149)
<i>L × Gini × dist_KMT</i>				-2.384*** (0.743)	-2.221*** (0.780)	-2.219** (0.908)
<i>L × dist_KMT</i>	-1.202*** (0.142)	-1.616*** (0.183)	-1.223*** (0.201)	0.360 (0.507)	-0.018 (0.545)	0.142 (0.573)
<i>dist_KMT</i>	-0.235*** (0.046)	0.029 (0.044)	0.099* (0.057)	-0.247*** (0.045)	0.011 (0.043)	0.086 (0.057)
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>RegionFE × MonthFE</i>	N	Y	Y	N	Y	Y
<i>Controls × MonthFE</i>	N	N	Y	N	N	Y
Observations	81,363	81,363	74,703	81,363	81,363	74,703
R-squared	0.103	0.140	0.176	0.104	0.141	0.176
Number of counties	2,199	2,199	2,019	2,199	2,199	2,019

Notes: The table reports the heterogeneous extensive and intensive margins of land reform on CCP soldier deaths. The dataset is a balanced panel of 2,200 counties spanning from August 1945 to August 1948. The variable *dist_KMT* denotes the shortest distance between a county and the nearest KMT forces in each month. For the newly introduced counties, *L* is 0 because land reform was implemented only after the war ended. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

Table C3: Heterogeneous Extensive Margin by Distance to KMT Forces

VARIABLES	<i>lnSoldierDeath</i>		
	(1)	(2)	(3)
<i>L</i>	0.273*** (0.084)	-0.046 (0.095)	-0.113 (0.093)
<i>L</i> ×			
10km < <i>dist_KMT</i> < 20km	0.265** (0.113)	0.188 (0.118)	0.255** (0.113)
20km < <i>dist_KMT</i> < 30km	0.211** (0.097)	0.156 (0.102)	0.201** (0.100)
30km < <i>dist_KMT</i> < 40km	0.288*** (0.100)	0.236** (0.107)	0.290*** (0.103)
40km < <i>dist_KMT</i> < 50km	0.177* (0.098)	0.087 (0.104)	0.178* (0.101)
50km < <i>dist_KMT</i> < 60km	0.210** (0.094)	0.118 (0.101)	0.162 (0.100)
60km < <i>dist_KMT</i> < 70km	0.306*** (0.101)	0.178 (0.110)	0.225** (0.109)
70km < <i>dist_KMT</i> < 80km	0.191* (0.102)	0.131 (0.106)	0.198* (0.106)
80km < <i>dist_KMT</i> < 90km	0.273** (0.122)	0.164 (0.115)	0.204* (0.121)
90km < <i>dist_KMT</i> < 100km	0.232* (0.128)	0.137 (0.124)	0.170 (0.131)
100km < <i>dist_KMT</i> < 110km	0.307** (0.146)	0.157 (0.140)	0.108 (0.130)
110km < <i>dist_KMT</i> < 120km	0.487*** (0.146)	0.425*** (0.131)	0.368*** (0.136)
120km < <i>dist_KMT</i> < 130km	0.520*** (0.162)	0.385** (0.153)	0.275** (0.140)
130km < <i>dist_KMT</i> < 140km	0.174 (0.153)	0.105 (0.137)	0.145 (0.135)
140km < <i>dist_KMT</i> < 150km	0.490*** (0.182)	0.327** (0.156)	0.318** (0.150)
150km < <i>dist_KMT</i> < 160km	0.214 (0.165)	0.086 (0.163)	0.013 (0.128)
160km < <i>dist_KMT</i> < 170km	0.281 (0.177)	0.131 (0.160)	0.110 (0.158)
170km < <i>dist_KMT</i> < 180km	0.373** (0.163)	0.089 (0.163)	0.144 (0.181)
180km < <i>dist_KMT</i> < 190km	-0.055 (0.152)	-0.073 (0.151)	0.042 (0.153)
190km < <i>dist_KMT</i> < 200km	0.227 (0.141)	0.020 (0.164)	0.168 (0.144)
200km < <i>dist_KMT</i> < 210km	0.248 (0.167)	0.255 (0.183)	0.370* (0.196)
210km < <i>dist_KMT</i> < 220km	0.218 (0.176)	0.054 (0.151)	0.053 (0.154)
220km < <i>dist_KMT</i> < 230km	0.192 (0.176)	0.049 (0.140)	0.074 (0.175)
230km < <i>dist_KMT</i> < 240km	0.029 (0.160)	-0.097 (0.148)	-0.090 (0.162)
240km < <i>dist_KMT</i> < 250km	0.050 (0.270)	0.001 (0.235)	-0.084 (0.227)
250km < <i>dist_KMT</i>	0.141 (0.110)	-0.163 (0.117)	-0.017 (0.110)
County FE	Y	Y	Y
Month FE	Y	Y	Y
<i>RegionFE</i> × <i>MonthFE</i>	N	Y	Y
<i>Controls</i> × <i>MonthFE</i>	N	N	Y
Observations	19,940	19,940	18,961
R-squared	0.120	0.246	0.297
Number of id	627	627	596

Notes: The table shows the coefficients from the interaction between the land reform dummy and distance-to-KMT-forces dummies, where distance is grouped in 10 km intervals.

Table C4: Heterogeneous Intensive Margin by Distance to KMT Forces

VARIABLES	<i>lnSoldierDeath</i>		
	(1)	(2)	(3)
<i>L</i>	0.369*** (0.063)	0.056 (0.063)	0.047 (0.062)
<i>L</i> $\times$ <i>dist_KMT</i>	2.180*** (0.484)	1.091** (0.431)	0.699* (0.400)
<i>L</i> $\times$ <i>Gini</i>	-0.292 (0.288)	-0.254 (0.299)	-0.453 (0.288)
<i>L</i> $\times$ <i>Gini</i> $\times$ 10km < <i>dist_KMT</i> < 20km	0.865** (0.345)	0.655* (0.342)	0.870*** (0.305)
20km < <i>dist_KMT</i> < 30km	0.682** (0.276)	0.513* (0.280)	0.656** (0.261)
30km < <i>dist_KMT</i> < 40km	0.648** (0.280)	0.530* (0.292)	0.718*** (0.268)
40km < <i>dist_KMT</i> < 50km	0.207 (0.273)	0.022 (0.281)	0.376 (0.264)
50km < <i>dist_KMT</i> < 60km	0.394 (0.266)	0.208 (0.283)	0.499* (0.266)
60km < <i>dist_KMT</i> < 70km	0.430 (0.281)	0.244 (0.295)	0.487* (0.293)
70km < <i>dist_KMT</i> < 80km	0.027 (0.287)	0.093 (0.292)	0.387 (0.284)
80km < <i>dist_KMT</i> < 90km	0.187 (0.300)	0.199 (0.305)	0.526 (0.324)
90km < <i>dist_KMT</i> < 100km	0.039 (0.327)	0.120 (0.315)	0.492 (0.343)
100km < <i>dist_KMT</i> < 110km	0.293 (0.368)	0.193 (0.350)	0.224 (0.329)
110km < <i>dist_KMT</i> < 120km	0.088 (0.308)	0.199 (0.318)	0.289 (0.348)
120km < <i>dist_KMT</i> < 130km	0.303 (0.372)	0.239 (0.358)	0.221 (0.358)
130km < <i>dist_KMT</i> < 140km	-0.093 (0.320)	0.010 (0.321)	0.281 (0.305)
140km < <i>dist_KMT</i> < 150km	0.546 (0.406)	0.445 (0.362)	0.631* (0.376)
150km < <i>dist_KMT</i> < 160km	-0.104 (0.374)	-0.006 (0.386)	-0.057 (0.328)
160km < <i>dist_KMT</i> < 170km	-0.025 (0.325)	-0.041 (0.334)	0.167 (0.320)
170km < <i>dist_KMT</i> < 180km	-0.049 (0.363)	-0.231 (0.372)	0.093 (0.380)
180km < <i>dist_KMT</i> < 190km	-0.520 (0.427)	-0.298 (0.401)	0.128 (0.353)
190km < <i>dist_KMT</i> < 200km	-0.173 (0.337)	-0.191 (0.373)	0.170 (0.340)
200km < <i>dist_KMT</i> < 210km	-0.162 (0.336)	0.060 (0.343)	0.474 (0.368)
210km < <i>dist_KMT</i> < 220km	-0.235 (0.372)	-0.157 (0.362)	0.018 (0.342)
220km < <i>dist_KMT</i> < 230km	-0.431 (0.331)	-0.232 (0.325)	-0.019 (0.341)
230km < <i>dist_KMT</i> < 240km	-0.844** (0.393)	-0.614 (0.375)	-0.300 (0.378)
240km < <i>dist_KMT</i> < 250km	-0.639 (0.437)	-0.439 (0.422)	-0.290 (0.405)
250km < <i>dist_KMT</i>	-0.788** (0.374)	-0.769** (0.368)	-0.239 (0.351)
County FE	Y	Y	Y
Month FE	Y	Y	Y
<i>RegionFE</i> $\times$ <i>MonthFE</i>	N	Y	Y
<i>Controls</i> $\times$ <i>MonthFE</i>	N	N	Y
Observations	19,940	19,940	18,961
R-squared	0.120	0.246	0.297
Number of id	627	627	596

Notes: The table shows the coefficients from the interaction between the land reform dummy, pre-reform Gini and distance-to-KMT-forces dummies, where distance is grouped in 10 km intervals.

Table C5: Heterogenous Extensive and Intensive Margins After August 1948

VARIABLES	<i>lnSoldierDeath</i>					
	Heterogenous Extensive Margin			Heterogenous Intensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>L</i>	0.216** (0.105)	0.177* (0.104)	0.133 (0.109)	0.136 (0.145)	0.097 (0.153)	-0.022 (0.175)
<i>L</i> $\times$ <i>Gini</i>				0.242 (0.362)	0.219 (0.355)	0.510 (0.496)
<i>L</i> $\times$ <i>Gini</i> $\times$ <i>dist_KMT</i>				0.941*** (0.194)	0.878*** (0.207)	0.587** (0.234)
<i>L</i> $\times$ <i>dist_KMT</i>	-0.545 (0.494)	-0.239 (0.472)	-0.271 (0.412)	-1.026** (0.515)	-0.674 (0.492)	-0.550 (0.442)
<i>dist_KMT</i>	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>RegionFE</i> $\times$ <i>MonthFE</i>	N	Y	Y	N	Y	Y
<i>Controls</i> $\times$ <i>MonthFE</i>	N	N	Y	N	N	Y
Observations	10,464	10,464	9,968	10,416	10,416	9,920
R-squared	0.282	0.408	0.451	0.286	0.412	0.453
Number of counties	664	664	633	661	661	630

Notes: The table reports the heterogeneous extensive and intensive margins of land reform on CCP soldier deaths after August 1948. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

Table C6: The Extensive and Intensive Margins of Land Reform on Homecoming Legion Attacks

VARIABLES	Attack			<i>lnKillings</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Extensive Margin						
Double Robust (ATT)						
<i>L</i>	-0.0152 (0.0149)	-0.0126 (0.0161)	-0.0330** (0.0165)	-0.001 (0.020)	0.003 (0.029)	-0.050 (0.035)
TWFE						
<i>L</i>	0.010* (0.005)	0.004 (0.006)	0.001 (0.006)	0.023** (0.010)	0.010 (0.011)	0.007 (0.012)
Observations	19,940	19,940	18,961	19,940	19,940	18,961
R-squared	0.012	0.022	0.060	0.008	0.020	0.059
Number of id	627	627	596	627	627	596
Panel B. Intensive Margin						
<i>L</i>	-0.002 (0.009)	-0.008 (0.009)	-0.021* (0.011)	0.009 (0.016)	-0.006 (0.018)	-0.022 (0.021)
<i>L</i> $\times$ <i>Gini</i>	0.031** (0.015)	0.032** (0.015)	0.061*** (0.020)	0.037 (0.025)	0.041 (0.026)	0.077** (0.035)
Observations	19,829	19,829	18,850	19,829	19,829	18,850
R-squared	0.012	0.022	0.061	0.008	0.020	0.059
Number of id	624	624	593	624	624	593
County FE	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y
<i>Region FE</i> $\times$ <i>Month FE</i>	N	Y	Y	N	Y	Y
<i>Controls</i> $\times$ <i>Month FE</i>	N	N	Y	N	N	Y

Notes: *Attack* denotes the number of attacks carried out by Homecoming Legions against each county in a given month. *lnKillings* is the natural logarithm of the number of individuals killed by these groups during such attacks. Panel A reports results from two specifications: a doubly robust estimator and a two-way fixed effects model. Panel B presents results using only the two-way fixed effects specification. Control variables include population, land area, distance to major rivers, capital county status, trade center status, presence of modern industrial firms, newspapers, student population, guerrilla bases, treaty port proximity, distance to Soviet countries, clan presence, weather conditions, and crop suitability. Standard errors are clustered at the county level. * Significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level.

D Correlation Between Pre-reform Gini Coefficients And Land Transfer

The ideal measure of benefits to farmers—including middle peasants, poor peasants, and landless peasants—during the land reform is the share of agricultural land they gained, expressed as a percentage of total agricultural land. However, this variable is available in only 95 county gazetteers. As an alternative, I use the pre-reform Gini coefficient of land ownership as a proxy for potential land gain, which is available for 182 counties. Since the goal of land reform was to equalize landholdings across social classes, a higher pre-reform Gini implies greater inequality—and therefore a greater scope for redistribution from landlords and rich peasants to other farmers.

The figure below illustrates the relationship between actual land gain and the pre-reform Gini coefficient. The fitted line closely aligns with the 45-degree line, indicating a strong positive correlation (correlation coefficient = 0.72).

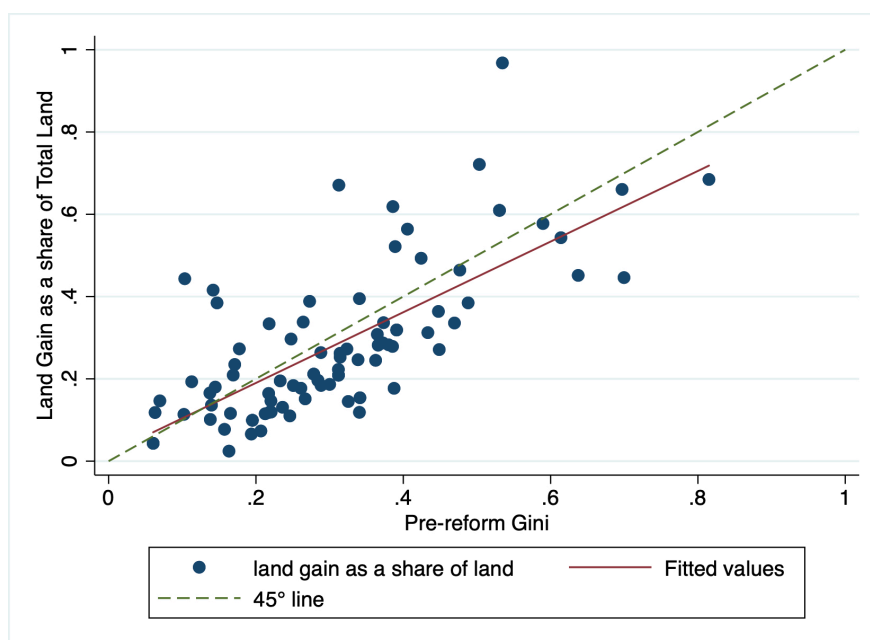


Figure D.1: The Correlation between Land Gain of Farmers and Pre-reform Gini in Land Ownership

Source: County gazetteers.

E Land Distribution in Early Twentieth-century China

Land inequality in early twentieth-century China has remained a controversial topic. Given the CCP's emphasis on class struggle, the bulk of land ownership statistics were classified according to social classes based on land holdings: landlord, rich farmer, middle farmer, poor farmer, and landless farmer. For propaganda purposes, the CCP claimed that the landlords and the rich farmers, who accounted for 10% of the population, held 70% to 80% of China's land (Mao 1947; Liu 1950). This official assertion had become standard in Chinese Communist publications and was cited elsewhere (Hinton 1966), while the original source remained unknown.⁸ According to the 1949–1952 Land Census, landlords and rich farmers accounted for 9.4 percent of the population while controlling 51.9 percent of land prior to the land reform (Chinese Academy of Social Sciences 1991). However, studies by historians demonstrated that the CCP exaggerated the concentration in land ownership. Long and He (2018) determined, based on land census data from each province, that the proportion of land held by landlords and rich farmers was 30% in southern provinces but substantially lower in northern regions.

Eralier in 1930s, massive land surveys had been conducted by scholars and the KMT government (Buck 1937; for more, see the review by Esherick (1981)). All of the statistics for the 1930s divide farmers into owner-cultivators, tenants, and owner-tenants (tenants who also own and cultivate some land of their own). Of these surveys, Buck's was independent conducted and thus faithful. According to Buck's survey, the share of owner-cultivator, tenant households and owner-tenant was 44%, 33% and 23%, implying that at least 67% farmers had their own land.⁹ Land surveys conducted by the KMT government and other scholars between 1918 and 1937 show similar percentages (Perkins 1969; Esherick 1981).

Additionally, historians discover that there was no tendency toward concentration in terms of land ownership. Mayers (1970) examined land distribution in villages in Hebei and Shandong from 1880 to 1937 and discovered that land distribution either stayed relatively steady or became more equal. Li (1933) conducted a survey in Dingxian county, Hebei province, which matches up the pattern of dispersion.

In a word, most studies support that rural China in early twentieth century consisted of “a multitude of smallholders whose relative fortunes were constantly rising and falling; a society in which the typical landlord owned only a few acres more than his poorest neighbours (Elvin, 1973).”

⁸The numbers could be traced back to estimates made by the Land Commission of the 1927 Wuhan Nationalist (KMT) Government, in which Mao Zedong was the leader.

⁹The data derives from his agriculture survey. Based on his farm survey, the three shares were 54%, 17%, and 29%, implying that 83% farmers had their own land. Buck's data had a bias in the direction of wealthier households since the survey was conducted by his students in their hometowns, who were from a small sample of rich households in China.

F Locations of KMT Military Forces

The map below illustrates the shifting positions of the KMT's armed troops. Zhang and Liu (2007) collected the locations of the KMT's one hundred corps (Jun). When Japan proclaimed its surrender in August 1945, the KMT forces were concentrated in the southwest. The US lent its ships and planes to assist the KMT in transporting its soldiers to North China and Manchuria. The distribution of the KMT's forces remained relatively stable until January 1949, when the CCP's army crushed all forces in the North. By the end of 1949, the KMT's mainland forces had been eliminated or expelled to Taiwan and Myanmar.

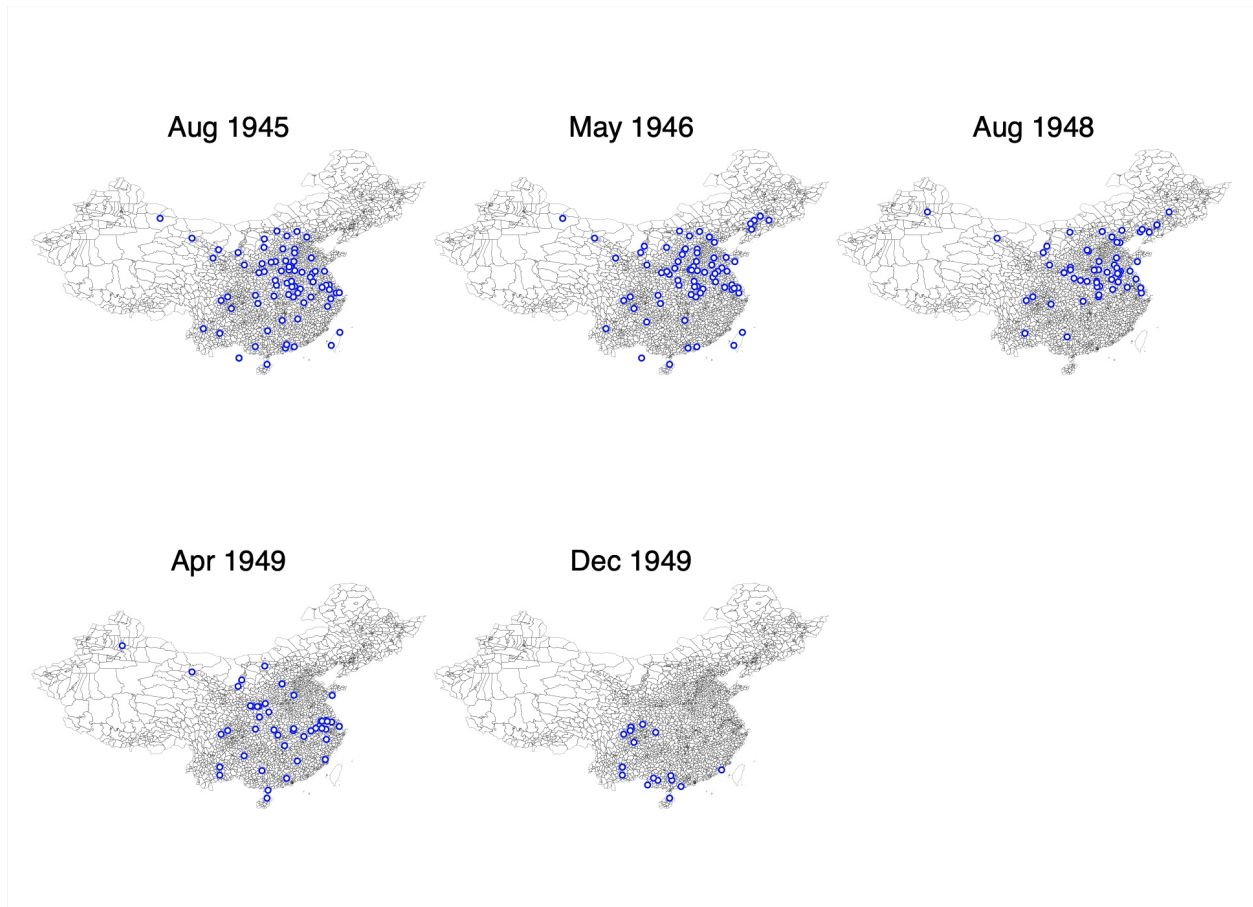


Figure F.1: Distribution of KMT Military Forces

Source: Zhang and Liu 2007.

The march of four KMT corps is depicted on the map below. For example, the New 6th Corps was stationed in Nanjing in August 1945 and moved to Shenyang in February 1946. Finally, it was destroyed in Heishan County in October 1948, at the end of the Liaoshen campaign.

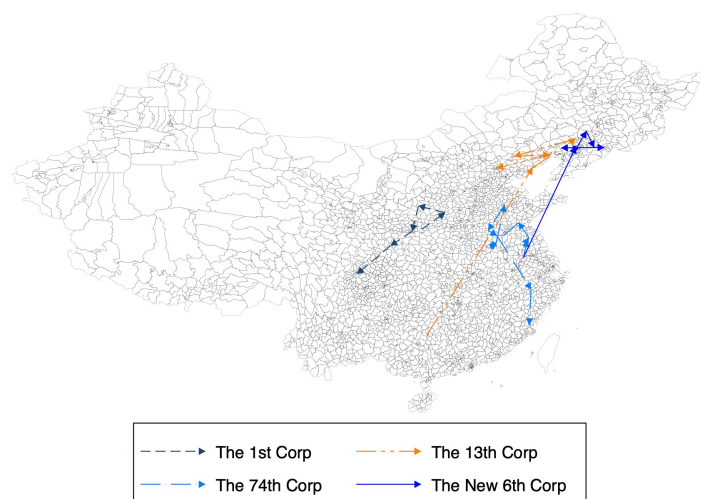


Figure F.2: March of Four KMT Corps

Source: Zhang and Liu 2007.

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