Ideology, Revolutionary Redistribution, and Mobilization in Civil War

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Abstract

Armed groups frequently intervene in civilian life during civil war, but the consequences of such interventions for their military mobilization remain poorly understood. We argue that revolutionary social intervention, when driven by a radical ideology, induces a trade-off for armed groups in military mobilization. While radical social intervention effectively mobilizes ideologically congruent supporters, it imposes significant costs on the broader population and discourages their participation in the revolutionary army. We illustrate this argument with evidence from the Chinese Civil War (1946-1949), focusing on how revolutionary land reform by the Chinese Communist Party (CCP) affected its wartime military mobilization. Leveraging a novel dataset on about 220,000 martyred CCP soldiers, we estimate how land reform affected the CCP's recruitment of soldiers and their battle death rates with a difference-in-differences design. We find a substantial decrease in the CCP's recruitment of new soldiers after land reform, consistent with historical accounts emphasizing the campaign's extensive victimization of civilians. Additionally, we find that soldiers who enlisted after land reform died at significantly higher rates, suggesting that the campaign drew more ideologically committed recruits with greater combat motivation into the CCP's army. Our findings shed new light on how ideology shapes mobilization outcomes in civil war.

Keywords: land reform, military mobilization, civil war, social revolution

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1 Introduction

Many civil wars last for years or even decades. The dynamics of civil war are shaped not only by military actions but also by the interaction between military groups and civilians. Growing research has investigated rebel actions to intervene in civilian life during civil war, with extensive discussions on their origins (Arjona 2016; Grynkewich 2008; Huang 2016; Mampilly 2011; Stewart 2018, 2021; Weinstein 2007). However, less is known about the military consequences of rebel social interventions. Because many rebel groups depend on local populations for key military resources, the degree of civilian cooperation is consequential for their military survival. How do rebel actions to intervene in civilian life affect their extraction of military resources from the civilian population?

A general perspective in the literature holds that rebel interventions into civilian life are meant to gain civilian support, which in turn expands military resources available to rebel groups (Grynkewich 2008; Huang 2016; Mampilly 2011; Migdal 1975). However, many rebel groups carry out interventions that are not well received by the population under their control. Indeed, rebel groups driven by radical ideologies or transformative goals tend to impose unpopular interventions backed by coercion (Keister and Slantchev 2014; Stewart 2021). Such interventions have ambiguous impacts on rebel military mobilization since they have varied appeals across different segments of the civilian population. Their consequences are further complicated by rebel groups' use of violence during implementation, which in theory can both extract obedience and provoke adversarial actions (Kalyvas 2006; Lichbach 1987; Rozenas and Zhukov 2019).

We propose a simple framework to understand the impacts of radical social interventions on rebel groups' military mobilization, building on the literature that emphasizes the ideological dimension of rebel behavior (Balcells and Kalyvas 2025; Keister and Slantchev 2014; Sanín and Wood 2014; Walter 2017; Weinstein 2007). Ideology-driven policies are effective at mobilizing ideologically congruent supporters, encouraging their participation and sacrifice for the rebel's cause (Abramson and Qiu 2025; Oppenheim et al. 2015; Ugarriza and Craig 2013). Variation in the guiding ideology of a rebel group shapes the breadth of the population it can potentially appeal to. Radical rebel groups, often surviving on the support of a radical civilian minority, tend to pursue ideological objectives that diverge markedly from the preferences of the broader civilian

population (Keister and Slantchev 2014; Walter 2017). Such groups also tend to advocate violence as a necessary means of achieving their revolutionary objectives (Balcells and Kalyvas 2025; Stewart 2021).[1]

The radical and violent social interventions of rebel groups, despite their strong appeal to extremist supporters, may discourage participation in rebel armies among the moderate civilian majority. We argue that rebel groups adhering to extreme ideologies face a trade-off between mobilizing only radical supporters and maintaining broader civilian participation. This trade-off implies a selection effect of radical social interventions on rebel military recruitment: while they drive away ideologically incongruent individuals and thus limit the breadth of recruitment, they disproportionately attract radical individuals who are highly motivated in combat.

We illustrate this argument with evidence from the Chinese Civil War (1946–1949), a classic case of ideologically driven conflict. During this war, the Chinese Communist Party (CCP), guided by a Marxist-Leninist ideology, pursued radical social transformation under wartime conditions. We focus on the consequences of the CCP's revolutionary land reform, conventionally viewed as a mobilization strategy to expand support among the rural population (Skocpol 1979, 262). However, growing historical research suggests that the goals of the CCP's land reform fundamentally diverged from the rural social conditions (Huang 1995; Opper 2020; Pepper 1999; Westad 2003). The CCP pursued not only radical redistributive policies in areas with limited landholding inequality, but also violent class struggle through land reform, resulting in the widespread victimization of civilians. While this social revolution may have attracted ideologically aligned individuals to the CCP's army through ideological appeals, it likely also terrorized a far broader rural population, discouraging their participation.

We draw on newly digitized historical data to investigate the effect of land reform on the CCP's military mobilization during the civil war. We digitize an original dataset covering about 220,000 CCP martyrs from county gazetteers, including their locations and dates of joining the CCP's army. We construct a county-year panel counting martyred soldiers who joined the CCP's army from each county in each year, which serves as a proxy for the CCP's soldier recruitment. Comparing county-level soldier recruitment before and after land reform with a difference-in-differences design, we

[1] Our conceptualization of radical ideology concerns both the divergence between rebel and civilian preferences and whether it justifies violence against civilian enemies. We consider an ideology as radical when its objectives diverge significantly from the majority preferences of civilians and when it advocates violence against civilian enemies.

find that the CCP's wartime land reform had a substantial negative effect on its soldier recruitment. The difference-in-differences estimate shows a 31-41% decrease in new recruits after land reform. On the other hand, we find that soldiers who joined the CCP's army after land reform exhibited significantly higher mortality rates, a pattern that holds even when we compare soldiers who died on the same battlefield.

We discuss and evaluate potential explanations for the empirical results, including civilian victimization in land reform, rising opportunity costs to enlist, and strategic deployment of soldiers. We present suggestive evidence showing that the negative effect of land reform on soldier recruitment was likely driven by civilian victimization. On the other hand, while land reform might have increased the opportunity costs for civilians to join the CCP's army, we find that changes in opportunity costs cannot account for the estimated effect of land reform on soldier recruitment. Additionally, we find no significant difference in deployment patterns between soldiers who enlisted before and after land reform, suggesting that the effect of land reform on soldier death rates was not driven by strategic deployment. A more plausible explanation is that land reform amplified selective recruitment, drawing in more ideologically committed soldiers who were willing to fight and die for the cause.

By investigating the consequences of the CCP's wartime land reform, this study illustrates a potential trade-off for revolutionary organizations when they pursue ideologically extreme objectives. While prioritizing revolutionary ideals and inflicting violent disruptions on the civilian population may limit the breadth of support, moderating these commitments risks alienating core supporters. This trade-off between ideology and recruitment size departs from the conventional assumption that rebel behavior follows the simple logic of maximizing civilian support. By showing that radical ideology can simultaneously strengthen and limit mobilization, our findings offer new insights into how rebel groups' strategic choices shape their military capacity in civil war.

This study contributes to the growing literature focusing on the effects of land reform on civil conflicts (Albertus 2020; Albertus et al. 2018; Albertus and Kaplan 2013; Domenech and Herreros 2017; Keels and Mason 2019; Mason 1998). Our focus on revolutionary land reform complements existing research on state-led land reform, which is often adopted as a counterinsurgency strategy. Departing from conventional explanations that focus on opportunity costs, we identify additional mechanisms through which land reform shapes civilian participation in conflict. Moreover, our

emphasis on ideology complements existing theories that focus on inequality as the driver of redistributive mobilization in civil war (Moore 1966; Paige 1975; Wickham-Crowley 1992).

2 Ideology and mobilization in civil war

2.1 Ideology and revolutionary social intervention

Rebel actions to intervene in civilian life are often viewed as strategic behavior intended to maximize civilian support. From this perspective, the interaction between rebel groups and civilians is expected to enhance their legitimacy, generate greater civilian cooperation, and expand the military resources available to them (Grynkewich 2008; Huang 2016; Mampilly 2011; Migdal 1975). This characterization of rebel behavior, however, cannot explain the variety of unpopular and coercive social interventions undertaken by rebel groups. Rebel groups driven by a revolutionary agenda often seek to redefine local social order and norms, even at the cost of civilian support (Kalyvas 2006, 147).

The interventions a rebel group pursues and its approach to implementation are often driven by ideology (Arjona 2016; Furlan 2023; Suykens 2015). A rebel group's ideology consists of a set of ideas that identify the group's constituency, objectives, and the actions it plans to take to achieve them (Sanín and Wood 2014). To understand how ideology shapes rebel behavior and civilian responses, we consider two aspects of ideology. The first aspect concerns the degree to which the objective of a rebel group aligns with the preferences of the civilian majority (Keister and Slantchev 2014; Walter 2017). A moderate rebel ideology typically outlines objectives that are in line with the preferences of the population majority. In contrast, a radical ideology deviates significantly from the preferences of the majority, appealing instead to a narrow segment of the population.

The other aspect of rebel ideology concerns whether it justifies violence against civilians as a necessary means to achieve revolutionary objectives. Although all rebel groups use violence against militarily organized opponents, radical rebel groups are often distinguished by their willingness to target alleged enemies within the civilian population (Goodwin 2007; Habeck 2008; Weinstein 2007, 85). This is particularly true of rebel groups inspired by Marxist-Leninist ideology–its

emphasis on class struggle is often interpreted by radical rebel leaders as an imperative to employ violence against "enemy classes." Moreover, since radical rebel groups typically pursue goals that resonate only with a narrow segment of the population, the unpopularity of their agenda may also lead them to employ violence and coercion in governing civilians.

2.2 The consequences of revolutionary social intervention

Ideology not only shapes a rebel group's internal organizational strategy (Mampilly 2011, 78); it also functions as a communicative device in mobilization by delineating rebel identity, articulating rebel objectives, and appealing to potential supporters who identify with those objectives (Ahmad 1982, 248). Ideology serves to legitimize an armed group in the eyes of its selectorate, fostering conviction and loyalty among its current and potential followers. When interacting with civilians, adhering to ideological principles allows a rebel group to credibly signal its identity and agenda, facilitating mobilization of ideologically congruent individuals (Walter 2017). This strategy thus strengthens selective recruitment by attracting committed recruits willing to sacrifice for the rebel cause, while deterring opportunistic individuals (Weinstein 2007, 14). As such, ideologically motivated rebel actions can improve the quality of recruitment by enhancing the commitment and dedication of rebel members.

Ideologically driven rebel actions also affect the scale of rebel recruitment. The ideological reach of a rebel movement–how widely its objectives resonate among the civilian population–shapes the breadth of civilian support, which in turn determines the number of recruits it can mobilize. Rebel groups governing with a moderate ideology and conciliatory approaches are likely to enjoy broad civilian support (De Bruin et al. 2025), which enables them to mobilize more recruits. In contrast, radical interventions in civilian life often run counter to popular preferences and can adversely affect the well-being of the civilian majority. Civilians who are adversely affected have little incentive to contribute to a rebel group's military capacity by joining its army, which would only help sustain the policies that disadvantage them. As such, radical social interventions by rebel groups can alienate the broader civilian population and shrink the pool of potential recruits.

The negative effect of radical social interventions on civilian support is compounded by the use of violence. In theory, governing by violence is expected to increase civilian cooperation, especially when violence is meted out selectively (Kalyvas 2006; Lichbach 1987). On the other hand,

growing evidence suggests that wartime civilian victimization can provoke adversarial sentiments among civilians, thus reducing their cooperation with the armed perpetrator (Condra and Shapiro 2012; Dell and Querubin 2018; Kocher et al. 2011; Rozenas et al. 2017; Shaver and Shapiro 2021). These opposite predictions for the effect of violence can be reconciled by taking into account the political opportunity structure under which civilian behavior unfolds, specifically the credibility of an armed group's threat to punish disobedience (Rozenas and Zhukov 2019). In the context of civil war, neither the state nor rebel groups can monopolize violence over the entire population, making the threat of punishment not fully credible. Hence, rebel groups' use of violence against civilians is more likely to reduce civilian cooperation than to increase it (Kalyvas 2006, 144; Mampilly 2011, 53-54; Wickham-Crowley 1987). Violence shrinks the pool of potential recruits by driving away the broader civilian population, ultimately reducing the number of recruits.

The discussions above imply a potential trade-off for rebel groups driven by a radical ideology. Such rebel groups face a choice between two paths, each with its own costs and benefits: adhering to their radical objectives or shifting toward more moderate goals and approaches in governing the population. Prioritizing revolutionary ideals can attract and encourage radical supporters. Such support is crucial for the survival of rebel groups, especially when a rebel group is militarily disadvantaged (Ying 2024). However, inflicting violent disruption on the civilian population can erode popular support, limiting a rebel group's military potential. Conversely, moderating their ideological stance may enable rebel groups to expand their support base but risks alienating their core supporters. This trade-off can potentially explain the variation in rebel strategies when governing the civilian population, and by extension, their military mobilization outcomes. The consequences of radical rebel intervention for military mobilization can be summarized as follows: radical rebel interventions in civilian life reduce the breadth of rebel recruitment, yet facilitate the recruitment of highly motivated individuals.

3 The Chinese Civil War

The Chinese Civil War between 1946 and 1949 was a continuation of the military conflict between the CCP and the Nationalists that began in 1927 and was once interrupted by the war with Japan. The CCP, which emerged as a revolutionary organization, achieved final military victory in 1949,

ending Nationalist rule in mainland China.

3.1 The ideological origins of the wartime land reform

The struggle over land occupied a central position in many conventional accounts of peasant revolution (e.g., Paige 1975; Wickham-Crowley 1992). Barrington Moore, for example, believed that the presence and growth of landless peasants provided the mass basis for the Chinese Communist Revolution (Moore 1966, 220). While it may seem intuitive to associate peasant revolutions aimed at redistribution with landholding inequality, there has been scant empirical evidence to support such a connection in the case of China. Indeed, historians find a rather tenuous, if not negative, relationship between landholding inequality and the CCP's revolutionary activities (Esherick 2022; Hofheinz 1967; Huang 2005; Liu 2007; Wang 2002).

The disconnection between landholding inequality and revolutionary redistribution was particularly evident in the CCP's wartime land reform between 1946 and 1949. In CCP-controlled areas where land reform was implemented, the level of landholding inequality had been relatively low. In much of North China, for example, the vast majority of peasants already owned the land they tilled before land reform (Pepper 1999, 232). Landless tenants and agricultural workers accounted for less than ten percent of the rural population (Pepper 1999, 234). Another estimate shows that about 90 percent of land in this region had been cultivated by small family farms, with only about ten percent concentrated in larger holdings (Huang 1985, 84). According to a well-known case study of the land reform by Western observer Hinton, in a village of approximately 250 households there was only one full tenant family (Hinton 1966). As such, it is difficult to reconcile these historical observations with explanations of the CCP's land reform that place social structure and peasant grievances at the center.

Indeed, Mao and other CCP leaders did not believe that their social revolution had to be constrained by specific social and economic conditions (Van Slyke 1986, 651). Economic concerns, such as improving the welfare of a vast majority of peasants, were not the primary motivation for their decision to implement land reform (Shue 1980, 42). Nor is there evidence that the land reform was adopted as a strategy to bolster military mobilization (Yang 2007, 254). Rather, the land reform was motivated by the CCP's ideological objective of dismantling the established social order, a vision long held by Mao. Its implementation reflected two central elements of Mao's adaptation

of Marxist ideology: social revolution and class struggle.

First, the CCP considered land reform as an instrument to dismantle the old social structure, which was dominated by the landowning elite and served as the social foundation of the regime that the CCP sought to overthrow (Westad 2003, 136). For CCP leaders, the revolutionary movement had to bring down the old elite in rural society, putting power in the hands of previously marginalized groups seen as the party's natural allies (Shue 1980, 42-43). Land reform was viewed as a pivotal step toward this social revolution by wiping out the old rural gentry, thus destroying the traditional system of social stratification (Schurmann 1966, 437).

Another central element of the CCP's ideology was the emphasis on class struggle–mobilizing civilians to carry out violent attacks against designated class enemies. The land reform was rooted in Mao's conviction that only violent class struggle could bring about genuine social change, a belief Mao held from the beginning of his revolutionary career to the end of his life (Walder 2015, 336). This belief is reflected in his famous quote that "a revolution is not a dinner party," but "an act of violence by which one class overthrows another."

The ideological imperative to escalate class struggle through land reform was reinforced by military pressure and local political dynamics. The early stage of the civil war saw intense military offensives from Nationalist armies that forced the CCP to retreat from many occupied areas (Walder 2015, 15-16, 33). At that historical juncture, when the prospect of winning national power was still remote, CCP leaders saw little value in building a broad coalition encompassing the majority of rural society. Instead, the party's primary focus was on ensuring survival by consolidating support among its most fervent supporters. When these core supporters–politically and economically marginalized elements of the rural society–pressed for redistribution, Mao chose to ignite their enthusiasm by fulfilling their demands, even at the risk of alienating the moderate population that had previously been allied with the party (Opper 2020). As military conflict with the Nationalists resumed in 1946, the CCP quickly reverted to the radical policies it had previously implemented in the south, abandoning the moderate and conciliatory policies it had adopted during the war with Japan (Westad 2003, 129).

While Mao's revolutionary agenda of destroying rural "class enemies" was divorced from local economic realities, the revolutionary imperative ultimately prevailed over pragmatic considerations. According to our data, an average of 25 percent of rural land was redistributed. Considering

the estimate that landlords owned just ten percent of rural land (Huang 1985, 84), it was likely that much of the redistribution was achieved by expropriating land owned by small family farms. On the other hand, since the landless population constituted less than ten percent of the rural population (Pepper 1999, 234), the land reform likely benefited only a small segment of rural society.

The land reform was characterized by widespread violence against alleged "exploitative classes" (Huang 1995; Opper 2020; Pepper 1999; Westad 2003). The CCP's insistence on class struggle generated the imperative to manufacture class enemies even where none objectively existed. This led to exaggeration and escalation, as rich peasants were labeled landlords and middle peasants were labeled rich peasants (Huang 1995, 119). An estimate shows that between 35 and 50 percent of class statuses were incorrectly assigned during the land reform (Opper 2020, 151). Between 17 and 25 percent of the rural population were targeted, which far exceeded the official guideline of eight percent (Opper 2020, 160). CCP leader Liu Shaoqi estimated that over 250,000 people were killed in the wartime land reform (Yang 2009, 99). Historians characterized this campaign as "revolutionary terror" (Westad 2003, 136), grounded in "the greatest distortions of rural social reality in favor of revolutionary ideology" (Huang 1995, 120).

3.2 The potential consequences of land reform

It is widely assumed that the CCP's land reform in occupied areas generated widespread rural support for the party, producing an abundant supply of recruits for the Liberation Army (e.g., Skocpol 1979, 262). While it may seem intuitive to attribute the CCP's military victory to its wartime land reform, this view is contested by historians who find no straightforward connection between land reform and peasants' incentives to join the CCP's army (Li 2016; Pepper 1999, 293; Qi 2015, 269; Westad 2003, 136). Moreover, there is no evidence that the CCP had an advantage over the Nationalists in the ability to mobilize soldiers.[2]

To understand how the CCP's land reform affected its soldier recruitment, it is necessary to consider how victims and beneficiaries were distributed across the population. Abundant evidence shows that the campaign extensively victimized peasant landowners (Crook and Crook

[2]Historians recognize that the CCP's victory was by and large determined by the results of one or more key battles (Dreyer 1995, 7, Tanner 2015; Walder 2015, 15-16), rather than a purported disparity in mobilization capabilities between the CCP and the Nationalists.

1959; Friedman et al. 1991; Hinton 1966), who made up the majority of the rural population in CCP-controlled North China (Pepper 1999, 243). The land reform subjected many of them to asset confiscation, public humiliation, and physical violence. For this social group, we would expect a decline in willingness to join the CCP's army. On the other hand, the primary beneficiaries–tenants and hired laborers–made up only a small fraction of the rural population (Pepper 1999, 234). Even if they were mobilized to join the CCP's army due to land reform, the overall scale of such mobilization would be limited. As a result, the overall impact of land reform on soldier recruitment was likely negative, driven primarily by the victimization of peasant landowners.

This expectation is consistent with qualitative evidence indicating that the CCP's soldier recruitment declined after land reform. Archival records from CCP-controlled counties indicate a significant drop in soldier recruitment following land reform. By late 1948, many counties that had implemented land reform faced difficulties in meeting soldier recruitment quotas, as a large number of potential recruits fled to avoid conscription (Qi 2015, 269-275). CCP leaders acknowledged that "the results of the political campaigns for joining the Liberation Army were disappointing" (Westad 2003, 113). Reflecting on the party's radical policies, a CCP leader lamented that "We [have] treated . . . people as part of the enemy camp. This did not isolate the enemy; it isolated us" (Westad 2003, 118). The negative consequences eventually led the party to halt land reform in newly occupied areas (Opper 2020, 149; Pepper 1999, 232-233).

On the other hand, land reform may have shifted the composition of the CCP's new recruits by disproportionately attracting ideologically radical individuals. As discussed in Section 2, radical social intervention can function as a form of ideological signaling, drawing in civilians who identify with the rebel group's goals while deterring those who do not. The CCP's campaigns of land redistribution and class struggle conveyed the party's commitment to revolutionary transformation, which resonated most with individuals predisposed toward radical change. Such recruits, deeply committed to the party's cause, would have been more willing to fight and die for it. We therefore anticipate higher battle death rates among CCP soldiers who joined the Liberation Army after land reform, driven by a shift in recruit composition toward more ideologically committed individuals.

4 Data and measures

We assemble a county-year panel covering the period between 1943 and 1949, using administrative boundaries as of 1953. The panel covers 1,167 counties for which data on CCP martyrs are available.

4.1 CCP martyrs

Although land reform is widely believed to have played an important role in shaping the CCP's military mobilization during the Chinese Civil War, empirical evidence has been lacking. One major obstacle lies in the absence of systematic data on CCP soldiers–a key indicator for measuring military mobilization. Specifically, there are no records documenting the number of soldiers recruited from each locality by year, which precludes direct comparison of recruitment levels before and after land reform.

An alternative strategy is to use data on CCP martyrs–soldiers who died in the Chinese Communist Revolution and were commemorated by the party. An existing dataset, compiled from biographical records held by China's Ministry of Civil Affairs, provides information including each martyr's place of enlistment and date of death, but not their date of enlistment. Using this dataset to measure soldier recruitment poses a fundamental problem: it does not provide direct information on recruitment–knowing how many soldiers died in a given year does not inform us how many were recruited by the CCP in the same year. Recognizing this limitation, we digitize a new dataset on CCP martyrs from county gazetteers that systematically record each martyr's date of enlistment. This dataset allows us to directly measure how many martyrs joined the CCP's army from each county by year.

The martyred soldiers documented in each county gazetteer were natives of that county, most having enlisted in the CCP's army locally. Because gazetteers vary in the level of detail they provide, some do not report the enlisting year of the martyrs. After reviewing all available gazetteers, we identified approximately 1,200 that systematically recorded the enlisting year of the martyrs. For martyrs who enlisted from those counties, we digitize variables including their enlistment year, death location, and year of death. The resulting dataset covers around 220,000 martyred soldiers

who joined the CCP's army between 1943 and 1949 from 1,167 counties.

Using each martyr's county and year of enlistment, we construct a county-year panel capturing the number of martyrs who joined the CCP's army from each county each year. We use this variable as a proxy for actual soldier recruitment. The validity of this proxy rests on the assumption that the martyrs are representative of the broader population of CCP recruits. For our causal estimates to be valid, selection into the martyr dataset (via death) must not be systematically correlated with factors related to land reform. In practice, soldiers' varying death rates could shape the probability of their inclusion in our dataset, introducing potential bias into our estimates of the effect of land reform. We address this concern through sensitivity analyses in the next section, which suggest that our estimates are robust to plausible variation in death rates.

The left panel of Figure 1 shows the total number of martyrs who joined the CCP's army each year across counties with available data. Read as a proxy for recruitment, the figure reveals substantial variation over the course of the conflict. Recruitment rose steadily during the later phase of the Sino-Japanese War and continued to rise into the early stage of the civil war, before declining after 1947–a period that overlapped with the major waves of land reform. Notably, the CCP's demand for soldiers remained high during the later stages of the civil war. A historian notes that beginning in 1948, the party faced growing difficulties in recruiting soldiers, with planned recruitment targets often being unmet (Qi 2015, 269-275).

Martyred soldiers had short survival times, as shown in the right panel of Figure 1. On average, they survived between three and four years after enlisting, indicating a high mortality rate. Furthermore, survival times declined across enlisting cohorts over the course of the civil war: later enlisting cohorts exhibited shorter survival times than earlier ones. Most martyrs were deployed and killed outside their enlisting county. Among the martyrs who joined the CCP's army during the civil war, less than 20% died in their native county (see Appendix A1).

4.2 Land reform

We digitize data on the CCP's wartime land reform from county gazetteers. The dataset covers 734 counties that experienced land reform between 1937 and 1949. Major waves of land reform occurred in the early stage of the civil war: those implemented in 1946 and 1947 alone accounted

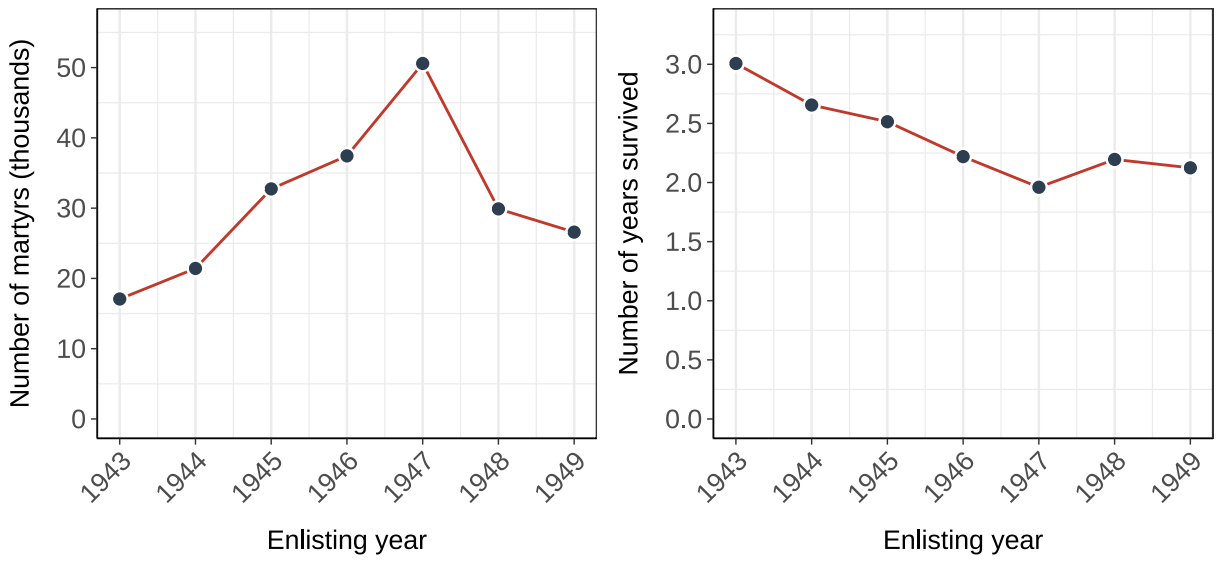


Figure 1: Enlistment and survival of CCP martyrs.

for 77% of all land reforms between 1937 and 1949.[3] Figure 2 shows the counties that experienced land reform during the civil war and the year in which it was implemented. The counties were located primarily in North China and Manchuria, two regions controlled by the CCP during the civil war. Land reform typically followed the CCP's military occupation of a county, which was the primary source of temporal and spatial variation in implementation. Furthermore, land reform was more likely to be implemented in CCP base areas and less likely in counties with a higher density of Nationalist members (see Appendix A2).

We generate a binary indicator for a county's exposure to land reform. For a county that experienced land reform in year T, the indicator equals one for years after T and zero for other years.[4] For counties that did not experience land reform during the observation period, the indicator equals zero for each year. This is the primary independent variable in our empirical analysis.

[3]Our dataset shows that only 20 counties had land reform implemented during the preceding war with Japan.
[4]For counties that experienced multiple land reforms, we adopt the year of the first land reform.

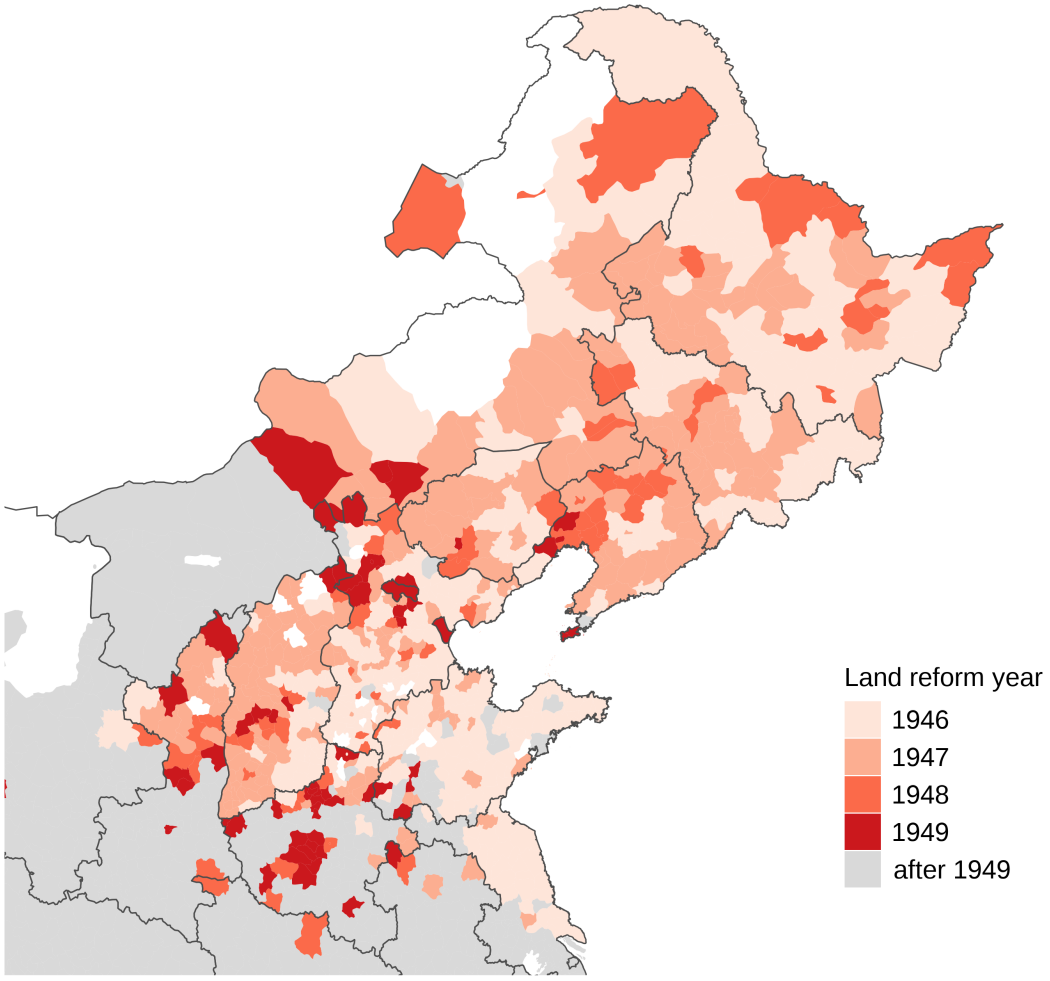


Figure 2: Year of land reform implementation across counties.

5 Empirical strategy and results

5.1 Land reform and soldier recruitment

We estimate the effect of land reform on the CCP's soldier recruitment using a difference-in-differences strategy, with the following specification:

$$y_{ct} = \beta \times \mathrm{LR}_{ct} + \theta_c + \gamma_{pt} + \varepsilon_{ct} \tag{1}$$

where the outcome variable y_{ct} is the log number of new soldiers who joined the CCP's army from county c in year t. It is a function of the county's exposure to land reform LR_{ct}, which takes on the

Table 1: Effect of land reform on CCP soldier recruitment.

Estimator	Estimate	SE
TWFE	-0.480	0.085
Sun-Abraham	-1.100	0.105
Callaway-Sant'Anna	-0.371	0.055
Borusyak et al	-0.520	0.056

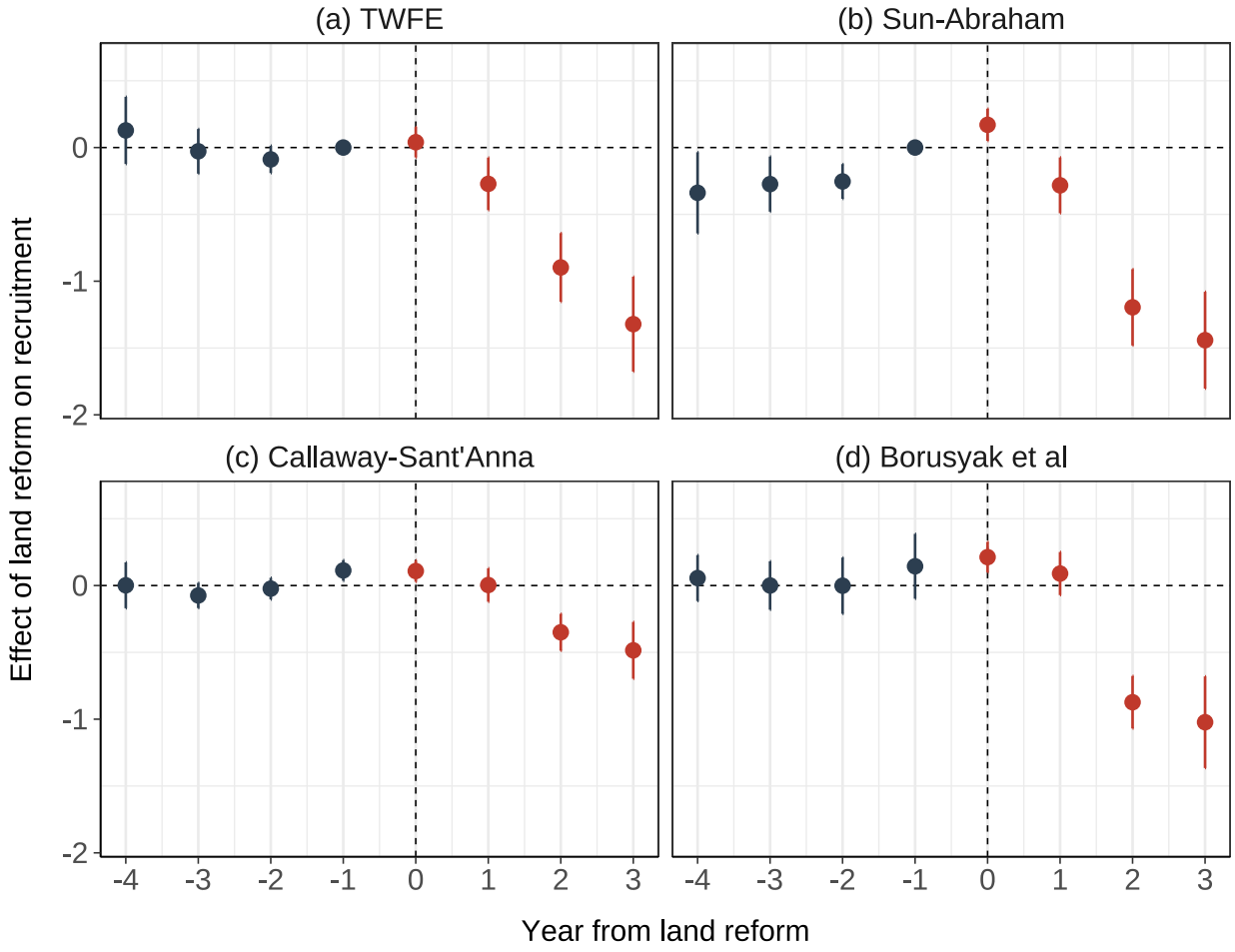
Notes: Standard errors clustered by county.

value of one for all years after the implementation year. The estimation conditions on county fixed effects θ_c and province-by-year fixed effects γ_{pt}. The estimate of interest is β, which captures the effect of land reform on the CCP's soldier recruitment. The assumption for causal identification is conditional parallel trends: conditional on the fixed effects, soldier recruitment in counties that experienced land reform would have followed the same trend as that in counties without land reform.

Table 1 shows the effects of land reform on CCP soldier recruitment, estimated using several alternative difference-in-differences estimators. The estimates consistently suggest a negative effect of land reform on CCP soldier recruitment, with fewer new recruits after a county implemented land reform. With the exception of the Sun-Abraham estimate, which is sensitive to a small number of treated cohorts, the estimates fall in a relatively tight range between -0.37 and -0.52, translating into declines in new recruits of 31% to 41%.

Figure 3 shows dynamic treatment effects of land reform. Consistent with the conditional parallel trends assumption, three of the four estimators show no clear divergence in soldier recruitment between the treated and the untreated counties in the pre-treatment period. The Sun-Abraham specification (Panel b) shows slightly negative pre-treatment estimates, with the upper bounds of several confidence intervals falling marginally below zero, while the other three estimators display cleanly null pre-trends. The pre-trends in these three estimators mitigate concerns that the estimated effect might reflect anticipation of land reform or selection into treatment based on prior recruitment patterns. Across all four estimators, the treatment effect did not appear immediately in the year of implementation but emerged in subsequent years, growing steadily over time.

The estimated effect of land reform could be biased by time-varying omitted variables. The timing of land reform, along with temporal variation in soldier recruitment within a county, could



Notes: 95% confidence intervals based on standard errors clustered by county.

Figure 3: Dynamic treatment effects of land reform on CCP soldier recruitment.

have been jointly shaped by military dynamics. When control of a county shifted from the Nationalists to the CCP, both the likelihood of land reform and the number of recruits might increase. Military occupation likely expanded the CCP's access to local resources, making it easier for the party to recruit from the local population regardless of land reform. This suggests the presence of a direct positive effect of CCP occupation on soldier recruitment. In that case, the estimated negative effect of land reform would be biased toward zero, since it absorbs the direct positive effect of CCP occupation on recruitment. However, if the CCP faced resistance to its recruitment efforts in newly occupied territories regardless of land reform, this bias would likely be limited.

Our analysis is based on CCP soldiers who died in combat, and these martyrs may not be representative of all CCP soldiers. A potential concern is that the variation in soldier recruitment

captured by our data might be confounded by the variation in soldier death rates. Specifically, if soldiers who joined the CCP's army from county c in year t died at higher rates, we might observe a relatively higher number of recruits in county c in year t, simply because more of them died and were included in the martyr dataset.

Our difference-in-differences estimator accounts for time-invariant differences in soldier death rates across counties, as well as the differences across province-year units. The remaining concern is that soldier death rates–as a potential time-varying confounder–might exhibit a significant change after land reform. If soldiers who enlisted after land reform had lower death rates, they were less likely to be included in the martyr dataset, compared with soldiers who joined the CCP's army before land reform. This potential change in soldier death rates might result in over-estimation of the causal effect of land reform. We address this concern by conducting sensitivity analyses to identify the conditions under which variation in soldier death rates could account for our estimated effect. Specifically, we estimate the magnitude of change in soldier death rates (pre- vs. post-land reform) that would be required to fully account for the estimated effect. If the required change is implausibly large, we can be confident that our estimate is not driven primarily by sample selection.

The simulation, detailed in Appendix A3, is conducted in the following steps. First, we randomly draw soldier death rates as a function of exposure to land reform. Let θ represent the average effect of land reform on soldier death rates. In each simulation, we hypothesize a different value of θ and generate soldier death rates as a function of this value. Next, using simulated death rates and the observed number of martyrs, we calculate the total number of recruits. Then we regress the total number of recruits on exposure to land reform using the difference-in-differences estimator. The estimated coefficient captures the effect of land reform on soldier recruitment free of sample selection bias, given the assumed value of θ. This procedure allows us to trace how variation in θ affects the estimated effect of land reform on recruitment.

The simulation shows that soldier death rates would have to fall by more than 60% relative to the baseline (from 0.5 to below 0.2) to yield an insignificant estimate. In the alternative scenario where soldier death rates increased after land reform–supported by evidence presented in the next section–the true effect on recruitment would be even more negative than our baseline estimate. This implies that our use of the martyr dataset likely underestimates the true effect.

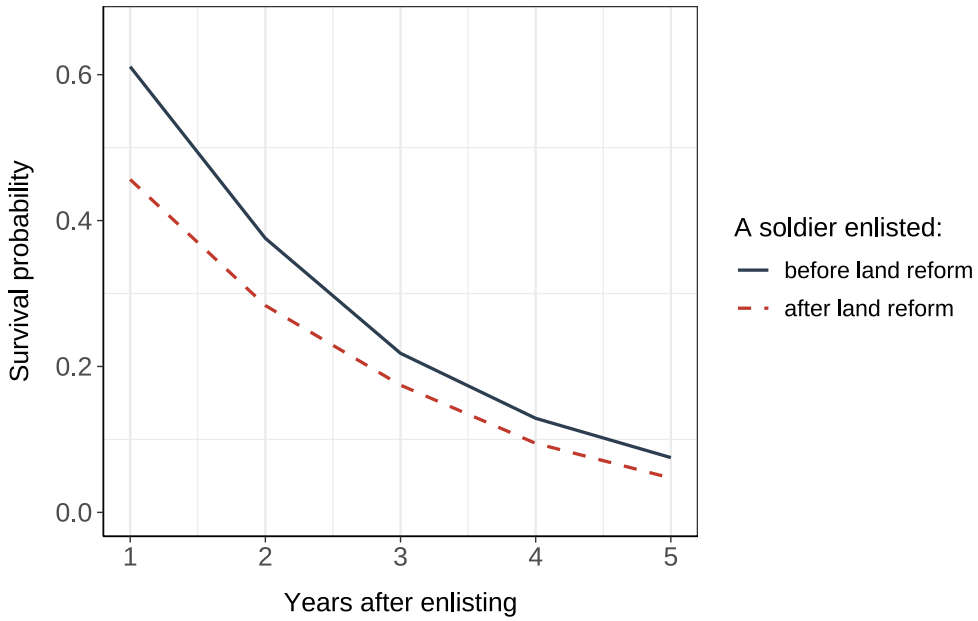


Figure 4: Survival probability of CCP martyrs.

5.2 Land reform and soldier survival

We further analyze how land reform affected soldier survival. We begin with a survival analysis for the martyrs, exploiting the variation in their survival time–measured by the number of years between their enlistment and death. If land reform extended soldiers' survival time, we would expect martyrs who enlisted after land reform to show higher survival probabilities than those who enlisted before. Figure 4 presents Kaplan-Meier survival curves for two sub-groups of CCP martyrs who enlisted within three years before or after land reform. The curves, which represent the average probability of survival for each group in each year after enlistment, reveal a clear difference: martyrs who enlisted after land reform exhibited lower survival probabilities than those who enlisted before.

Next, we use regressions to estimate the effect of land reform on soldier survival time. We fit the following regression model using individual-level data:

$$(y_{death} - y_{enlist})_{ic} = \beta \times \mathbf{1}[y_{enlist} \geq y_{LR}]_{ic} + \theta_c + \varepsilon_{ic} \tag{2}$$

where the outcome variable is survival time for individual i who enlisted in the CCP's army from county c, measured as the number of years between enlistment and death. It is a function of

Table 2: Effect of land reform on soldier survival.

	Number of years survived		
	(1)	(2)	(3)
Enlisted after reform	-0.604***	-1.105***	-2.010***
	(0.042)	(0.027)	(0.027)
Observations	166,847	127,039	127,031
Adjusted R^2	0.067	0.217	0.936
County FEs	Yes	Yes	Yes
Death location FEs	No	Yes	Yes
Death year FEs	No	No	Yes

Notes: Standard errors clustered by county. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{+}p < 0.1$.

enlistment timing relative to land reform, captured by the dummy variable that equals one if the individual enlisted after land reform was implemented in the soldier's county of enlistment. We condition on enlisting-county fixed effects θ_c, comparing survival time only between individuals who enlisted from the same county. Furthermore, we focus our analysis on individuals who enlisted within three years before or after land reform, which helps minimize heterogeneity across treatment conditions.

Table 2 presents regression estimates based on Equation (2). The estimate in Column (1) shows a negative effect of land reform on soldier survival. The estimate of -0.6 indicates that soldiers who enlisted after land reform survived, on average, 0.6 years (about seven months) less than those who enlisted before land reform in the same county. Columns (2) and (3) further condition on fixed effects for death location and death year. The estimates grow substantially in magnitude– among soldiers who died in the same place and year, those who enlisted after land reform survived about two years less than those who enlisted before. These results confirm that land reform had a negative effect on soldier survival, driven not by differences in battle conditions but more likely by individual-level differences among soldiers facing similar conditions.

6 Explaining the effects of land reform

Several potential explanations may account for the estimated effects of land reform. We find that the explanation emphasizing civilian victimization aligns well with both the historical literature and our quantitative findings. However, it is worth noting that the supporting evidence remains indirect. Without individual-level data identifying who was victimized in land reform, it is difficult to conclude whether civilian victimization was the primary factor driving the observed pattern. Alternative mechanisms–such as rising opportunity costs and strategic deployment of soldiers–may also account for the estimated effects, though we find little support for these in the available evidence. A rigorous evaluation of the relative importance of these mechanisms would require finer-grained data than are currently available, so the discussion that follows is intended to be suggestive.

6.1 Civilian victimization

We consider two aspects of civilian victimization in land reform: the breadth of victimization and the intensity of political violence. Each should shape how much land reform alienated the broader civilian population. The first aspect concerns the breadth of civilian victimization–the proportion of victims in the rural population. While land redistribution might have increased support for the CCP among the peasants who benefited, it could also discourage the victimized population from joining the CCP's army. When victims made up a large share of the rural population, we expect a pronounced negative effect on soldier recruitment. As the share of victims decreases, this negative effect should become more moderate.

We illustrate this explanation by exploiting the variation in the proportion of people who were victimized in land reform. During the land reform, the CCP divided the rural population into five social categories: landlords, rich peasants, middle peasants, poor peasants, and hired peasants. Two of these categories, poor peasants and hired peasants, were the primary beneficiaries of land reform. They gained land confiscated from landlords and rich peasants, and in some cases from middle peasants. To measure the breadth of civilian victimization, we use the combined share of the upper social categories–landlords, rich peasants, and middle peasants–in the rural population.[5]

[5]While middle peasants were not formally designated as class enemies in the CCP's official guidelines for land

We estimate the effect of land reform on soldier recruitment, conditional on the percentage of peasants belonging to the upper social categories in a county. We find a significantly negative effect of land reform on soldier recruitment in counties where the share of the upper social categories in the rural population was relatively high. The effect is substantially weaker in counties where this share was relatively low (Appendix A4). These results support the claim that the negative effect of land reform on soldier recruitment was partially driven by civilian victimization.

The second aspect of civilian victimization that we consider is the intensity of political violence in land reform. The CCP's wartime land reform was characterized by violent struggles against alleged class enemies. An estimate shows that about 250,000 people were killed in land reform (Yang 2009, 99). The violence might have alienated not only those directly persecuted, but also bystanders terrorized by this social revolution. Furthermore, the CCP's control over the rural population was not yet consolidated during the civil war. Civilians dissatisfied with the party's coercive rule could defect to the Nationalists, which limited the CCP's ability to credibly threaten punishment for non-cooperation. Civilians thus retained agency in deciding whether to support the CCP's military mobilization, and support from the moderate majority was likely to diminish as the party's use of violence intensified.

We illustrate this explanation by exploiting the temporal variation in land reform across counties. The CCP's wartime land reform was rolled out in several waves, each implemented in a different set of counties. Because the intensity of violence varied across waves, some counties experienced more violence than others. The early waves, implemented between 1946 and 1947 in certain counties, were characterized by extensive violence (Opper 2020, Chapter 6). By late 1947, CCP leaders began to warn against the use of violence in land reform. The subsequent land reform, implemented in other counties between 1948 and 1949, was significantly less violent. According to descriptions of land reform in county gazetteers, the term *violence* was 45% more likely to appear in accounts of land reforms implemented in 1946-1947 than those implemented in 1948-1949.

We estimate the effect of land reform on soldier recruitment by implementation year. The early waves–implemented in 1946 and 1947–had a significant negative effect on the CCP's soldier recruitment. Land reforms implemented in 1948, in contrast, had an insignificant effect on soldier

reform, they were often targeted and suffered losses in practice. As a result, our measure treats middle peasants as victims as well.

recruitment (see Appendix A5). These results suggest that violence played an important role in shaping how land reform affected soldier recruitment.

6.2 Opportunity costs

The negative effect of land reform on the CCP's soldier recruitment could have been driven by economic incentives. Evidence from other contexts suggests that land redistribution can raise the opportunity costs of civilian participation in rebellion (e.g., Albertus 2020). Historians of the Chinese Civil War also suggest that peasants who received land were less willing to join the CCP's army because they "wanted to stay at home and enjoy the fruits of the struggle" (Pepper 1999, 295).

We recognize the possibility that previously landless individuals who would otherwise have enlisted in the CCP's army chose instead to stay and farm their newly acquired land after land reform. The question is how much of the post-land reform decline in the CCP's soldier recruitment can be explained by rising opportunity costs. One way to answer this question is to consider the extent to which land reform altered the overall demand for agricultural labor, which competed with the CCP's recruitment effort. The potential change in labor demand depends on multiple factors: the size of the landless population prior to land reform, whether it had already been engaged in agricultural production through employment, and how much land it received. In counties where a large share of peasants had been landless and had little prior connection to agricultural production, we would expect a pronounced decline in CCP soldier recruitment after land reform–especially where large tracts of land were transferred to these peasants.

Historians observe that the landless population accounted for a relatively small share of the rural population and were generally employed by landowners prior to land reform (e.g., Pepper 1999, 234). Additionally, because landownership was far less concentrated in North China than in other regions prior to land reform (Huang 1985, 84), the redistribution might have offered the beneficiaries only modest gains. Available data for a small number of counties show how land reform changed land ownership among poor and hired peasants–the main beneficiaries of this redistribution campaign. On average, poor peasants gained about two *mu* of land per household, while hired peasants gained about four *mu*.[6] Cultivating this land required only one to two weeks

[6]One *mu* is equal to 0.165 acres.

of labor from an adult male–a change in labor demand that was unlikely to influence a farmer's decision to enlist. These observations of the social and economic conditions in CCP-controlled areas, together with the documented patterns of land redistribution, suggest that the increase in opportunity costs might have been limited.

The observations above do not account for variation across counties. If opportunity costs explained the negative effect of land reform on soldier recruitment, we would expect a more pronounced decline in counties where the shift in opportunity costs was likely to be larger. We test this hypothesis by exploiting the variation in the intensity of land redistribution–measured by the share of land redistributed, which is used as a proxy for rising opportunity costs. We find that the intensity of land redistribution was uncorrelated with the effect of land reform: the negative effect on soldier recruitment was similar in magnitude regardless of the share of land redistributed (Appendix A6). This result suggests that the effect of land reform was unlikely to have been driven by rising opportunity costs.

6.3 Strategic deployment

Our estimation shows a decline in survival time among soldiers enlisted after land reform. Apart from changes in combat motivation, it is also possible that soldiers who enlisted after land reform were more likely to be deployed to hazardous battlefields, resulting in shorter survival time. We evaluate this argument by examining how land reform affected the death location of the martyred soldiers, assuming that death locations reflected soldier deployment. The estimation strategy compares the death location between soldiers who enlisted shortly before land reform and those who enlisted shortly afterward. Systematic differences in death locations would suggest selective deployment associated with a soldier's exposure to land reform.

We construct three individual-level variables capturing deployment based on soldier death location. The first two variables capture whether a soldier died in their native county or province. These variables allow us to evaluate various "stay for the land" hypotheses: that soldier recruitment or death rates were shaped by increased deployment of soldiers to their native localities, where they could protect or farm the land they received in land reform. The third variable captures the level of risk on the battlefield to which a soldier was deployed. We count soldier deaths during 1946–1949 in each province and rank the provinces accordingly. The ranking is then used to measure the

degree of battlefield hazard at the individual level. A soldier is considered to have been deployed to a more hazardous battlefield if his death occurred in a province with a high number of soldier deaths.

We estimate the effect of land reform on soldier death location using individual-level data. Since our focus is on soldier deployment during the Chinese Civil War, we restrict the sample to soldiers who died between 1946 and 1949. We further narrow the sample to soldiers who enlisted within three years before or after land reform, limiting heterogeneity between the pre- and post-reform cohorts. The main independent variable captures a soldier's exposure to land reform–a dummy that equals one if the soldier enlisted after land reform was implemented in his enlisting county. We control for enlisting-county and enlisting-year fixed effects, so the estimate reflects within-county, within-cohort comparisons of soldiers.

Table 3 shows the estimated effects of land reform on soldier death location. The estimates are statistically insignificant across all dependent variables. The estimates in Columns (1) and (2) suggest that soldiers who enlisted after land reform were no more likely to be deployed to their native localities than those who enlisted before. This result is inconsistent with the hypothesis that land reform led to increased local deployment of soldiers. The estimate in Column (3) indicates that soldiers who enlisted after land reform were no more likely to be deployed to hazardous battlefields than those who enlisted before. These consistent null results across all three measures indicate that differences in battlefield conditions cannot explain the shorter survival time of post-land-reform cohorts. The higher mortality among these cohorts is more plausibly attributed to differences in combat motivation or individual characteristics than to selective deployment.

6.4 Coerced recruitment

Our analysis cannot directly distinguish between voluntary and coerced enlistment, since the martyr dataset does not record the conditions under which individual soldiers joined the CCP's army. Following the discussion in Qi (2015), we conjecture that as the CCP faced greater difficulties in soldier recruitment after land reform, the party may have relied more heavily on coercive measures to meet its recruitment targets. In that case, the decline in voluntary enlistment would have been even sharper than our estimate suggests, since our measure captures both voluntary and coerced enlistment.

Table 3: Effect of land reform on soldier death location.

	Native county (1)	Native province (2)	Location hazard (3)
Enlisted after reform	-0.009	0.005	0.137
	(0.009)	(0.018)	(0.155)
Observations	76,894	75,923	75,923
Adjusted R^2	0.199	0.221	0.255
County FEs	Yes	Yes	Yes
Enlisting year FEs	Yes	Yes	Yes

Notes: Standard errors clustered by county. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{+}p < 0.1$.

A related question is whether the higher mortality among post-land-reform recruits was driven by increased coercive recruitment. If coercion had increased, we would expect reluctant recruits to evade combat through desertion, surrender, or shirking, rather than fight to the death. CCP archives document widespread desertion among reluctant recruits during this period (Qi 2015, 269-275). The increase in reluctant recruits would have reduced, rather than increased, the observed battle mortality, making coercion an implausible explanation for the pattern we find. While our data cannot fully distinguish between voluntary and coerced enlistees, the pattern of higher mortality combined with unchanged deployment as shown above is more consistent with an increase in ideologically committed recruits than with an expansion of coercive recruitment.

7 Conclusion

Drawing on newly digitized historical data, we examined how revolutionary land reform affected military mobilization in the Chinese Civil War. We show that land reform caused a substantial decrease in the CCP's recruitment of new soldiers, likely driven by the campaign's extensive victimization of civilians and the resulting revolutionary terror. On the other hand, soldiers who enlisted after land reform exhibited higher mortality rates–a pattern that remains even when battlefield heterogeneity is held constant. Combined with our evidence that deployment patterns did not change, this points to a shift in recruit composition: land reform likely amplified the selective recruitment of ideologically congruent individuals who were more willing to fight and die for the

CCP's cause. These findings illustrate a trade-off in military mobilization posed by revolutionary social intervention: while it effectively appeals to individuals committed to revolutionary ideals, it drives away the broader population that bears the costs of revolutionary upheaval.

Our findings contribute to understanding the Chinese Communist Revolution, particularly the connection between the CCP's social revolution and its military victory in 1949. The CCP's military victory has inspired a large body of scholarship investigating its political origins. An influential explanation holds that the CCP mobilized overwhelming support from the rural population by addressing its grievances against successive oppressors–first the Japanese invaders, and later the coalition of the Nationalists and landlords (Johnson 1962; Selden 1971; Thaxton 1983). Such explanations often rest on the assumption that because the CCP prevailed militarily, it must have enjoyed a political advantage over the Nationalists that translated into superior military capacity. However, if land reform truly conferred a political advantage on the CCP, why did the same revolutionary social intervention end in a devastating military collapse for the party in the 1930s?

The CCP's victory in the Chinese Civil War does not prove that its wartime social revolution was militarily beneficial. As Stewart (2021, 39) noted, "just because Mao achieved victory while governing intensively and extensively does not mean that such governance was causally related to the CCP's victory." The conventional view emphasizing the purported popularity of the CCP among peasants–popularity often attributed to the party's wartime policies–requires further scrutiny. Our analysis shows that the CCP's wartime land reform undermined the party's capacity to recruit soldiers. This finding reinforces historical accounts emphasizing the ideological and coercive dimensions of the CCP's social revolution (Huang 1995; Pepper 1999; Opper 2018, 2020; Westad 2003).

Beyond the Chinese case, our findings speak to a broader pattern in revolutionary conflicts. Rebel groups driven by radical ideologies have repeatedly confronted similar trade-offs when implementing transformative social programs under wartime conditions. The Khmer Rouge's forced collectivization in Cambodia (Kiernan 2008), the Shining Path's coercive reorganization of peasant communities in Peru (Weinstein 2007), and the Communist Party of Nepal's campaign against "feudal" elites (Lawoti and Pahari 2010) each combined revolutionary social intervention with widespread civilian victimization, generating both committed cadres and alienation among the broader population. These parallel cases suggest that the ideology-mobilization trade-off we iden-

tify is not unique to the Chinese case but is a recurring feature of ideologically driven insurgencies. Understanding how rebel groups navigate this trade-off under various conditions remains an important question for future research.

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Ideology, Revolutionary Redistribution, and Mobilization in Civil War

Online Appendix

A1 Soldier Deployment Patterns

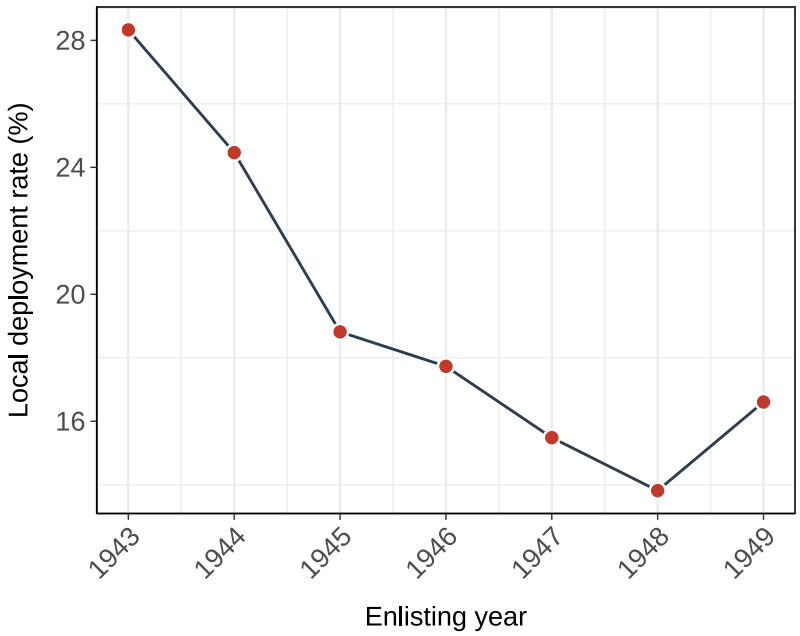

Figure A1: The share of soldiers who died in their native county.

A2 Correlates of Land Reform

Table A1: County Characteristics and Land Reform

	Land reform	
	(1)	(2)
CCP base	0.107	
	(0.067)	
KMT member density		-0.002^{+}
		(0.001)
Observations	2,264	2,264
Adjusted R^2	0.721	0.719
Province FEs	Yes	Yes

Note: County political alignment and land reform. Standard errors clustered by province. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{+}p < 0.1$.

A3 Simulation Analysis on Selection Bias

We conduct a simulation analysis to evaluate the sensitivity of our estimate to potential sample selection bias. The simulation analysis is conducted in the following steps.

First, we randomly generate soldier death rates following beta distribution, with the assumption that soldiers who enlisted after land reform exhibited lower death rates. To be clear, the potential bias is shaped by the variation in long-term death rates, not short-term death rates. A soldier who sacrificed in battle will be recognized by the CCP as a martyr regardless of how soon after enlistment he died. Consider two soldiers: one sacrificed within one year after enlistment and the other sacrificed 20 years after enlistment. Both of them will be recognized. Focusing on their one-year death rate does not reflect the actual selection mechanism. The challenge is that we cannot directly observe long-term death rates among the population of CCP soldiers. What we can observe from the martyr data represents an over-estimation of the death rates among the soldier population. As a result, we need to make assumptions about long-term death rates among the soldier population.

For the control group (i.e., soldiers enlisted before land reform), we assume a random death rate of 0.5 and a variance of 0.01. For the treated group (i.e., soldiers enlisted after land reform), we explore different mean values between 0.05 and 0.49 in a 0.01 interval, while keeping the same variance as the control group. The percentage of decrease from the control group to the treated group is represented by θ (for example, if the treated group's mean was 0.4, then $\theta = (0.5-0.4)/0.5 \times 100 = 20\%$).

Next, we calculate the total number of recruits by dividing the observed number of martyrs by the death rate we generated. For example, assuming that a county had 100 martyrs enlisted in a certain year, and the death rate among soldiers enlisted in that year was 0.5, then we can calculate the total number of soldier enlisted in that year: $100/0.5 = 200$. Then we regress the total number of recruits on exposure to land reform with the difference-in-differences estimation. The estimated coefficient captures the causal effect of land reform on the number of recruits without sample selection bias.

Figure A2 illustrates how the coefficient changes for different values of θ, which captures the percentage of decrease in death rates when soldiers enlisted after land reform. The coefficients

suggest that soldier death rates would have to fall by more than 60% relative to the baseline (from 0.5 to below 0.2) to yield an insignificant estimate. For the two groups of soldiers who enlisted before and after land reform respectively, their death rates had to be substantially large to cause a serious sample selection bias (i.e., the estimated effect of land reform on enlisted martyrs is entirely driven by the variation in death rates).

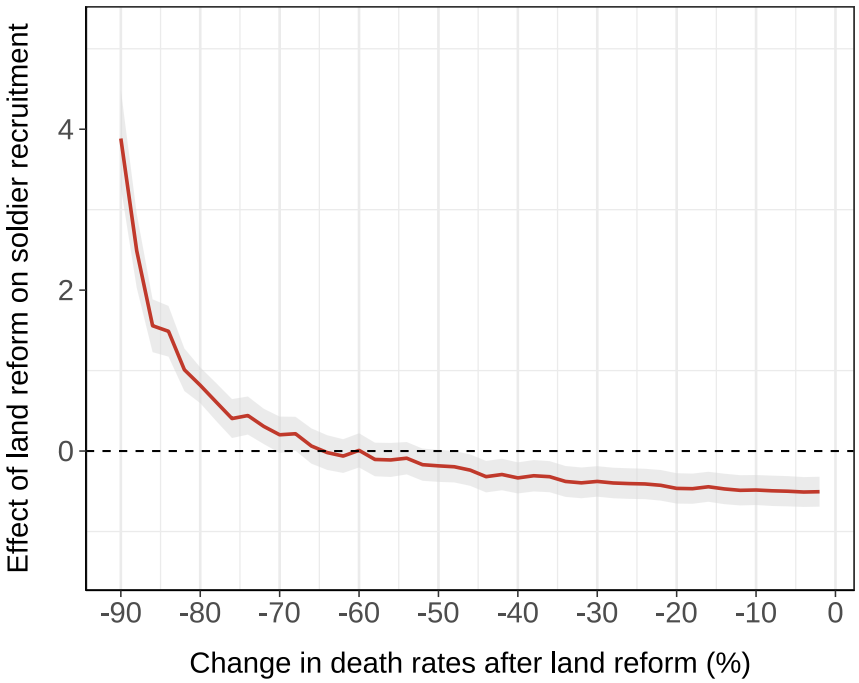

Figure A2: Estimated effects of land reform on soldier recruitment under different assumptions about death rate changes. 95% confidence intervals based on standard errors clustered by county.

A4 Heterogeneous Effects by Social Structure

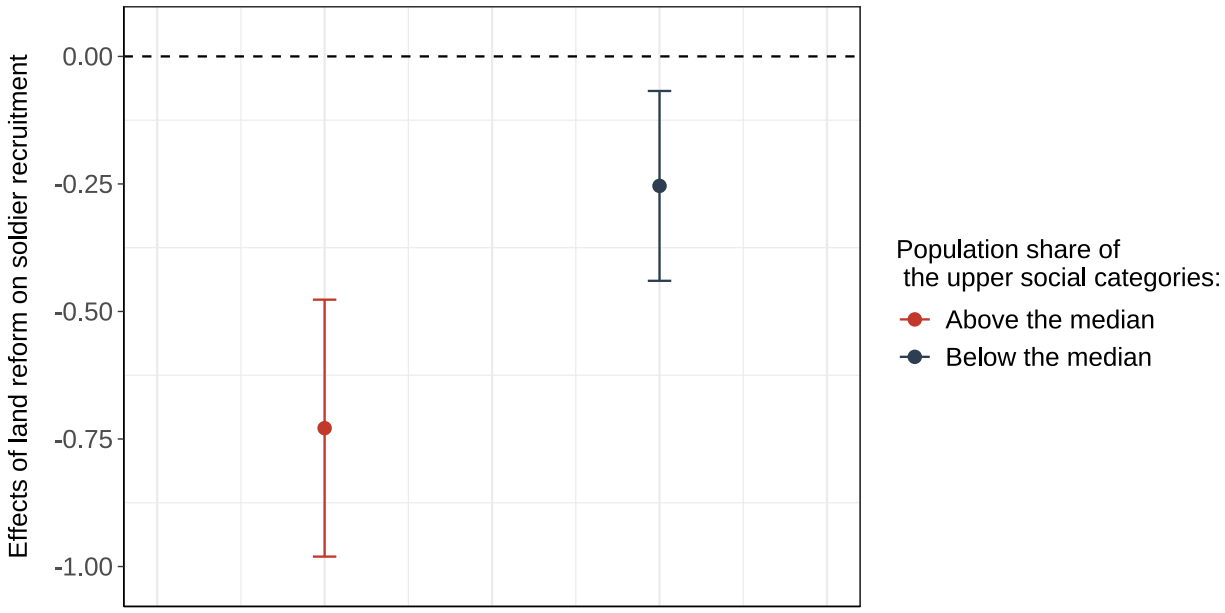

Figure A3: Effects of land reform on soldier recruitment, conditional on the population share of the upper social categories. 95% confidence intervals based on standard errors clustered by county.

A5 Heterogeneous Effects by Implementation Period

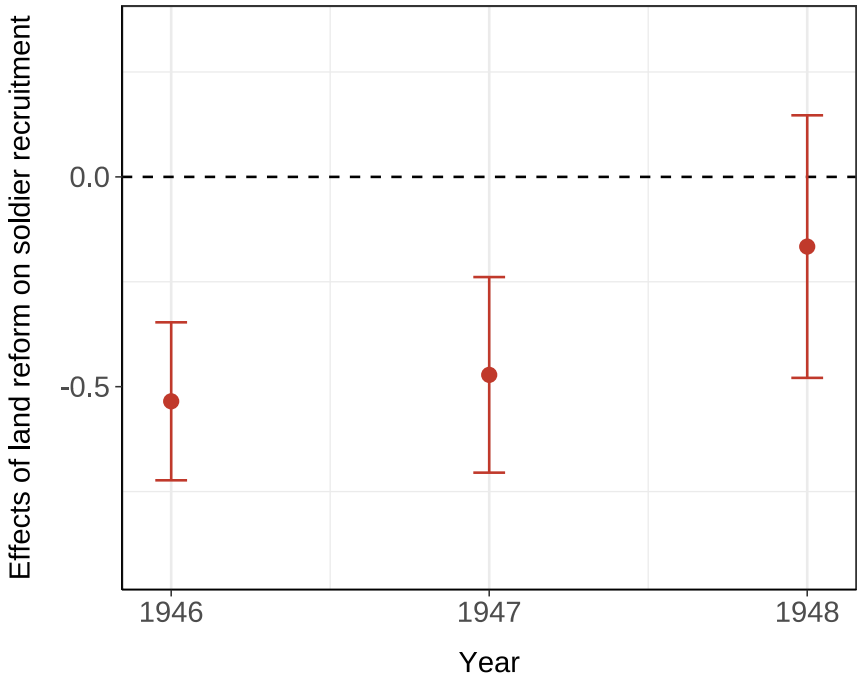

Figure A4: Effects of land reform on soldier recruitment, conditional on the year of land reform. 95% confidence intervals based on standard errors clustered by county. The 1949 effect is not estimable because no post-treatment years remain within the sample period.

A6 Heterogeneous Effects by Redistribution Intensity

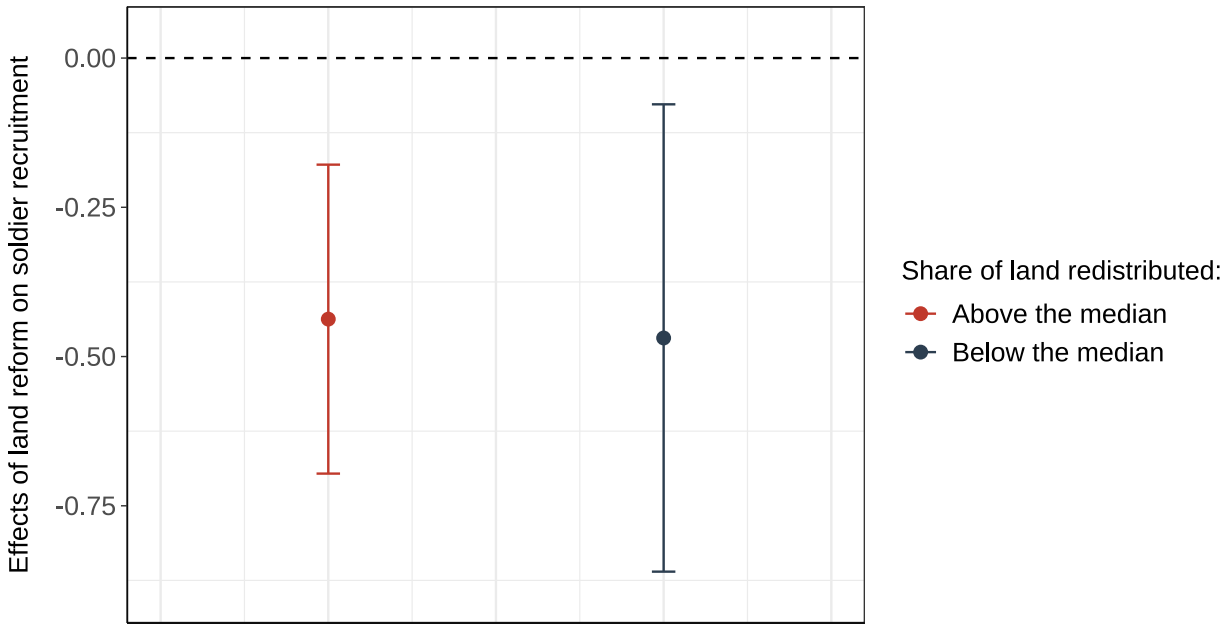

Figure A5: Effects of land reform on soldier recruitment, conditional on redistribution intensity. 95% confidence intervals based on standard errors clustered by county.