Peasant commune and the demand for land titling in Imperial Russia

Natalia Vasilenok *

Stanford University

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Abstract

Despite their potential economic benefits, land titling reforms around the globe often encounter moderate participation rates. Why do farmers hesitate to claim private land titles? To address this question, this paper examines the historical case of the 1906 land reform in the Russian Empire. For the first time in the country's history, the reform enabled peasants to title their plots, which had previously been under communal tenure. Drawing on newly digitized commune-level data from the province of Simbirsk, the paper argues that differences in the practice of land reallocation among the members of a commune, known as *repartitions*, shaped the benefits and costs of transitioning to private property. I find that the reform was much less successful in communes where repartitioning practices developed as a substitute for the land market, trapping them in an inefficient equilibrium. The results suggest that the design of land reforms should take into account the incentive structures created by traditional property rights regimes.

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1 Introduction

When do state efforts to introduce private property rights fail? Secure and unrestricted private property has been regarded as an important driver of economic development, encouraging investment and improving the efficiency of factor allocation (Demsetz, 1967; Ravallion and Van De Walle, 2006; Besley and Ghatak, 2010). Governments have been implementing land titling reforms to establish private property rights over land. Yet, despite their anticipated economic benefits, these reforms often encounter limited popular take-up (Vendryes, 2014; Le Rossignol, Lowes and Montero, 2024). Why do farmers hesitate to claim land titles? To address this question, this study examines the historical case of communal landownership in the Russian Empire at the beginning of the twentieth century. It argues that local-level differences in the traditional practices of land allocation across peasant households shaped the benefits and costs of transitioning to private property.

With a land reform implemented in 1906, the Russian Empire enabled peasants to acquire private titles on land for the first time in the country's history. However, the reform faced moderate participation rates, with only around 20% of peasant households titling their land by 1917 (Davydov, 2022). Prior to the reform, peasant land had been owned collectively by the institution of the peasant commune (*obschina* or *mir*), which roughly corresponded to a village. Each commune allocated land plots within a communal field to individual households under temporary tenure and possessed the right to periodically reallocate — or *repartition* — land holdings. The practice of land repartitioning sometimes conditioned the size of a land holding on the availability of family labor resources; in other words, more land would be allocated to families with more workers.[1] Claiming a formal title secured land from future repartitions, enabling peasants to collateralize or sell their plots. The reform therefore opened the door to land improvement, the emergence of a unified land market and better access to credit. Although recent research has documented that the reform succeeded in raising agricultural productivity (Dower and Markevich, 2018b) and promoting domestic migration (Chernina, Dower and Markevich, 2014), the demand for the reform did not seem commensurate with the economic benefits of land titling.

Why did the peasants of the Russian Empire hesitate to claim private titles? Taking advantage of newly digitized data that cover the universe of peasant communes in one province of the country, this paper explores how incentives structures created by different traditional property rights regimes can shape the demand for formal land titling. Zooming in on a territory the size of present-day Slovakia enables me to hold constant the nation-wide legal framework that regulated peasant landownership and focus instead on the local variation in the practice of land repartitioning. I find that the land reform was less successful in the communes where repartitioning practices acted as a substitute for the land market. In the environment that constantly created a threat of demographic shocks, ranging from drought-induced famines to military drafts, such communes were better equipped to maintain production in the face of labor shortages — as documented by Dower and Markevich (2018a) for World War I — and thereby were highly valued by peasants.

With no systematic commune-level data collected by the underbureaucratized imperial state (Kotsonis, 2016; Davydov, 2022), the comprehensive study of the reform has faced considerable challenges. To characterize titling rates and land tenure regimes at a micro level, I digitized the agricultural census conducted in 1910–11 by the local government (*zemstvo*) of

[1] The land tenure arrangement most similar to repartitioning in Russia existed in China after the abolition of the collective farming system in the early 1980s. Under that arrangement, a village had a right to reallocate land plots across families in response to demographic changes. Even though land reallocations were restricted in 1998, in some parts of China they persist until today (Ren et al., 2022).

Simbirsk province.[2] The census uniquely recorded the year of the last repartition and the repartition rule adopted by a commune along with the battery of socio-economic variables. To supplement the census data with geographical information, I manually geolocated the villages of Simbirsk province relying on historical maps. As a result, I end up with a cross-section of more than 2,500 communes in 153 townships (*volost'*) of eight districts (*uezd*) of the province.

Using these data, I first document substantial variation in the practice of land repartitioning in Simbirsk province. Although the link between land and labor has long been treated as the defining feature of peasant landownership in Russia (Scott, 1976; Williams, 2006), I find that only about 40% of peasant communes in Simbirsk province corresponded to this image. In such communes, land holdings were reallocated based on the number of resident male family members.[3] Throughout the paper, I will refer to this type of communes as communes with labor-contingent repartitions or communes relying on a *male repartition rule*. Another 25% of communes also practiced repartitioning, yet they did so without taking into account family structure. Instead, they maintained the size of land holdings transferred from former landowners at the abolition of serfdom in 1861. I will refer to this type of communes as communes employing a *revision repartition rule*, where revision denotes pre-emancipation peasant censuses. Finally, around 33% of communes never conducted a land repartition.

Second, I find that variation in the practice of land repartitioning was associated with differential demand for formal land titles under the land reform of 1906. Figure 1 represents the unconditional average titling rates across three groups of communes. The communes that practiced labor-contingent repartitions — that is, repartitioned land by resident male family members (*Male repartition rule* on Figure 1) — exhibited the lowest demand for the reform. In contrast, the communes that resorted to non-labor-contingent repartitions — that is, fixed the size of a land plot within a family (*Revision repartition rule*) — exhibited the highest demand for formal titles.

These results prove robust to the inclusion of control variables. In a preferred specification, communes that adopted a male repartition rule exhibited eight percentage points lower titling rates by 1911 when compared to all other communes. The magnitude of the difference is economically significant and corresponds to a 44% decrease over the sample average titling rate of 18%. The absence of active repartitions threatening the security of land tenure similarly decreased the demand for land titling, albeit to a lesser extent. The results remain robust to a wide range of socio-economic and geographic controls, multiple methods of standard error clustering, and alternative explanations — namely, bureaucratic capacity and trust in the state.

As long as every commune had a right to decide whether, when, and how to conduct a repartition, its land tenure regime evolved as an internal equilibrium and hence was by no means exogenous to the process of land titling. For example, some communes might have resorted to repartitioning as a reaction to the titling decisions of its members. To account for that, I focus on the communes that had their last repartition before the start of the reform implementation. Even in that case, however, unobserved factors might have affected both repartitioning practices and the demand for titling at the commune level. To address

[2]The province of Simbirsk was situated in the southeastern part of European Russia, on the left bank of the Volga River. In 1924, the city of Simbirsk, the administrative center of the province, was renamed *Ulyanovsk* after Vladimir Lenin, who was born there. Map D1 in the Appendix locates the province within the Russian Empire.

[3]Although repartitioning by family members of both genders was legal, it remained relatively uncommon by the beginning of the twentieth century. In Simbirsk province, as demonstrated below, it was practiced in fewer than 1% of all communes.

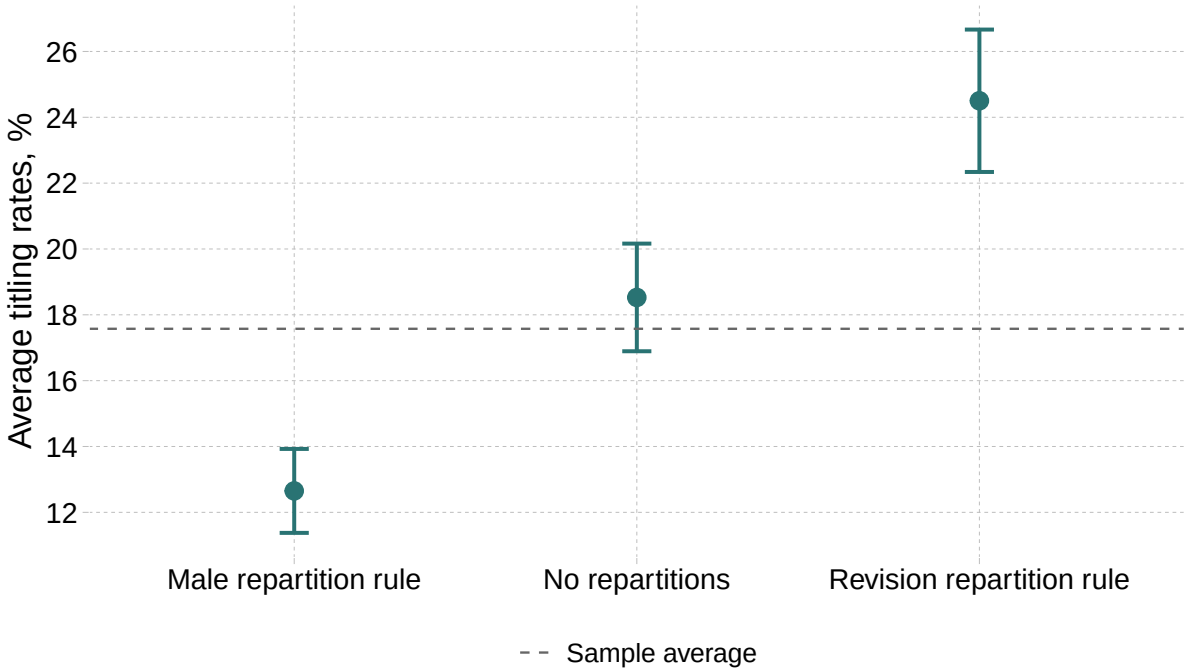


Figure 1: Titling rates across repartition rules in Simbirsk province

Notes: The average percentages of land plots titled by 1911 across the communes of Simbirsk province grouped by a land repartition rule, with 95% confidence intervals. The dashed gray line represents the average titling rate of 17.58% on the entire sample. Data cover 2,521 communes.

endogeneity concerns, I resort to an instrumental variable strategy in which I exploit climatic shocks as a potential source of abrupt demographic changes.

In an economy where less than 1% of households relied on hired agricultural labor, demographic shocks likely created a mismatch between family labor and land resources, which, in the absence of the land market, necessitated an alternative mechanism of land reallocation. Such a mismatch, indeed, has been treated as a major impetus to adopting labor-contingent repartitioning by contemporaneous authors (Vorontsov, 1892). Since population growth itself might have been affected by an established land tenure regime, I resort to using average drought severity 25 years prior to the last recorded repartition as my instrumental variable, confirming my earlier estimates. I rely on the assumption that whereas broad climatic conditions over the long run might have affected titling rates through multiple channels, such as, for example, land prices, highly localized environmental shocks that held a potential to precipitate a change in a land tenure regime will most likely be orthogonal to other forces that were driving the demand for land titling at the moment of the reform.

Why did members of communes that practiced labor-contingent land repartitions more frequently choose to forego formal titling? The existing literature suggests that land reallocations under communal tenure substituted for poorly functioning or absent factor markets (Nafziger, 2010; Zhao, 2020). Building on this argument, I suggest that only labor-contingent repartitions mitigated land misallocation by using the observable family labor resources as a signal of unobserved agricultural productivity. I show that communes with labor-contingent repartitions relied much less on the rental market than other types of communes, holding factors such as land endowment and soil quality equal. Moreover, they had the lowest share of households with no access to communal land. It therefore appears that, by offering a successful substitute for market-driven land allocation, labor-contingent repartitions imposed substantial costs on the development of the land market in rural Russia.

This paper relates to three major literatures. First, it contributes to the discussion on the failures of land titling reforms around the globe. These reforms have not always been welcomed by those who they were intended to benefit the most — farmers themselves (Vendryes, 2014). The literature has offered multiple explanations for this puzzle, such as distrust in the state, customary privileges, or social norms. It has been found that the demand for formal titles tends to decrease with a lower level of trust in the state's capacity to protect private property (Ferree et al., 2023; Ribar, 2023). Higher privilege within traditional social structures similarly reduces incentives to claim a land title (Honig, 2017). Finally, what looks like a failure in governmental statistics might in fact be a success — in Cameroon, farmers widely engaged with the titling reform without claiming a title by obtaining boundary markers on their land, which was considered as a sign of an increased tenure security in the local culture (Firmin-Sellers and Sellers, 1999).

My paper demonstrates that traditional land tenure regimes might themselves be the source of variation in the demand for land titling. In a recent study, Le Rossignol, Lowes and Montero (2024) have documented that land titling programs tend to be less successful in the parts of the world with a higher prevalence of communal landownership. Although all peasant land in Simbirsk province of the Russian Empire *de jure* fell under communal tenure, micro-level variation in the practices of land repartitioning resulted in the uneven take-up of land titling. This suggests that traditional property rights regimes vary in the benefits they provide and costs they impose in ways that depend on the highly localized context (for a related argument, see Balan et al., 2023). If we agree that a cost-benefit calculation guides a peasant's decision to claim a formal title, variation in traditional property rights regimes should be taken into account by the designers of titling projects.

Second, my paper expands our understanding of property rights regimes and the persistence of inefficient rural institutions beyond Western Europe (Blaydes, 2019). One notable example is the open-field system, common both in Western Europe and Russia, under which land holdings were scattered into smaller strips across separate locations, requiring the coordination of production plans among farmers. Heldring, Robinson and Vollmer (2022) demonstrate that parliamentary enclosures of open fields in England dramatically increased agricultural productivity by removing obstacles to innovation and infrastructural investment. Yet open fields persisted across Europe until the eighteenth century, when European governments gradually started to enact the legislation guiding the process of enclosure (Grantham, 1980).

To explain their persistence, the literature has interpreted open fields as a risk-insurance mechanism that evolved as a response to spatially heterogeneous environmental shocks in the absence of insurance markets (McCloskey, 1976). By holding a portfolio of strips of different soil types and land quality, a peasant could minimize the risk of harvest failure. Unlike in Europe, in Russia, the scattering of strips was often accompanied by their periodic reallocation across families. In my paper, I argue that while land reallocation added another source of inefficiency, they also compensated for the poorly functioning land market, which likely contributed to their persistence.

The role of land repartitions in the Russian countryside seems to share similarities with that of commons in Spain. The privatization of commons, initiated in the 1850s, failed to offer the alternative set of institutions that would replace the functions that commons had played for local communities. By depriving them of an additional source of revenue used to fund public goods, privatization undermined the standards of living (Beltrán Tapia, 2015). In regions where commons remained mostly intact, in contrast, their persistence facilitated the transition to a market economy. Taken together, these findings imply that the design of land reforms should take into account the incentive structure created by traditional property

rights regimes.

Finally, my paper contributes to the growing literature studying the political economy of rural institutions in the late Russian Empire, an underindustrialized country where peasants comprised more than eighty percent of the population at the turn of the twentieth century. The institutions of serfdom and peasant commune have been long treated as major factors hindering the economic development of the Russian Empire (Gerschenkron, 1962). Even though recent research has demonstrated that the abolition of serfdom of 1861 and the land reform of 1906 both substantially contributed to the growth of agricultural productivity (Markevich and Zhuravskaya, 2018; Dower and Markevich, 2018b), little is known about how exactly rural institutions functioned and why they persisted for so long — mostly because local variation in these institutions was remarkably high (Dennison, 2011). Building on a set of papers that demonstrate the flexibility of peasant commune and its resilience to demographic shocks (Nafziger, 2010, 2016; Dower and Markevich, 2018a), I study how previously undocumented differences in communal landownership played out in peasants' decisions to break away from commune.

2 Historical background

2.1 Russian peasant commune

In the Russian Empire, the emancipation of serfs in 1861 established the institutional framework that shaped peasant landownership up until the 1917 revolution. Prior to the emancipation, only the royal family, the state, and noble landowners enjoyed property rights on land. They, in turn, allotted land plots to peasants in exchange for quitrent payments or unpaid labor on a landowner's demesne. The emancipation law transferred property rights from former owners to peasants under buyout contracts financed by state loans. Although buyout contracts were signed individually, it was a peasant commune that the emancipation law vested with property rights on peasant land.[4] Communal landownership deprived newly emancipated peasants of the right to collateralize or sell their land plots for the next fifty years.

Peasant communes were first institutionalized as a form of rural self-government for peasants living on state-owned land by the reforms of 1837–41. The emancipation of 1861 extended the communal arrangement to private serfs and royal peasants. A peasant commune, which usually comprised one large village or several smaller ones, was responsible for allocating and paying taxes, adjudicating conflicts, managing common resources, and regulating everyday peasant life. For example, communal agreement was required to take up work outside of the village or to perform household divisions. The heavily underbureaucratized Russian Empire relied on a peasant commune to govern roughly eighty percent of its population, at the same time restricting its own reach into communal affairs (Kotsonis, 2016).

Peasant communes legally took two forms. In hereditary communes, which prevailed in modern-day Belarus, Lithuania, and the western part of Ukraine, land allotments, though formally under communal tenure, were passed down within families across generations. Repartitional communes, widespread in the rest of the Russian Empire, in contrast, were endowed with a right to regularly reallocate land across households. This process, known as a repar-

[4] In Russian-language literature, the notions of *krestyanskaya obschina*, *selskoye obschestvo*, and *mir* have been used interchangeably to denote a peasant commune. While the laws of the Russian Empire employed the notion of *selskoye obschestvo* or a rural community, historical literature has been mostly using the notion of *krestyanskaya obschina* or a peasant commune.

tition (*peredel*), could be initiated when supported by a two-thirds majority at a communal assembly (*selsky skhod*).[5] Map D2 in the Appendix demonstrates the distribution of repartitional communes across the provinces of the European part of the country in 1905.

While the law established a broad framework shaping communal landownership, the practice of repartitioning was regulated at the level of individual communes. Historical literature agrees that, in general, repartitions intended to match land holdings with family labor resources (Williams, 2006; Davydov, 2022). Indeed, contemporaneous sources suggested that the primary reasons motivating a repartition were asymmetric demographic changes and migration leading to the accumulation of uncultivated land (Vorontsov, 1892). Communes, however, differed substantially in the frequency of repartitioning. Some communes stopped conducting repartitions after the abolition of serfdom; others would repartition as often as every three years (Nafziger, 2016).

Communal assemblies debated not only whether and when to conduct a repartition, but also how to allocate land across households. Alongside numerous local variations, communes approached land repartitioning in two main ways. First, communes could redistribute land by the number of resident male family members. I refer to this arrangement as a *male repartition rule*.[6]

Second, they could retain the land plot sizes assigned to households at the time of emancipation in 1861, reallocating parcels of land among households based on the number of revision souls (*dushi*, pl.), the term referring to taxable male population.[7] Before 1861, a tax census, also called a revision (*reviziya*), had been conducted every 15-20 years by the government to establish the sum of per capita peasant taxes. In the process of the emancipation, all taxable males — or souls — recorded in the tax census of 1857–59 were entitled to an allotment. For simplicity, I refer to this repartitioning practice as a *revision repartition rule*. After 1861, repartitions remained rare as long as the distribution of allotments corresponded to the composition of families, but demographic changes and an increase in land prices motivated the spike in repartitions in the late 1870s – early 1880s.

Different repartition rules were associated with differential gains and losses for different households; that, along with the decision of whether or not to conduct a repartition shaped the internal politics of a commune. In an attempt to address inequalities created by the current repartition, a new repartition was often sought.[8] Whether a commune would in fact conduct a repartition and what rule it would adopt depended on the interplay of factors, such as bargaining power of those opposing a new repartition, the ratio of opponents to advocates, and a capacity for intra-communal negotiation (Vorontsov, 1892). Structural factors, such as the institutional legacy of serfdom or the proximity of major markets, also played a role. For example, in contrast to state- or crown-owned villages, serf owners did not conduct repartitions on a regular basis before the emancipation, making former serfs less likely to engage in repartitioning. Nevertheless, even neighboring communes not infrequently displayed dramatically different land tenure regimes.

[5]Table B1 in the Appendix lists the Russian versions of the historical terms mentioned in the paper along with their translation and explanation.

[6]By the turn of the twentieth century, some communes reportedly started to switch to repartitioning by the total number of residents – irrespective of gender (Kachorovsky, 1906). However, as a reader will see later, my sample includes almost none of such communes.

[7]A reader can remember Nikolay Gogol's novel *Dead Souls*.

[8]For example, in the village of Rovnoye in Samara province, "one fraction has always sought to repartition by revision souls, and another one by resident souls. Both happened to be almost equal in size, and because the law requires two thirds of votes at a communal assembly, the commune cannot reach an agreement for the second year in a row now..." (Dietz, 1891)

2.2 Stolypin land reform

At the turn of the twentieth century, the Russian Empire remained a predominantly rural society, with peasants comprising more than eighty percent of its total population. Communal landownership and open fields, mostly gone in Western Europe, still permeated peasant agriculture. Peasant land was scattered into multiple unfenced strips across a communal field, enforcing adherence to a communally regulated rotation of crops and farming. It was precisely open fields and the practice of repartitioning that the land reform of 1906 targeted.

The reform, commonly known as the Stolypin reform after its mastermind Prime Minister Pyotr Stolypin, aimed at enhancing the efficiency of peasant agriculture at multiple levels. First, it enabled peasants to apply for a private land title securing the land in current possession from future repartitions. Titled land could be used as a collateral or sold to other peasants. Second, the reform allowed peasants to consolidate their land strips into a single plot. In both cases, the law absolved peasants from the hold of a commune, providing a legal means of overcoming communal resistance. With an agreement of two-thirds of a communal assembly, a commune could also conduct a village-wide consolidation.[9] In this paper, I will focus on land titling.

To obtain a land title, a peasant would submit an application to a communal assembly.[10] The peasant could claim at no cost the amount of land he would get if a repartition was conducted at the moment of application. If he had extra land in current possession, it could be titled for a below-market price. Within a month, the communal assembly and the peasant had to negotiate the terms of titling. If a negotiation failed and the commune turned down the application, a peasant had a right complain to an overseeing bureaucrat — a land captain (*zemsky nachalnik*) — who was empowered to issue a land title without the commune's consent. All titles had to be submitted to and approved by the district peasant administration (district assembly or *uezdny syezd*).

Recent studies have demonstrated that the Stolypin reform contributed to the rise of agricultural productivity and the development of the land and labor markets. Village-wide consolidations, by reducing coordination costs, yielded a positive effect on grain productivity and the inflow of agricultural machines (Dower and Markevich, 2018b). Having alleviated restrictions on non-agricultural employment for peasants, the reform also increased land liquidity and encouraging domestic mobility (Chernina, Dower and Markevich, 2014). Acquiring a title enabled peasants to sell their land allotments, helping them move to a city or other provinces of European Russia or Siberia.

By 1915, the last year for which systematic data on the implementation of the reform was published, around 2 million households across 39 provinces of the European part of the Russian Empire had acquired land titles.[11] This constituted around 20% of the total number of households holding land under repartitional tenure. After accounting for households who submitted but then withdrew their applications, most likely, under the pressure of fellow commune members, the share increases to 27% (Davydov, 2022). However, there was a substantial variation in titling rates across provinces that ranged from 3% to 55%. While no systematic data have been published by the imperial officials at a lower level of aggregation, it appears that micro-level variation, most likely driven by the variation in traditional landownership regimes, might have been even more dramatic.

[9] The reform also included other forms of streamlining landownership, such as land consolidation under communal land tenure or the abolition of land interstripping between different communes or between communes and private landholders.

[10] Complete collection of laws of the Russian Empire. 28528. November 9, 1906.

[11] Data come from Central Statistical Committee (1916).

2.3 Peasant responses to the reform

The variation in local practices of land repartitioning most likely shaped the perceived costs and benefits of land titling under the Stolypin reform. Communes that held their land in repartitional tenure but did not practice repartitioning offered their members relatively secure informal property rights on land. In such communes, obtaining a land title did not appear to bring about any tangible benefits — unless a peasant sought to sell their allotment. A peasant from Ryazan province, who lived in a commune where no repartitions had been conducted since the emancipation, reported:

> *"A good farmer isn't even thinking about titling. He knows the land is already his. What is then the point of titling it? It's just the same land, it won't grow any bigger."* (Chernyshov, 1917a)

Different repartition rules adopted in communes with active repartitions may have also contributed to variation in the take-up of the reform. Communes that adopted a male repartition rule provided "insurance" against economic and demographic shocks. Under land and labor market restrictions, communes that adjusted the number of allotments in response to changes in fertility or mortality acted as a substitute for formal market (Nafziger, 2010). Although the reform of 1906 lifted most of these restrictions, the take-up of the reform suggests that many peasants continued to rely on communal institutions. As one peasant from Saratov province explained:

> *"To my mind, communal landownership is better for our area... Upon every next repartition, land will be taken away from the dead and transferred to the newly born."* (Chernyshov, 1917b)

Communes that repartitioned land by revision souls and did not adjust the size of family land plots, in contrast, were less responsive to demographic shocks. This likely resulted in greater inequalities in land distribution across households, potentially diminishing the value of communal institutions for the members of the commune.

The reform also provided a legal framework to protect peasants whose land rights were most vulnerable to repastitioning practices. In a survey conducted in 1910–11 by the Free Economic Society — a non-governmental research organization — peasant respondents reported that villagers who would lose land in an upcoming redistribution, along with widows, the elderly, and migrants, showed the greatest demand for land titling.[12] For example, in communes with a male repartition rule, male deaths between repartitions implied that a household would be entitled to a smaller plot in the next repartition. Similarly, peasants who had ended up with land of higher-than-average quality in a communal field in a previous repartition had an incentive to claim a title before a new repartition was announced by the commune.

Historical sources suggest that returning migrants or first-mover titlers sometimes induced other peasants to engage in preventive titling. Industrial migrants who had moved to cities before the reform often returned to their home communes to claim and sell a land plot.[13] Distributing land to returning migrants imposed cut-offs on other members of a commune. In the communes where the share of migrants was substantial, the members of the commune often preferred to title before migrants could raise their claims (Peshekhonov, 1909).

While the fear of returning migrants equally affected all types of the communes regardless

[12] The results of the survey are summarised in Chernyshov (1917a,b).

[13] Historical records suggest that peasants who travelled as far as to San Francisco rushed to claim their land plots after the reform was enacted with an intention of selling it (Zyrianov, 1992).

of their institutional structure, the first-mover effect was likely to be observed only in the communes with active repartitions. Peasants who acquired land titles depleted a communal land pool that could be used for future repartitioning. The expected value of a future repartition for peasants remaining in the commune was declining with titled area and the quality of titled land, making second-movers more likely to title after first-movers did. Historical literature suggests that sometimes entire villages opted for preventive titling to preempt this type of dynamics (Pallot, 1999).

3 Data

Although historical literature suggests that variation in the practice of land repartitioning played an important role in shaping the implementation of the Stolypin reform, a quantitative study of the peasant demand for land titling has not been yet conducted. The lack of systematic micro-level data poses a major obstacle for such a study. The official reports on the progress of the reform, published annually by the Chief Administration of Agriculture and Land Engineering, reported data only at the level of provinces, which could be easily equal in size to a small European country. Suffering from the lack of bureaucratic personnel and low informational capacity, the central government struggled with collecting economic data at the communal level (Kotsonis, 2016). For both reasons, statistical work performed by the provincial governments (*zemstvo*) becomes the invaluable source for the study of peasant commune.

For this paper, I take advantage the peasant census conducted by the *zemstvo* of Simbirsk province (*gubernia*) in 1910–11.[14] The peasant censuses were local initiatives uncoordinated by the central government and did not follow a standardized research program. They mostly focused on land usage and agricultural production, and the results were usually published at the commune level. The earliest censuses were conducted in the late 1870s. Due to high costs and limited resources of local statistical offices, only a handful of the most affluent provinces could afford running censuses at a regular interval.[15] The Simbirsk census, conducted five years into the reform implementation, uniquely recorded both the number of land titles acquired under Stolypin the reform and the characteristics of local repartitioning practices. I digitized the Simbirsk census and excluded all communes that did not have any allotment land or registered population from my sample. This left me with 2,521 communes in 1,645 villages of Simbisk province.

The outcome variable of interest is the share of communal allotments titled by 1911. In Simbirsk province, on average, a commune assigned 1.8 allotments to a household, with 75% of communes assigning less than 2.3 allotments. The average allotment covered the area of 3.4 hectares (or 8.4 acres).[16] Figure 2 demonstrates the distribution of land titling rates in Simbirsk province. The distribution is skewed to the right with around 30% of communes not reporting any titled allotments (colored with purple). The median of the distribution is 6%; however, excluding communes with zero titled allotments, it increases to 16%. The distribution also shows a small spike at 100%, potentially reflecting the preventive titling mechanism discussed in Section 2.3. The average titling rate is 17.6%. In a subsample of

[14]Data for each district were published in a separate volume between 1913 and 1915. Data aggregated to the township level was published in Simbirsk Provincial Zemstvo (1913).

[15]Before the Bolshevik Revolution, one-third of all provinces had had conducted only one local census since the late 1870s, and another had conducted no censuses at all.

[16]Figure D3a in the Appendix shows the distribution of the number of allotments per households across the communes of Simbirsk province. Figure D3b demonstrates the distribution of the average allotments size in hectares.

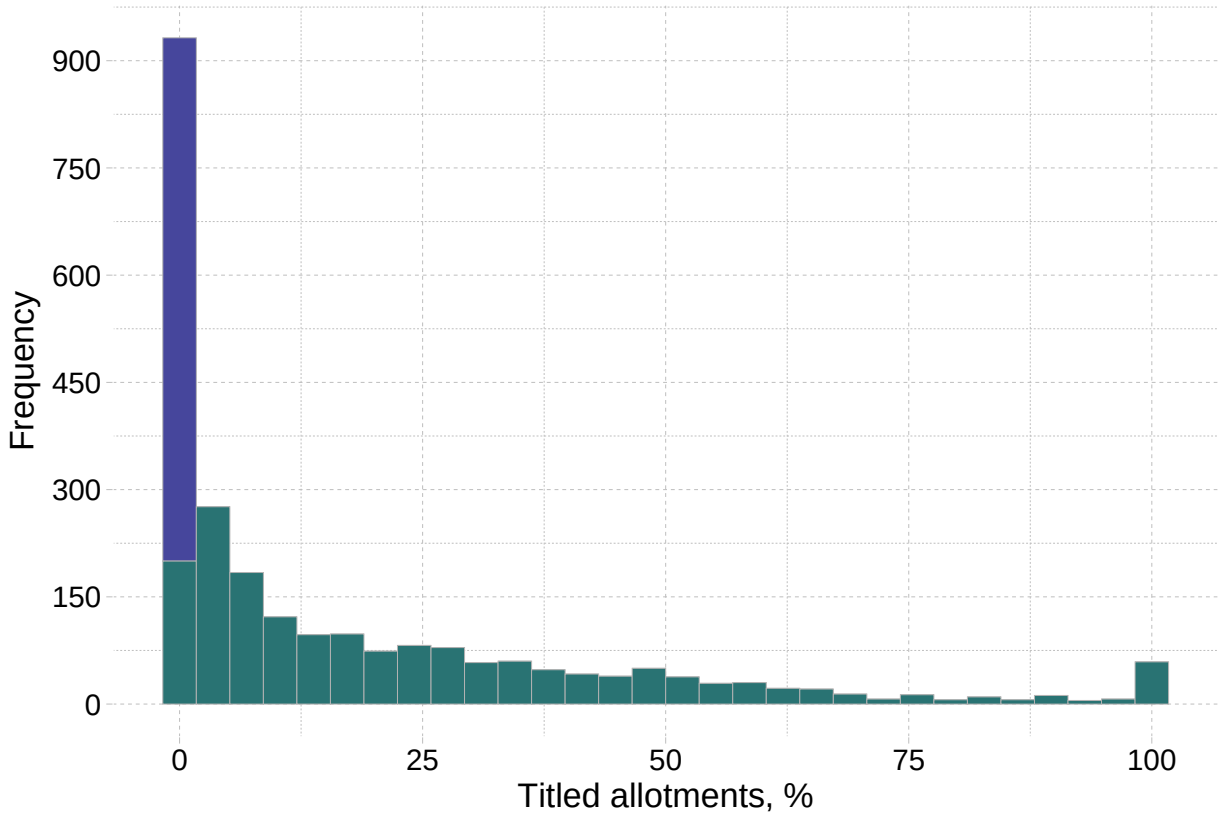


Figure 2: Percentage of titled allotments across the communes of Simbirsk province by 1911

communes with at least one titled allotment, this number increases to 24.8%.[17] Figure 3 demonstrates the spatial distribution of titling rates aggregated to the level of villages.

To capture local variation in repartitioning practices, I relied on the information about repartition rules and the intensity of repartitioning. For each commune, the census reports the year of the most recent repartition. If a commune did not conduct any repartitions after the abolition of serfdom, I classified it as not practicing repartitions. I then created a dummy variable that takes a value of one if a commune allocated land across households based on the number of resident male family members.

To control for other incentives to claim a land title, I compiled data on the number of households in a commune, the share of migrant households, literacy rates, average allotment size, average family size, and the share of households with no working males from the Simbirsk census. I supplemented it with data on pre-emancipation peasant status — namely, former serfs, state-owned or crown-owned peasants, prevalent ethnicity, and prevalent soil type.

The Simbirsk census also provides information on the functioning of the rental market. It records the number of households leasing land in each commune and the area of rented land. Using these data, I calculated measures of engagement in the rental market. For the entire sample, I computed the percentage of households renting land. For the subsample of households who were renting land, I calculated the average area of a rented-in plot.

To supplement my analysis with geographical data, I created a GIS shapefile of Simbirsk villages based on the topographic map of Simbirsk province compiled by Alexander Mende between 1859 and 1861. Out of 1,645 villages, I successfully geolocated 1,630. Using the shapefile, for each village, I computed the distances, in kilometers, to the centers of respective

[17] Figure D4 the distribution of land titling rates across the communes with at least one titled allotment.

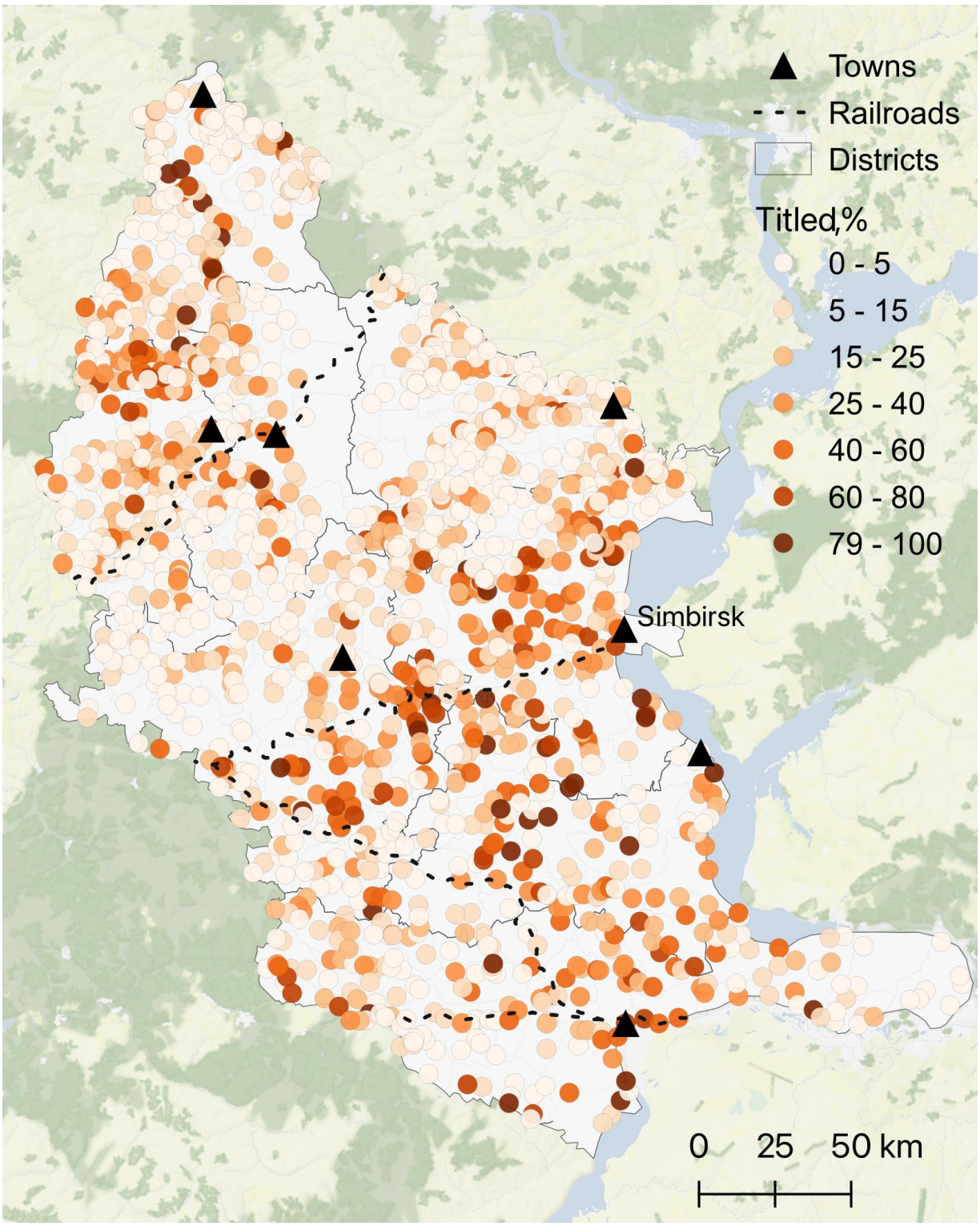


Figure 3: Titled allotments, %

Notes: Map depicts the spatial distribution of land titling rates across the villages of Simbirsk province in 1911. Darker dotes denote higher titling rates. Black triangles represent towns; black dashed lines show the location of railroads in 1914.

townships, the administrative centers of respective districts, and the nearest railroads. Since I lack information on the exact locations of communal fields, I calculated the average terrain ruggedness and the share of forest landcover within a 10-km radius surrounding each village to account for environmental conditions using data from Shaver et al. (2019).[18]

Next, I collected data on land captains — local bureaucrats who run the reform on the ground — to control for the supply of the reform on the part of the state (Dower and Markevich, 2018b). Each land captain in Simbirsk province, on average, oversaw four townships.[19] I retrieved information about vacant land captain offices and land captain turnover during the period of the reform implementation from memorandum books, which listed the names and addresses of local administrators. Between 1906 and 1912, three memorandum books were published in Simbirsk province. First, I recorded whether a land captain office had been vacant any time between 1906 and 1912. Second, I counted the number of unique land captains per land captain district; the variable ranges between one and three.

Finally, I measured the intensity of peasant unrest against noble landowners during the Revolution of 1905–07 to control for the level of trust in the state. Using the register of criminal sentences annually published by the imperial Ministry of Justice, I first computed the number of total criminal charges raised between 1906 and 1908 across villages of Simbirsk province. Then I zoomed in on criminal charges on the basis of disobedience to the law coupled with murder or arson conducted out of hate against victim's estate affiliation — the criminal code paragraph that was added to specifically persecute participation in the turmoils during the 1905–07 Revolution. I normalized both variables by the total village population.

Table C1 in the Appendix reports the descriptive statistics for the variables used throughout the paper.

4 Peasant commune in Simbirsk province

The province of Simbirsk was a typical agricultural province of the Russian Empire. Situated on the left bank of the Volga River, it covered an area of 49.5 thousand square kilometers — roughly the size of present-day Slovakia. According to the 1897 Imperial Census, slightly more than 1.5 million people lived in eight administrative districts of the province, 94% of whom were peasants. Orthodox Christians comprised around 88% of the population; 68% were Russians.[20] Simbirsk's urbanization rate and the size of its agricultural sector were close to the empire's median — 7% as opposed to 9% and 60% as opposed to 58% respectively.[21]

Similarly, Simbirsk province is representative of traditional peasant land tenure regime in central Russia. Roughly 98% of peasant communes formally held their land under repartitional tenure — slightly higher than the empire-wide median of 96%.[22] However, my data suggest that the practice of land repartitioning displayed substantial variation across the

[18] According to Williams (2006), around 25% of peasants travelled a distance of up to 5 *versts* ($\simeq$ 5 km) to reach their most remote strips, and around 60% of peasants 10 *versts* ($\simeq$ 10 km). As a robustness check, I also calculated terrain ruggedness and forest landcover within a 5-kilometer and a 15-kilometer radius.

[19] This corresponded to the area of approximately 1000 sq. km or 400 sq. miles and the average rural population of 37 thousand.

[20] Mordvins, Chuvashs, and Tatarts constituted the most notable minorities in the province comprising 12%, 10%, and 9% of the population respectively. Mordvins and Chuvashs were predominantly Orthodox, and Tatarts Muslims.

[21] Figure D5 in the Appendix shows the distributions of urbanization rate and the share of value added in agriculture in 1897.

[22] Data come from the landownership census conducted in 1905 (Central Statistical Committee, 1907).

Table 1: Distribution by the year of the last repartition

	(1) Number of communes	(2) % of communes
No repartitions since 1861	809	32.1
1862–1871	9	0.4
1872–1881	29	1.2
1882–1891	119	4.7
1892–1901	779	30.9
1902–1911	769	30.5
Sum	2,514	99.7
Year unknown	7	0.3
Total	2,521	100

Source: The agricultural census conducted by the Simbirsk Provincial Zemstvo (1913) in 1910–11.

communes of Simbirsk province. Table 1 groups Simbirsk communes by the decade of the most recent repartition. Almost one third of 2,514 communes, for which data are available, reported no repartitions after the abolition of serfdom in 1861.

Most communes — around 60% — had their last repartition between 1892 and 1911. Within this period, 1894 and 1900 stand out in terms of both absolute numbers and relative increases (Figure D6 in the Appendix). The law of 1893 restricted the frequency of repartitions by the period of twelve years. In 1894, 102 communes had their most recent repartition, which constituted a five-fold increase compared to 1893. In 1900, a repartition was conducted in 151 communes, twice the number of 1899. The data do not show, however, a systematic increase in repartitions after the start of the land reform in 1906.

Table 2 contrasts the variation in repartition rules across the communes of Simbirsk province with average titling rates under the 1906 reform. Around 40% of communes repartitioned land by the number of male family members. Among these communes, around 10% imposed various age restrictions. The age restrictions can be considered as a reaction to high infant and child mortality, preventing households from acquiring land for children who would die soon.[23] Among communes practiced a male repartition rule, only five did not practice land repartitions.

Around 57% of communes reported repartitioning land based on the number of revision souls — male population figures recorded in the last pre-emancipation tax census of 1857–59. Slightly more than a half of these communes reported no reallocations since 1861. In such communes, the practice of repartitioning died out after the abolition of serfdom. The remaining communes, which did adhere to the practice of repartitioning, constituted roughly one-fourth of all communes for which data on reallocation rules were available. In these communes, a family was entitled to a land holding of a fixed size defined at the abolition of serfdom, but strips that comprised the holding were periodically reallocated within a

[23] In 1900–03, the average infant mortality rate in Simbirsk province was 307 deaths per 1000 live births, which was higher than the average infant mortality rate of 260 across the European provinces of the Russian Empire (Natkhov and Vasilenok, 2022).

Table 2: Distribution by the repartition rule

	(1) Number of communes	(2) % of communes	(3) Privatized, %
Revision repartition rule	1437	57.0	21.2
No repartitions	793	31.5	18.5
Active repartitions	642	25.5	24.5
Male repartition rule	1,053	41.8	12.7
No repartitions	5	0.2	10.9
Active repartitions	1,043	41.4	12.7
Both genders	20	0.8	13.5
Hereditary	10	0.4	31.4
Sum	2,520	–	–
Rule unknown	1	0.04	–
Total	2,521	100	17.6

Source: The agricultural census conducted by the Simbirsk Provincial Zemstvo (1913) in 1910–11. Grey rows show the subgroups of the white rows above. Column (3) reports group means.

communal field.[24]

Data suggest that land repartitioning may have shaped the demand for the land titling. First, communes that adopted a revision repartition rule displayed higher titling rates than communes employing a male repartition rule. Second, titling rates seem to be associated with the intensity of repartitioning. Conditional on the repartition rule, communes with active repartitions had higher titling rates than communes with obsolete repartitions.

5 Empirical strategy

5.1 Baseline equation

To quantify the effect of land repartitioning practices on the demand for land titling under the 1906 reform, I estimate the following equation:

$$\textit{Titling rates, \%}_{ij} = \beta_0 + \beta_1 \textit{Male repartition rule}_{ij} + \beta_2 \textit{No repartitions}_{ij} + \boldsymbol{C}\boldsymbol{\beta}_3 + \boldsymbol{G}\boldsymbol{\beta}_4 + \mu_j + \varepsilon_{ij}, \quad (1)$$

In this equation, the outcome is the share of communal allotments titled by 1911. As a robustness check, I also employ a logarithmic transformation of titling rates, since the distribution of the original variable is highly skewed. The independent variables of interest, *Male repartition rule* and *No repartitions*, reflect the variation in local practices of land repartitioning.

[24]Figure D7 in the Appendix shows the relationship between the resident male population and the number of communal allotments (or, alternatively, the number of souls entitled to an allotment during a repartition) by a repartition rule. In communes that employed a male repartition rule, dots roughly align with the 45-degree line, suggesting that all male members of a commune were entitled to an allotment. In communes that employed a revision repartition rule, in contrast, dots fall below the 45-degree line, reflecting population growth since the late 1850s. Figure D8 performs the same exercise using pre-emancipation population numbers. Now, male population in 1859 roughly corresponds to the number of allotments in 1911 in communes with a revision repartition rule, but not in communes with a male repartition rule.

To compare communes that employed different repartition rules, I define *Male repartition rule* as a dummy variable that takes on a value of one if a commune repartitioned land holdings based on the number of resident male family members. For a more straightforward comparison, I excluded twenty communes that repartitioned land by the number of family members of both genders from the sample.[25] I further exclude ten communes that held their land in hereditary tenure. In that case, the coefficient β_1 measures the average difference between communes that employed a male repartition rule and communes that employed a revision repartition rule.

The second variable, *No repartitions*, captures the absence of a reallocation threat on part of the commune. I measure it as a dummy variable that takes a value of one if a commune never conducted a repartition after the abolition of serfdom.[26] In that case, the coefficient β_2 reflects the average difference in titling rates between communes that never had a repartition and communes that had at least one repartition.

The commune-level covariates $\boldsymbol{C}$ include the size of a commune measured in the number of households, average allotment size in hectares, average family size, the percentage of households with no working males, the percentage of migrant households residing outside of a commune, literacy rates, a dummy for ethnic Russians, and a dummy for former serfs. The set of geographic covariates $\boldsymbol{G}$ includes a dummy for the presence of fertile chernozem soils within a communal field, average ruggedness, the percentage of forest landcover, and the distances to the township centers, to the district towns, and to the nearest railroad. Unobserved district-level heterogeneity – for example, bureaucratic efficiency in reform implementation varying across district administrations – is captured by district fixed effects μ_j. Throughout the paper, standard errors are adjusted for spatial autocorrelation within 10 km following Conley (1999).

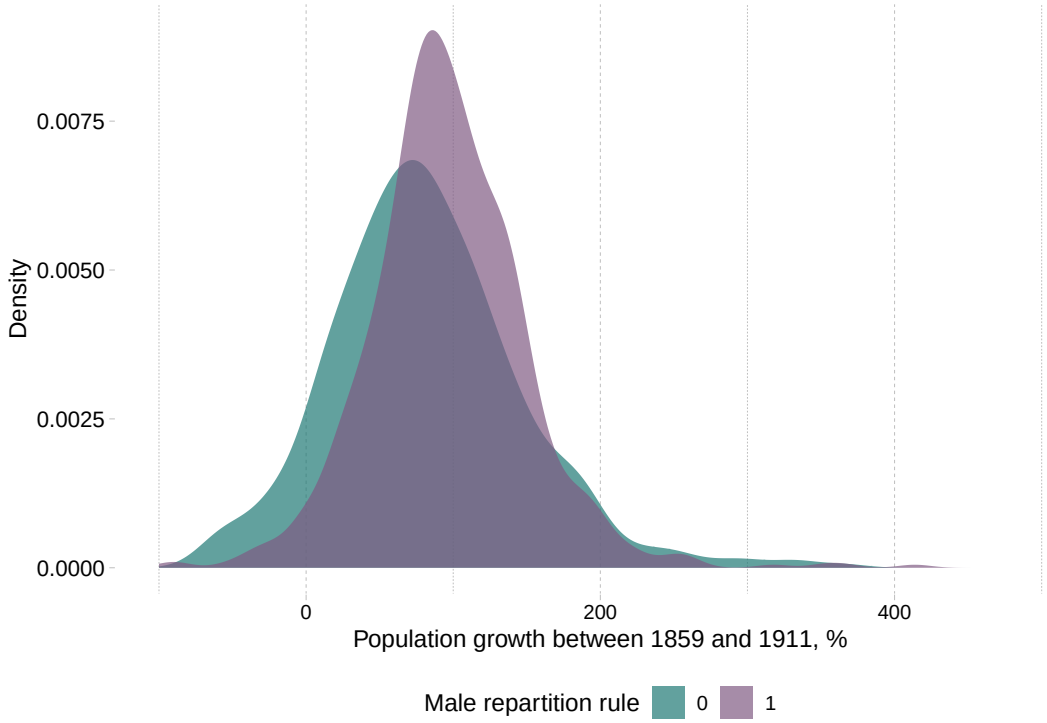
5.2 Identification

It might be too ambitious to treat land repartitioning as exogenous to an individual decision to claim a formal land titling. First of all, historical literature suggests that some communes engaged into strategic repartitioning to prevent from titling those of their members who would benefit from it the most under current land allocation (Pallot, 1999). In Simbirsk province, around 16% of communes conducted their last repartition after 1906. The communes that engaged in post-reform repartitioning appeared to be more vulnerable to economic incentives that those who did not; such communes had a smaller average allotment size and worse agricultural land. Such communes also overwhelmingly employed a male repartition rule. Although slightly lower, which might imply that strategic repartitioning did indeed discourage some communal members from titling, the average titling rate in such communes does not differ significantly from communes that had their last repartition before the reform (See Figure D9 in the Appendix). To mitigate endogeneity concerts, I drop such communes from the sample and focus in my analysis on the communes that had their last repartition before the start of the reform implementation.

Even in that case, however, unobserved factors may have been at play that affected both repartitioning practices and the demand for titling at the commune level. I next resort to an instrumental variable strategy in which I exploit historical climatic shocks as a potential

[25] The results stay the same if I combine these communes with communes that repartitioned land by male family members.

[26] Table 1 shows that 38 communes had their last repartition between 1862 and 1881. One can speculate that a probability of these communes having another repartition is sufficiently small. If I redefine *No repartitions* encoding these communes as positives, the results stay the same.



(a) Repartition rule and population growth between 1859 and 1911

Notes: Figure demonstrates long-term village-level population growth in 1,294 villages that consisted of a single commune in 1911. Purple distribution represents villages that employed a male repartition rule in 1911.

(b) Repartition rule and historical drought intensity

Notes: Figure demonstrates the average values of the Palmer Drought Severity Index over 25 years preceding the last repartition. Purple distribution represents communes that employed a male repartition rule in 1911. Data come from Burnette (2021).

Figure 4: What shaped the variation in land repartitioning practices?

source of exogenous variation in repartitioning practices. Climatic shocks might have affected the choice of a repartition rule if they brought about abrupt demographic changes that were uneven across families.[27] In an economy where less than 1% of households relied on hired agricultural labor, demographic shocks likely created a mismatch between family labor and land resources, which, in the absence of a land market, necessitated an alternative mechanism of land reallocation. Such a mismatch, indeed, has been treated by contemporaneous authors as a major historical impetus to adopting labor-contingent repartitioning (Vorontsov, 1892).

Figure 4a compares the distributions of population growth between 1859 and 1911 across repartition rules. To construct this plot, I digitized village-level population data from the last pre-emancipation tax census conducted in 1859. I then constructed long-term growth rates for villages that consisted of a single commune in 1911.[28] Figure shows that communes that employed a male repartition rule tended to experience a faster long-term population growth. Population growth, however, might itself be endogenous to communal institutions. For example, the practice of repartitioning might motivate families to have more children to be able to claim more allotments. To get at a source of exogenous variation in population growth, I computed the average historical Palmer Drought Severity Index (PDSI) for each commune over 25 years prior to the last repartition they conducted. Figure 4b demonstrates that communes that experienced a higher drought intensity (corresponding to smaller values of the PDSI) were more likely to adopt a male repartition rule. I then instrument the adoption of a male repartition rule with historical drought intensity.

6 Results

6.1 Non-repartitional correlates of land titling

Before I turn to discuss how repartitional practices shaped the demand for land titling in Simbirsk province, I examine whether potential economic benefits from privatizing incentivized land titling. Figure 5 reports the standardized coefficients from estimating Equation 1, suggesting that titling rates were increasing with labor mobility, land availability, and more favorable climatic conditions.

First, migration is positively and significantly associated with land titling, which agrees with the recent findings by Chernina, Dower and Markevich (2014). A 10 percentage points increase in the share of migrant households is associated with a roughly 2 percentage points increase in titling rates. Although the available data do not allow me to distinguish between pre- and post-reform migrants, historical records indicate that both contributed to the demand for the reform, with earlier migrants seeking to claim and sell the land to which they were entitled and prospective migrants to accumulate resources and oped a door for future migration. Table C2 in the Appendix demonstrates that the share of privatized allotments sold after the start of the reform was higher in the communes with a larger migrant population.

It appears that land more suitable to agricultural production also contributed to the demand for land titling. Average allotment size is positively and strongly associated with the share of titled allotments; a one standard deviation increase in average allotment size is associated

[27] This appears to be a plausible assumption. Demographic shocks, such as famines or epidemics, tend to target first the most susceptible groups of population, such as the children or the elderly, whereas families tend to be at different stages of their life cycle.

[28] Single-commune villages allow for a clearer comparison because communes that belonged to a same village could employ different repartition rules. Around 51% of all communes in Simbirsk province in 1911 were single-commune villages.

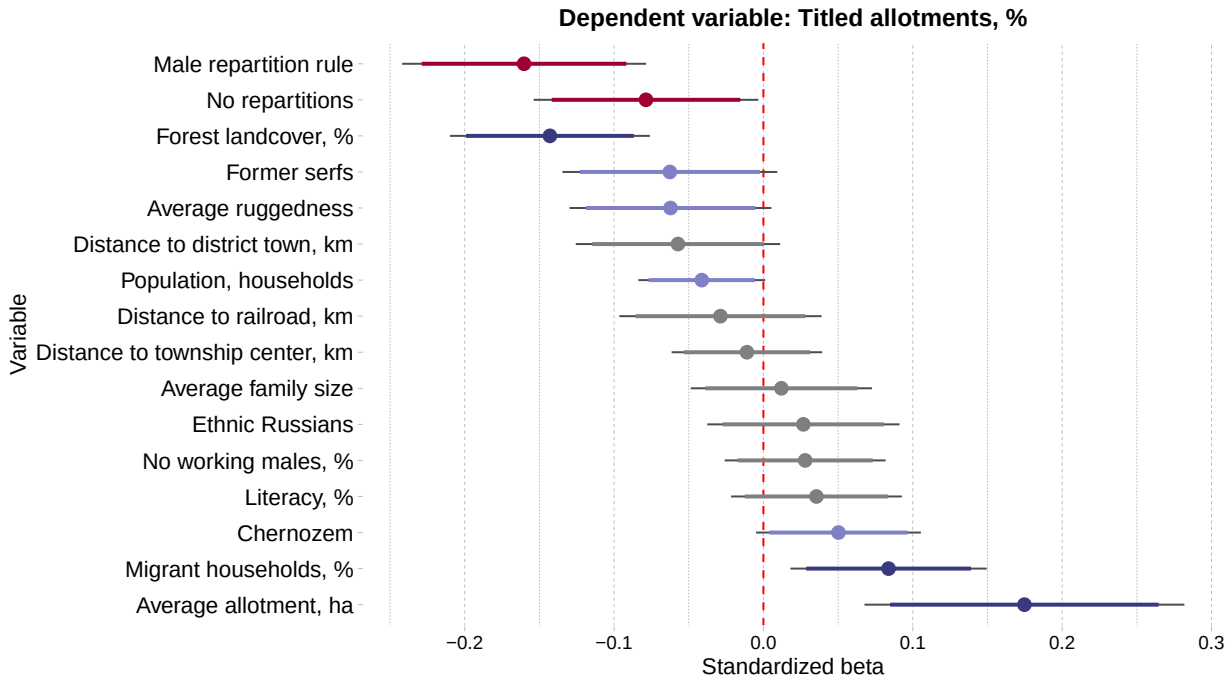


Figure 5: Correlates of land titling in Simbirsk province

Notes: Standardized coefficients from Equation 1 with 95% and 90% confidence intervals (thick and thin lines respectively). Estimates significant at the 95% level in bright purple and at the 90% level in light purple. Standard errors adjusted to spatial correlation within 10 km following Conley (1999).

with a 4 percentage points increase in titling rates. Land that necessitated higher labor input did not motivate the demand for land reform. Forest landcover and terrain ruggedness are both negatively associated with titling rates. This negative association can be potentially attributed either to a higher importance of communal institutions to agricultural production in harsher environmental conditions or lower land prices. Finally, the coefficient on *Chernozem*, a dummy variable indicating the presence of the most fertile soil type in the region, is positive and significant at the 90% level.

The size of a commune is negatively and significantly associated with land titling, suggesting that communes with a larger number of residing households displayed lower titling rates. This result may suggest that reaching an agreement between a peasant and a commune was easier in smaller communes. Finally, the results provide suggestive evidence in favor of the historical narrative that considers the households who could lose land in an upcoming redistribution – such as widows, the elderly, and households that experienced a demographic shock after the last repartition – as potential winners of the reforms. The coefficient on the share of households with no male family members of working age is positive but was not estimated precisely. However, it becomes significant at the 5% level in the specification where I take the logarithm of a dependent variable.[29]

6.2 Repartitioning practices and land titling

Table 3 focuses on the association between local repartitioning practices and the demand for land titling. Column (1) examines the relationship between titling rates, on the left-hand side, and dummies for a male repartition rule and the absence of repartitions, on the right-hand side. Column (2) controls for the characteristics of a commune. Column (3) adds the set of geographic controls. Column (4) includes district fixed effects. Standard errors

[29]The results are reported in Figure D10 and Table C4 in the Appendix.

Table 3: Land titling and repartitioning practices

	Dependent variable:			
	Titled allotments, %			
	(1)	(2)	(3)	(4)
Male repartition rule	−10.411***	−6.987***	−7.446***	−7.861***
	(2.153)	(2.284)	(2.132)	(2.017)
No repartitions	−5.342**	−4.164*	−4.803**	−3.859*
	(2.168)	(2.179)	(2.023)	(1.990)
Commune controls		✓	✓	✓
Geographic controls			✓	✓
District fixed effects				✓
Mean of DV	17.8	17.8	17.8	17.8
Standard deviation of DV	23.7	23.7	23.7	23.7
Observations	2,010	2,010	2,010	2,010
Adjusted R^2	0.041	0.090	0.118	0.133

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the percentage of allotments titled by 1911. The set of commune controls includes average allotment size, average family size, the share of households with no working male members, communal population in households, the share of migrants, literacy rates, and dummies for former serfs and ethnic Russians. The set of geographic controls adds a dummy for chernozem soil, distances to the township center, the district administrative center, and the nearest railroad, average ruggedness, and the share of forest landcover. All specifications control for the number of allotments per landed household. Standard errors adjusted to spatial correlation within 10 km following Conley (1999) in parentheses.
*p<0.1; **p<0.05; ***p<0.01

adjusted to spatial correlation within a 10-km radius are reported in parentheses. Table C3 in the Appendix reports the full set of controls.

The results suggest that both the choice of a repartition rule and the intensity of repartitioning played an important role in shaping the demand for land titling. First, across all specifications, peasants living in communes that adopted a male repartition rule showed a lower demand for land titling than those in communes employing a revision repartition rule, controlling for active repartitioning. The coefficient on *Male repartition rule* is negative and highly significant across all specifications. On average, titling rates in communes that employed a male repartition rule were 8 percentage points lower than in communes that employed a revision repartition rule. The magnitude of the difference is economically significant and corresponds to a 44% decrease over the sample average of around 18%.

Second, the results indicate that communes that did not practice repartitioning exhibited significantly lower titling rates than communes that had conducted at least one repartition after the abolition of serfdom. In the full specification reported in Column (4), the difference in titling rates between communes that did and did not practice repartitioning was around 4 percentage points. This result suggests that the adoption of land titling in communes with relatively more secured property rights did not bring about the same gains as in communes where peasants constantly faced the threat of expropriation. Taking advantage of the 1893

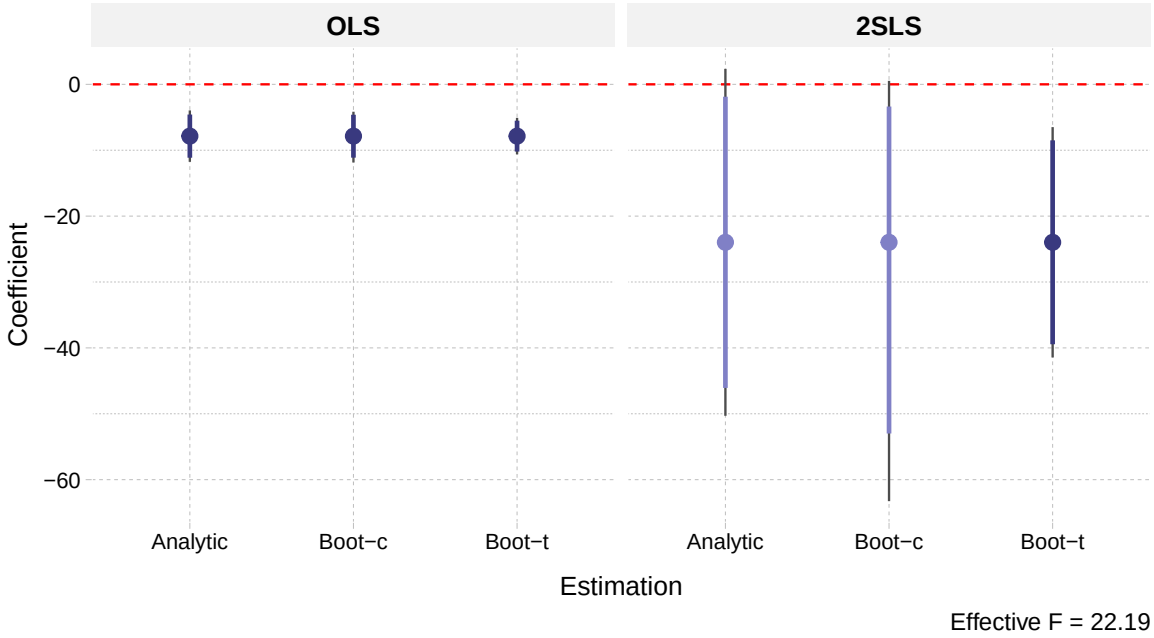


Figure 6: Instrumenting *Male repartition rule*

Notes: Coefficients on *Male repartition rule* from Equation 1 estimated using OLS (left panel) and 2SLS (right panel) with 95% and 90% confidence intervals (thick and thin lines respectively). Estimates significant at the 95% level in bright purple and at the 90% level in light purple. Results obtained using the `ivDiag` package (Lal et al., 2024). Standard errors clustered at the village level.

law that limited the frequency of repartitions to a minimum of twelve years, Section A in the Appendix demonstrates that land titling rates increased in anticipation of an upcoming repartition.

To examine the robustness of inference to the value of a spatial bandwidth, I adjust standard errors to spatial autocorrelation with the bandwidth ranging from 4 to 50 km. The coefficient on *Male repartition rule* remains significant at the 5% level across all values of a bandwidth. The coefficient on *No repartition* turns out to be less robust; the coefficient is significant at the 5% level within 10 km and at the 10% level within 20 km (see Figure D11 in the Appendix). For comparison, the average distance to a district center is 43 km across the entire sample.

The distribution of titling rates is skewed and has a long right tail (see Figure 2). To check the robustness of my results to the functional form, I employ the natural logarithm of titling rates as a dependent variable and report the results in Table C4. The results stay the same; the coefficients on both variables, *Male repartition rule* and *No repartitions*, are negative and significant at the 1% and 5% levels respectively.

Around 30% of all communes did not have a single titled allotment by 1911, five years into the reform implementation. These communes may have been systematically different from those where at least one member participated in the reform. For example, they may have been more effective at exerting social pressure on their members. To account for that, I replicate Equation 1 on a subsample of communes with at least one titled allotment. The results are reported in Table C5 in the Appendix. The effect of a male repartition rule remains negative and highly significant. The effect of no repartitions, however, appears less robust and loses significance after the inclusion of fixed effects.

To account for possible endogeneity in the choice of a repartition rule, I instrument *Male repartition rule* with average historical drought intensity 25 years prior to the last repartition.

Figure 6 compares the coefficients obtained from the OLS estimation to the 2SLS coefficients. The effective first-stage F-statistics that accounts for heteroscedasticity and village-level clustering, computed following the recommendations by Lal et al. (2024), equals to 22.19, suggesting the strength of the chosen instrument. Figure reports estimates alongside CIs from various inferential methods, using the analytic CIs, bootstrapped CIs, and bootstrapped t-statistics. The results appear robust to the instrumental variable strategy; the coefficient on *Male repartition rule* is negative and significant across the inferential methods. Taken together, my results suggest that the adoption of a male repartition rule plausibly decreased the demand for land titling in Simbirsk province.

6.3 Alternative explanations

Prior research has demonstrated that popular support for land titling reforms often depends on the bureaucratic capacity of the state and popular trust in it. The undersupply of local bureaucrats who implemented the land reform of 1906 on the ground have been shown to slow down the titling process (Dower and Markevich, 2018b). On top of that, contemporaneous sources have documented the instances of distrust towards the reform among the peasants (Chernyshov, 1917a). To test the robustness of repartitional variables to these alternative explanations, I rerun Equation 1 controlling for the turnover of land captains as a measure of bureaucratic capacity and sentences for peasant unrest in 1906–11 as a measure of trust in the state.

Table 4 reports the results. In Column (1), I control for a dummy variable indicating whether a land captain office overseeing a commune had been recorded as vacant at least once between 1907 and 1912. In Column (2), I control for the number of distinct land captains overseeing a commune between 1907 and 1912 — ranging from one to three, with one serving as a baseline. In Column (3), I include the logarithm of the total number of criminal convicts from a village between 1906 and 1911, normalized by the village population. In Column (4), I focus specifically on convictions for peasant unrest and crimes against local landowners such as murders or estate arson. I find that both explanations — bureaucratic capacity and trust in the state — appeared to have played a role in shaping the process of the reform implementation in agreement with the literature. The lack of personnel and more frequent land captain turnover are both negatively and significantly associated with lower land titling. Similarly, a higher number of local convicts seems to be negatively associated with the adoption of the reform. However, both institutional variables — *Male repartition rule* and *No repartitions* — remain robust to the new controls and retain their sings, magnitudes, and significance.

7 Mechanisms

7.1 Land market

In the absence of a formal market, agricultural land often ends up being inefficiently allocated across farmers (Chen, Restuccia and Santaeulalia-Llopis, 2023). To improve the efficiency of land allocation, peasants in Russia developed two major mechanisms: labor-contingent repartitions and land rentals. Under labor-contingent repartitions, a commune relied on the observable family labor resources as a signal of unobserved agricultural productivity. Alternatively, peasants could enter the rental market — leasing land either from private noble and merchant landowners or fellow peasants.

In principle, these two mechanisms — repartitions and rentals — were not mutually exclu-

Table 4: Bureaucratic capacity and trust in the state

	Dependent variable:			
	Titled allotments, %			
	(1)	(2)	(3)	(4)
Male repartition rule	−7.726***	−7.878***	−8.539***	−8.053***
	(1.951)	(1.948)	(1.953)	(1.936)
No repartitions	−3.626*	−3.793*	−3.424*	−3.605*
	(1.962)	(1.968)	(1.961)	(1.949)
Vacant land captain office, 1907–12	−3.213**			
	(1.557)			
Two land captains, 1907–12		1.505		
		(1.699)		
Three land captains, 1907–12		−4.422**		
		(1.850)		
Log Sentences, 1906–11			−1.640***	
			(0.427)	
Log Sentences for peasant unrest, 1906–11				−1.424***
				(0.546)
Mean of DV	17.8	17.8	17.8	17.8
Standard deviation of DV	23.7	23.7	23.7	23.7
Observations	2,010	2,010	2,010	2,010
Adjusted R^2	0.135	0.139	0.142	0.135

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the percentage of allotments titled by 1911. The set of commune controls includes average allotment size, average family size, the share of households with no working male members, communal population in households, the share of migrants, literacy rates, dummies for former serfs and ethnic Russians, a dummy for chernozem soil, distances to the township center, the district administrative center, and the nearest railroad, average ruggedness, and the share of forest landcover. All specifications control for the number of allotments per landed household. Both Sentences and Sentences for peasant unrest variables are measured at the level of villages and normalized by the village population. Standard errors adjusted to spatial correlation within 10 km following Conley (1999) in parentheses.
*p<0.1; **p<0.05; ***p<0.01

sive. In the study of the Moscow region, Nafziger (2016) has documented that peasants often resorted to small-scale rental transactions to adjust land allocation between large repartitions. Peasants living in communes with no active repartitioning, however, had no choice but to engage in land rentals. This suggests that the degree of involvement in the rental market could serve as an indicator of the efficiency of communal institutions in managing land allocation. If the practice of labor-contingent repartitioning worked relatively well in substituting for a formal land market, it can be expected that communes employing a male repartition rule would less rely on the rental market compared to other types of communes holding other factors, such as land endowment and incomes, equal.

Figure 7 characterizes unconditional differences in the average level of involvement in the rental market across three groups of communes — those employing a male repartition rule, those employing a revision repartition rule, and those that did not practice land repartitions at all. Land rentals were relatively widespread in Simbirsk province. On average, 42% of households reported to having rented some land in across the communes of Simbirsk province,

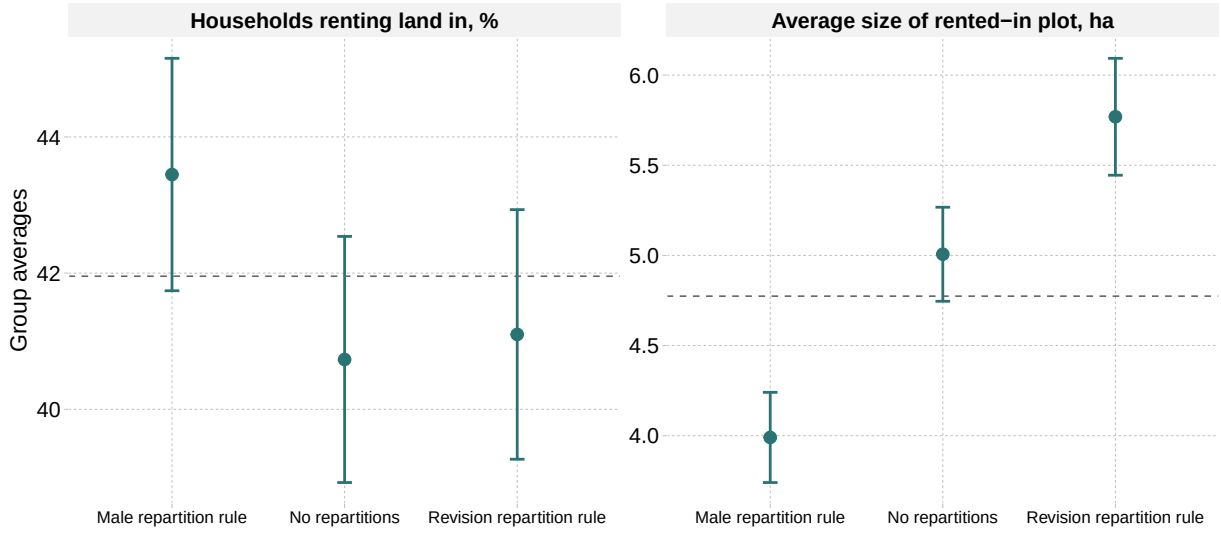


Figure 7: Rental market in Simbirsk province

Notes: Averages with 95% confidence intervals grouped by a land repartition rule across the communes of Simbirsk province. The dashed gray line represents the sample averages of 42% for the percentage of household renting land in and 4.77 ha for the average area of a land plot rented in on the entire sample. For the left panel, the sample consists of 2,514 observations, and for the right panel of 2,414 — excluding communes with zero rented-in land.

with group averages being statistically indistinguishable from the province average.[30] At the same time, there are considerable differences in *how much land* was rented in across the three groups. Communes with a male repartition rule rented in the smallest plots with the average size amounting to 4 hectares (or 9.8 acres) — supporting the idea that rental transactions served as a tool for implementing marginal adjustments to land allocation between repartitions. In contrast, communes with a revision repartition rule rented the largest plots at around 6 hectares (14.8 acres).

It appears indeed that communes not practicing repartitiong and employing a revision repartition rule resorted to land rentals to mitigate inefficiencies in land allocation. Not only peasants in such communes rented in more land than peasants in communes with a male repartition rule, they also rented in more land than they were allotted by commune. The ratio of the average communal plot to the average rented-in plot was approximately 1.1. In communes with a male repartition rule, in contrast, the average rented-in plot was *smaller* that the average communal plot with the ratio amounting to around 0.69.

These differences, however, could have been driven by variation in land endowment or soil quality across the commune types. Indeed, communes employing a male repartition rule had the largest average communal plot size among the three groups, in which case the demand for additional land would naturally be lower. To account for this, I estimate a regression controlling for the share of households renting land in, the logarithm of the average communal plot size in hectares, the presence of chernozem soil in a communal field, terrain ruggedness, forest landcover, and district fixed effects. As a dependent variable, I use the logarithm of the average size of a rented-in plot, since the distribution of this variable is highly right-skewed, as demonstrated in Figure D12 in the Appendix.[31]

Table 5 reports the results. The coefficient on *Male repartition rule* remains negative and

[30] Only 4% of all communes in Simbirsk province had no rented-in land.

[31] The results replicate when the original variable is used as a dependent variable, as shown in Table C6 in the Appendix.

Table 5: Repartitioning practices and rental market

	Dependent variable:			
	Log Average size of rented-in plot, ha			
	(1)	(2)	(3)	(4)
Male repartition rule	−0.405***	−0.404***	−0.386***	−0.172***
	(0.049)	(0.049)	(0.048)	(0.043)
No repartitions	−0.139***	−0.141***	−0.103**	0.046
	(0.048)	(0.048)	(0.049)	(0.047)
Log Average communal plot size, ha		−0.011	−0.016	−0.012
		(0.031)	(0.031)	(0.029)
Geographic controls			✓	✓
District fixed effects				✓
Mean of dependent variable	1.33	1.33	1.33	1.33
SD of dependent variable	0.69	0.69	0.69	0.69
Observations	2,358	2,358	2,358	2,358
Adjusted R^2	0.075	0.075	0.092	0.194

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the logarithm of the average size of a rented-in plot per household in 1911. The sample excludes communes with zero rented-in land. The set of geographic controls includes a dummy for chernozem soil, average ruggedness, and the share of forest landcover. All specifications control for the percentage of households renting land in. Standard errors, adjusted to spatial correlation within 10 km following Conley (1999), in parentheses.
*p<0.1; **p<0.05; ***p<0.01

highly significant across all the specification. According to my preferred specification reported in Column (4), the average rented-in plot size was 16% smaller in communes employing a male repartition rule compared to all other communes. Although the coefficient on *No repartitions* is also negative and significant in the baseline specification reported in Column (1), its magnitude is much smaller, and it loses significance as the control variables are included. The results suggest that labor-contingent land reallocation, implemented through a male repartition rule, was more successful in mitigating land misallocation than all other communal arrangements.

Therefore, it appears that labor-contingent repartitions and rentals offered fundamentally different solutions to the problem of land allocation. Peasants living in communes that did not employ a male repartition rule had to engage in the rental market, which presumably made the transition to formalized private property under the reform of 1906 less costly. In contrast, communes that resorted to labor-contingent repartitions by employing a male repartition rule managed to partially overcome the problem of the absence of the well-functioning land market. However, with the advent of the reform, they found themselves trapped in an inefficient equilibrium.

7.2 Land access

In this section, I examine whether the adoption of a male repartition rule was associated with better access to communal land. As argued in Section 5.2, labor-contingent reparti-

tioning evolved to address uneven and abrupt demographic shocks. By taking into account family structure, I expect it to have generated lower inequalities in land distribution across households than other communal arrangements, thereby further decreasing the benefits of land titling.

As an outcome, I use the percentage of households that were not allotted any communal land under the most recent repartition. To account for land endowment and population pressure, I control for the size of a communal field and the number of households in a commune. I also control for the share of migrant households and families with no working males, because communes tended to split the land of migrants and widows among the resident households. I further include the dummies for former serfs and ethnic Russians, distances to the township centers, the district administrative centers, and the nearest railroad, a dummy for chernozem soil, average ruggedness, and the share of forest landcover.

Table C7 in the Appendix reports the results. Across all specifications, the coefficient on *Male repartition rule* is negative and highly significant. In the full specification, reported in Column (4), the share of households without communal land was around 5 percentage points lower in communes that employed a male repartition rule than in communes that repartitioned land fixing a land plot size withing a family. In terms of real measures, the coefficient is approximately equal to the difference between the median and the 20% percentile of the distribution of the outcome variable.

Even though I cannot directly examine the differences in land distribution across households in communes that employed different repartition rules due to the absence of communal-level data, my results suggest that communes employing a male repartition rule did provide their members with better access to land. It appears that, in such communes, repartitions functioned as a form of social insurance, being highly valued by peasants.

8 Discussion and conclusions

Around the globe, formal institutions widely coexist and often compete with traditional institutions. In some parts of the world, modernizing reforms, such as the introduction of land titles, often face only moderate demand (Vendryes, 2014). More than that, traditional informal institutions, such as hereditary chiefs, are gaining importance even within democratic systems (Baldwin, 2015). Addressing this puzzle, scholars have focused on the nature of formal institutions, suggesting that individuals are more likely to prefer traditional institutions when the alternative is a weak or corrupt state, or when the state might threaten the customary privileges enforced by traditional institutions (Honig, 2017; Lazarev, 2019; Winters and Conroy-Krutz, 2021). In this paper, relying on the historical case of the 1906 land titling reform in the Russian Empire, I argue that the success of modernizing reforms depends on the nature of pre-existing traditional institutions and their performance relative to the formalized alternative.

Prior to the reform, agricultural land in the Russian Empire was owned collectively by the institution of peasant commune and, in some regions, legally subject to periodic reallocation across households, restricting labor mobility and discouraging investment in land improvement. The reform provided peasants with a legal right to title land plots they were farming, securing land from a future reallocation and enabling peasants to collateralize or sell their land. Relying on newly digitized commune-level data from the province of Simbirsk in the southeastern part of European Russia in 1910–11, I uncover dramatic variation in the structure of traditional institutions that governed landownership. Communes that practiced land

reallocation differed with respect to a repartition rule they employed, whereas around one third of all communes did not conduct land repartitions at all.

I find that the demand for the land reform was lowest in the communes where land repartitioning acted as a substitute for factor markets. Different approaches to land allocation created opposing incentive structures, which, in turn, implied differential benefits and costs associated with transitioning to formalized property rights. I document that communes with labor-contingent repartitions relied less on the rental market compared to other types of communes, holding factors such as land endowment and incomes equal. They also had the lowest share of households with no access to communal land. This suggests that labor-contingent allocation effectively substituted for a formal land market. This substitution proved especially important in the times of demographic shocks and economic uncertainty. Lending support to this explanation, Dower and Markevich (2018a) find that mass mobilization during the World War I affected agricultural production on communal land to a lesser extent than on private farms. When communal arrangements fell short of the market mechanisms, the demand for land titling increased.

When deciding upon land titling, peasants weighed benefits of a new institutional arrangement against the costs of losing access to the old one. Holding constant the availability of non-agricultural employment, both the benefits and costs of acquiring a land title seem low in communes with land-contingent repartitions. In such communes, peasants could have potentially derived high benefits from securing land against future reallocation by acquiring a title. This, however, would entail a high cost of giving up access to the mechanism that corrected for land misallocation and ensured access to land for its members. Communes that practiced land repartitioning but did not adjust land holdings for family structure, in contrast, did not substitute for a formal market but still imposed an expropriation threat, making benefits of land titling outweigh its costs.

Disregarding local institutional contexts when designing and implementing modernizing reforms can lead to unexpected results or even misleading conclusions when assessing their success. For example, in Cameroon, although a large percentage of the population did not end up claiming a formal title under the 1974 land reform, Firmin-Sellers and Sellers (1999) demonstrate that the reform nevertheless increased the security of farmers' property rights by invoking customary laws that regulated land tenure. Similarly, I argue that variation in the practice of land repartitioning, overlooked by the designers of the 1906 reform, conditioned peasants' incentives to claim a land title.

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Appendix

A Titling rates and expropriation risk

In this section, I examine whether higher titling rates were driven by weaker property rights security, as reflected in the intensity of repartitioning. The timing of the next repartition was largely unknown to individual peasants, introducing uncertainty about their land tenure. Even in communes that did not conduct a single repartition over fifty years, repartitioning remained a legal — though unlikely — possibility. In this way, longer tenure could indicate both increased and decreased tenure security from the peasant's perspective (Jacoby et al., 2002).

To overcome this ambiguity, I take advantage of the 1893 law that limited the frequency of repartitions to a minimum of twelve years and study whether titling rates were increasing around the twelve-year threshold. If we compare two communes — one that conducted a repartition four years ago and another fourteen years ago — we might expect that peasants in the latter would face a much higher expropriation risk, as a new repartition could occur at any moment. If peasants anticipated an imminent repartition, they might have had stronger incentives to acquire land titles sooner rather than later. To illustrate the logic behind the empirical exercise that follows, Figure A1 shows an unconditional scatter plot between the year of the most recent repartition and titling rates. The plot suggests that the share of titled allotments increases as communes approach the twelve-years threshold.

Figure A1: Titled allotments and a reallocation threat

Notes: Unconditional scatter plot between the share of titled allotments a d the year of the last repartition. Orange dots represent communes that conducted their last repartition less than twelve years prior to 1911, while green dots represent those that conducted it more than twelve years earlier.

To test for this mechanism, I estimate the following equation:

$$\begin{aligned} \textit{Titling, \%}_{ij} = \gamma_0 + \gamma_1 \textit{Years since the last repartition}_{ij} + \\ \gamma_2 \textit{Less than t years ago}_{ij} + \\ \gamma_3 \textit{Interaction}_{ij} + \boldsymbol{X}\boldsymbol{\gamma}_4 + \mu_j + \nu_{ij}, \quad (2) \end{aligned}$$

I first compute the difference, in years, between the year of the last repartition and 1911, which I denote as *Years since the last repartition*. Smaller values of the variable indicate that a commune conducted a repartition more recently. I then construct a dummy variable, *Less than t years ago*, that takes on a value of one if *Years since the last repartition* does not exceed t. When $t = 12$, *Less than t years ago* indicates whether a commune already acquired a legal right to conduct a new repartition and could potentially hold it at any moment. If the variable equals one, it means that commune did not yet cross the threshold and could not conduct a new repartition under the 1893 law.

If peasants did in fact perceived repartitions as an expropriation threat, titling rates can be expected to increase around the twelve-year threshold and decrease in both directions away from it. The interaction between the two variables allows the effect of time on titling rates to change around the threshold. The average marginal effect for the communes that did not yet cross the threshold (*Less than t years ago*$= 1$) must be negative, and for the communes that did positive. As a placebo test, I examine the alternative values of t. The set of controls $\boldsymbol{X}$ follows Equation 1.

Table A1 presents the results from estimating Equation 2. The first row reports the average marginal effect of time elapsed since the most recent repartition for communes that had conducted their last repartition more than twelve years ago, and the second row for communes that had conducted their last repartition less than twelve years ago. Column (1) employs the twelve-year threshold introduced by the 1893 law, whereas Columns (2) uses the threshold of $t = 8$ as a placebo test.

For communes that had conducted their last repartition more than twelve years ago, titling rates are increasing when communes approach the twelve-year threshold. The further a commune is from this threshold, the lower the titling rates tend to be. In contrast, for communes that had their last repartition less than twelve years, titling rates peak around the twelve-year threshold and decrease in communes with more recent repartitions. Taken together, these results suggest that the demand for land titling was lower when property rights were perceived as the most secure – either immediately after a repartition or in the communes that did not have a repartition for an extended period of time. I re-run the regressions excluding communes with annual repartitions (not reported), and the results do not change. The same patterns do not replicate, however, when I use the eight-year threshold.

Table A1: Titled allotments and communal institutions

	Dependent variable:	
	Titled allotments, %	
	$t = 12$	$t = 8$
	(1)	(2)
Years since the last repartition &	0.112**	0.095*
Last repartition *more* than t years ago	(0.057)	(0.054)
Years since the last repartition &	−0.914**	1.404
Last repartition *less* than t years ago	(0.426)	(1.404)
Full set of controls	✓	✓
District fixed effects	✓	✓
Mean of dependent variable	17.8	17.8
SD of dependent variable	23.7	23.7
Observations	2,010	2,010
Adjusted R^2	0.137	0.137

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the percentage of allotments titled by 1911. The set of commune controls includes average allotment size, average family size, the share of households with no working male members, communal population in households, the share of migrants, literacy rates, and dummies for former serfs and ethnic Russians. The set of geographic controls adds a dummy for chernozem soil, distances to the township center, the district administrative center, and the nearest railroad, average ruggedness, and the share of forest landcover. All specifications control for the number of allotments per landed household. Standard errors adjusted to spatial correlation within 10 km following Conley (1999) in parentheses.
*p<0.1; **p<0.05; ***p<0.01

B Dictionary

Table B1: Translation of historical terms

Term in Russian	**Term in English**	**Description**
Gubernia	Province	Principal administrative unit in the Russian Empire
Uezd	District	Administrative subunit of a province
Volost'	Township	Administrative subunit of a district; encompassed only peasant population
Obschina (also *mir*)	Commune	Peasant self-government institution; usually comprised one large village or several smaller ones
Selsky skhod	Communal assembly	Assembly of household heads in a commune
Selsky starosta	Communal headman	Primary communal official
Zemsky nachalnik	Land captain	Governmental official responsible for interacting with peasant communes; usually oversaw multiple townships
Uezdny syezd	District assembly	District peasant administration overseeing land capitains
Zemstvo	Local self-government	Elected assembly with the power to assess taxes and allocate revenues to fund public goods; established in 1864
Peredel	Repartition	Redistribution of land allotments among households of a commune
Dusha (*dushi*, pl.)	Soul	Before the abolition of serfdom, a taxable male; afterwards, a unit of land repartition
Reviziya	Revision	Before the abolition of serfdom, a tax census conducted to establish the sum of per capita peasant taxes

C Tables

Table C1: Summary statistics

Variable	Mean	Std. Dev.	Min	Max	N
Titled allotments, %	17.6	24.3	0	100	2,521
Male repartition rule	0.4	0.5	0	1	2520
No repartitions	0.3	0.5	0	1	2,514
Years since the last repartition	23.2	19.5	0	108	2,514
Average allotment size, ha	3.4	3	0.1	60.3	2,521
Average family size	5.6	0.9	1	12	2,521
No working males, %	8.4	7.4	0	100	2,521
Population, households	126.9	163.3	1	1,270	2,521
Migrant households, %	13.4	12.1	0	100	2,521
Literacy, %	14.8	8.1	0	73	2,521
Ethnic Russians	0.8	0.4	0	1	2,521
Former serfs	0.6	0.5	0	1	2,521
Chernozem	0.2	0.4	0	1	2485
Average ruggedness	47.7	11.2	19.1	122	2,479
Forest landcover, %	25.1	19.6	0	87.2	2,479
Distance to township center, km	7.2	5.5	0	42.7	2,500
Distance to district town, km	52	27.1	1.1	121.1	2,479
Distance to railroad, km	29	21.5	0	95.2	2,479
Households without land, %	13.1	13.2	0	89.9	2,521
Total land, ha	735.4	1,124.9	1.1	11,259	2,521
Vacant land captain office, 1907–12	0.2	0.4	0	1	2,479
Land captains, 1907–12	1.9	0.8	1	3	2,479
Sentences for peasant unrest, 1906–11	0.6	3.5	0	31	2,521
Households renting land in, %	41.9	26.5	0	100	2,519
Average area of rented-in plot, ha	4.8	4.0	0.2	100.5	2,421
Sold allotments, % of titled	15	26.9	0	100	1,789

Notes: The unit of analysis is a commune of Simbirsk province.

Table C2: Sold allotments and migration

	Dependent variable:			
	Sold allotments, %			
	(1)	(2)	(3)	(4)
Migrant households, %	0.545***	0.546***	0.552***	0.434***
	(0.082)	(0.082)	(0.079)	(0.078)
Literacy, %		0.188*	0.214**	0.231**
		(0.101)	(0.105)	(0.102)
Chernozem			4.578**	5.604**
			(2.015)	(2.272)
Titled allotments, %	✓	✓	✓	✓
Geographic controls			✓	✓
District fixed effects				✓
Mean of dependent variable	15.0	15.0	15.0	15.0
SD of dependent variable	26.8	26.8	26.8	26.8
Observations	1,737	1,737	1,737	1,737
Adjusted R^2	0.113	0.115	0.121	0.146

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the share of titled allotments sold by 1911. The set of geographic controls includes average ruggedness, and the share of forest landcover. Distances are the distances to the township center, the district administrative center, and the nearest railroad. Standard errors adjusted to spatial correlation within 10 km following Conley (1999) in parentheses.
*p<0.1; **p<0.05; ***p<0.01

Table C3: Titled allotments and communal institutions

	Dependent variable:			
	Titled allotments, %			
	(1)	(2)	(3)	(4)
Male repartition rule	−10.411***	−6.987***	−7.446***	−7.861***
	(2.153)	(2.284)	(2.132)	(2.017)
No repartitions	−5.342**	−4.164*	−4.803**	−3.859*
	(2.168)	(2.179)	(2.023)	(1.990)
Average allotment, ha		1.591***	1.590***	1.451***
		(0.514)	(0.469)	(0.452)
Average family size		0.162	−0.218	0.305
		(0.752)	(0.754)	(0.810)
No working males, %		0.103	0.077	0.093
		(0.093)	(0.090)	(0.091)
Population, households		−0.003	−0.003	−0.006*
		(0.003)	(0.003)	(0.003)
Migrant households, %		0.181***	0.142**	0.169**
		(0.066)	(0.065)	(0.068)
Literacy, %		0.113	0.127	0.106
		(0.101)	(0.091)	(0.089)
Ethnic Russians		4.089**	3.551*	1.602
		(1.969)	(1.981)	(2.039)
Former serfs		−2.041	−2.165	−3.076*
		(1.881)	(1.813)	(1.813)
Chernozem			0.685	3.155*
			(1.673)	(1.903)
Average ruggedness			−0.177***	−0.132*
			(0.063)	(0.076)
Forest landcover, %			−0.190***	−0.173***
			(0.037)	(0.043)
Distance to district town, km			−0.009	−0.050
			(0.026)	(0.031)
Distance to railroad, km			−0.102***	−0.032
			(0.032)	(0.043)
Distance to township center, km			−0.014	−0.047
			(0.113)	(0.113)
District fixed effects				✓
Mean of DV	17.8	17.8	17.8	17.8
Standard deviation of DV	23.7	23.7	23.7	23.7
Observations	2,010	2,010	2,010	2,010
Adjusted R^2	0.041	0.090	0.118	0.133

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the share of allotments titled by 1911. All specifications control for the number of allotments per landed household. Standard errors, adjusted to spatial correlation within 10 km following Conley (1999), in parentheses.
*p<0.1; **p<0.05; ***p<0.01

Table C4: Privatized allotments and communal institutions; logarithm of a dependent variable

	Dependent variable:			
	Log Titled allotments, %			
	(1)	(2)	(3)	(4)
Male repartition rule	-0.485^{***}	-0.374^{***}	-0.422^{***}	-0.496^{***}
	(0.138)	(0.141)	(0.129)	(0.120)
No repartitions	-0.321^{**}	-0.244^{*}	-0.307^{**}	-0.319^{**}
	(0.142)	(0.142)	(0.130)	(0.125)
Commune controls		✓	✓	✓
Geographic controls			✓	✓
District fixed effects				✓
Mean of dependent variable	1.95	1.95	1.95	1.95
SD of dependent variable	1.56	1.56	1.56	1.56
Observations	2,010	2,010	2,010	2,010
Adjusted R^2	0.030	0.078	0.112	0.129

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is a logarithm of the percentage of allotments titled by 1911. The set of commune controls includes average allotment size, average family size, the share of households with no working male members, the number of households in a commune, the share of migrants, literacy rates, and dummies for former serfs and predominantly Russian population. The set of geographic controls adds a dummy for chernozem soil, distances to the township center, the district administrative center, and the nearest railroad, average ruggedness, and the share of forest landcover. All specifications control for the number of allotments per landed household. Standard errors, adjusted to spatial correlation within 10 km following Conley (1999), in parentheses.
*p<0.1; **p<0.05; ***p<0.01

Table C5: Privatized allotments and communal institutions

	Dependent variable:			
	Titled allotments, % | Titled allotments > 0			
	(1)	(2)	(3)	(4)
Male repartition rule	−15.589***	−10.195***	−10.087***	−9.405***
	(2.367)	(2.487)	(2.362)	(2.253)
No repartitions	−4.407**	−3.330	−3.396*	−0.703
	(2.211)	(2.133)	(2.004)	(1.993)
Commune controls		✓	✓	✓
Geographic controls			✓	✓
District fixed effects				✓
Mean of dependent variable	24.8	24.8	24.8	24.8
SD of dependent variable	24.6	24.6	24.6	24.6
Observations	1,450	1,450	1,450	1,450
Adjusted R^2	0.084	0.147	0.171	0.195

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is a logarithm of the percentage of allotments titled by 1911. The set of commune controls includes average allotment size, average family size, the share of households with no working male members, the number of households in a commune, the share of migrants, literacy rates, and dummies for former serfs and predominantly Russian population. The set of geographic controls adds a dummy for chernozem soil, distances to the township center, the district administrative center, and the nearest railroad, average ruggedness, and the share of forest landcover. All specifications control for the number of allotments per landed household. Standard errors, adjusted to spatial correlation within 10 km following Conley (1999), in parentheses.
*p<0.1; **p<0.05; ***p<0.01

Table C6: Repartitioning practices and rental market

	Dependent variable:			
	Average size of rented-in plot, ha			
	(1)	(2)	(3)	(4)
Male repartition rule	-1.601^{***}	-1.611^{***}	-1.521^{***}	-0.471^{*}
	(0.265)	(0.271)	(0.267)	(0.260)
No repartitions	-0.622^{**}	-0.608^{**}	-0.426	0.348
	(0.269)	(0.261)	(0.266)	(0.262)
Log Average communal plot size, ha		0.071	0.044	0.088
		(0.211)	(0.216)	(0.216)
Geographic controls			✓	✓
District fixed effects				✓
Mean of dependent variable	4.73	4.73	4.73	4.73
SD of dependent variable	3.91	3.91	3.91	3.91
Observations	2,358	2,358	2,358	2,358
Adjusted R^2	0.030	0.029	0.038	0.109

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the average size of a rented-in plot per household in 1911. The sample excludes communes with zero rented-in land. The set of geographic controls includes a dummy for chernozem soil, average ruggedness, and the share of forest landcover. All specifications control for the percentage of households renting land in. Standard errors, adjusted to spatial correlation within 10 km following Conley (1999), in parentheses.
*p<0.1; **p<0.05; ***p<0.01

Table C7: Repartitioning practices and land distribution

	Dependent variable:			
	Households without land, %			
	(1)	(2)	(3)	(4)
Male repartition rule	−12.650***	−12.384***	−6.650***	−5.388***
	(0.866)	(0.907)	(0.807)	(0.795)
No repartitions	−1.791*	−1.900*	−0.541	0.930
	(1.021)	(1.016)	(0.887)	(0.894)
Total land, ha		−0.227***	−0.185***	−0.226***
		(0.058)	(0.056)	(0.056)
Population, households		0.013***	0.011***	0.012***
		(0.004)	(0.003)	(0.003)
Controls			✓	✓
District fixed effects				✓
Mean of dependent variable	13.2	13.2	13.2	13.2
SD of dependent variable	13.1	13.1	13.1	13.1
Observations	2,010	2,010	2,010	2,010
Adjusted R^2	0.185	0.189	0.383	0.409

Notes: The unit of analysis is a commune of Simbirsk province. The dependent variable is the share of households that did not have any allotted land in 1911. The set of controls includes the share of migrants, the share of households with no working males, dummies for former serfs and predominantly Russian population, a dummy for chernozem soil, distances to the township center, the district administrative center, and the nearest railroad, average ruggedness, and the share of forest landcover. Standard errors, adjusted to spatial correlation within 10 km following Conley (1999), in parentheses.
*p<0.1; **p<0.05; ***p<0.01

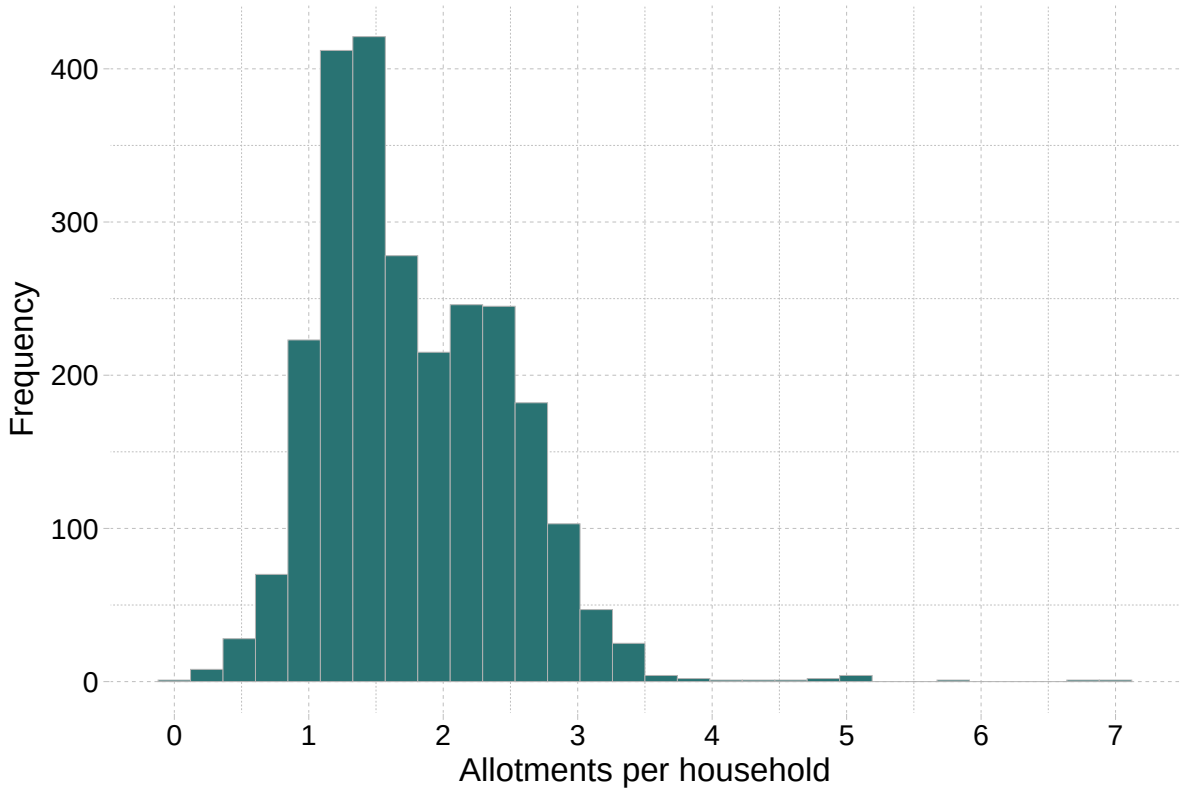
D Figures

Figure D1: Simbirsk province within the Russian Empire

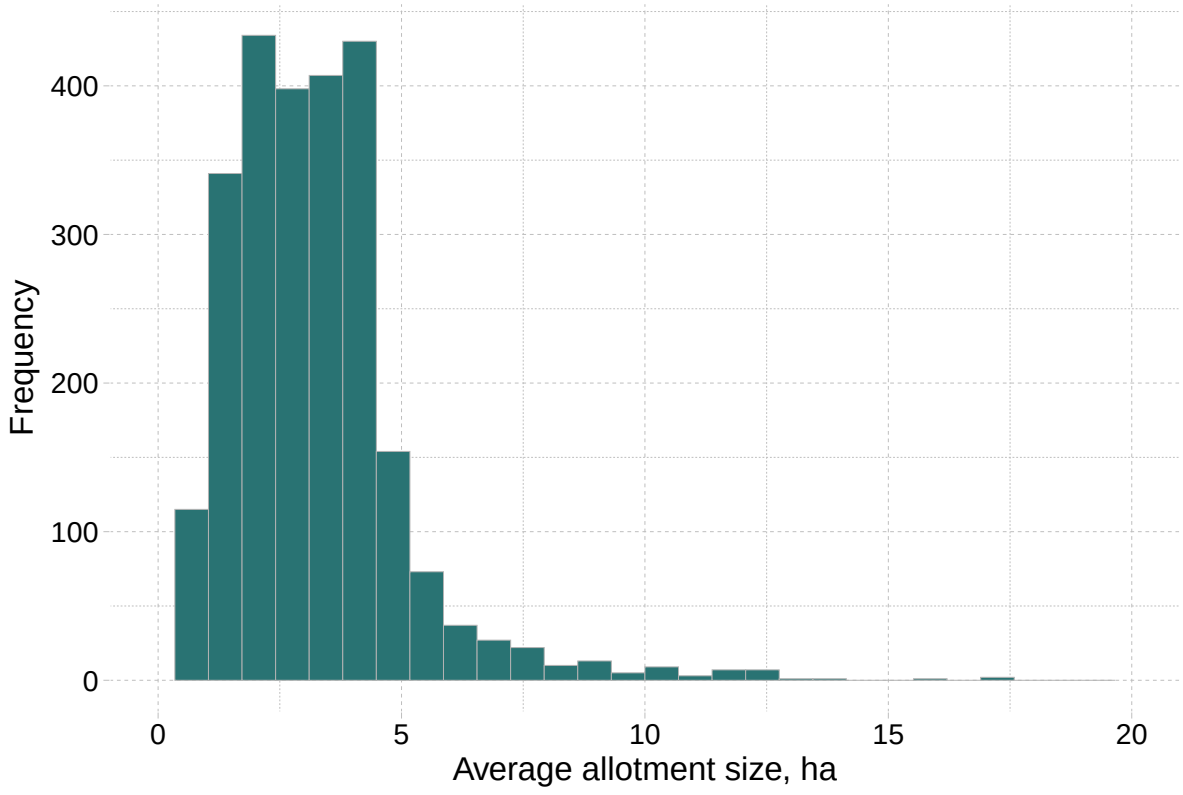
Notes: Map shows the boundaries of 50 provinces in the European part of the Russian Empire. Black triangles denote St. Petersburg, the capital of the Russian Empire, Moscow, the second biggest city, and Simibrsk, the provincial center of Simbirsk province. Simbirsk province colored with yellow.

Figure D2: Percentage of communes under repartitional land tenure in 1905 across provinces of the Russian Empire

Notes: Data on the percentage of repartitional communes among all communes across provinces of the Russian Empire come from Central Statistical Committee (1907). Black triangles show St. Petersburg, the capital of the Russian Empire, Moscow, the second biggest city, and Simibrsk, the administrative center of Simbirsk province.



(a) Average number of allotments assigned to a peasant family



(b) Average allotment size per peasant family

Figure D3: Peasant allotments across communes of Simbirsk province in 1910–11

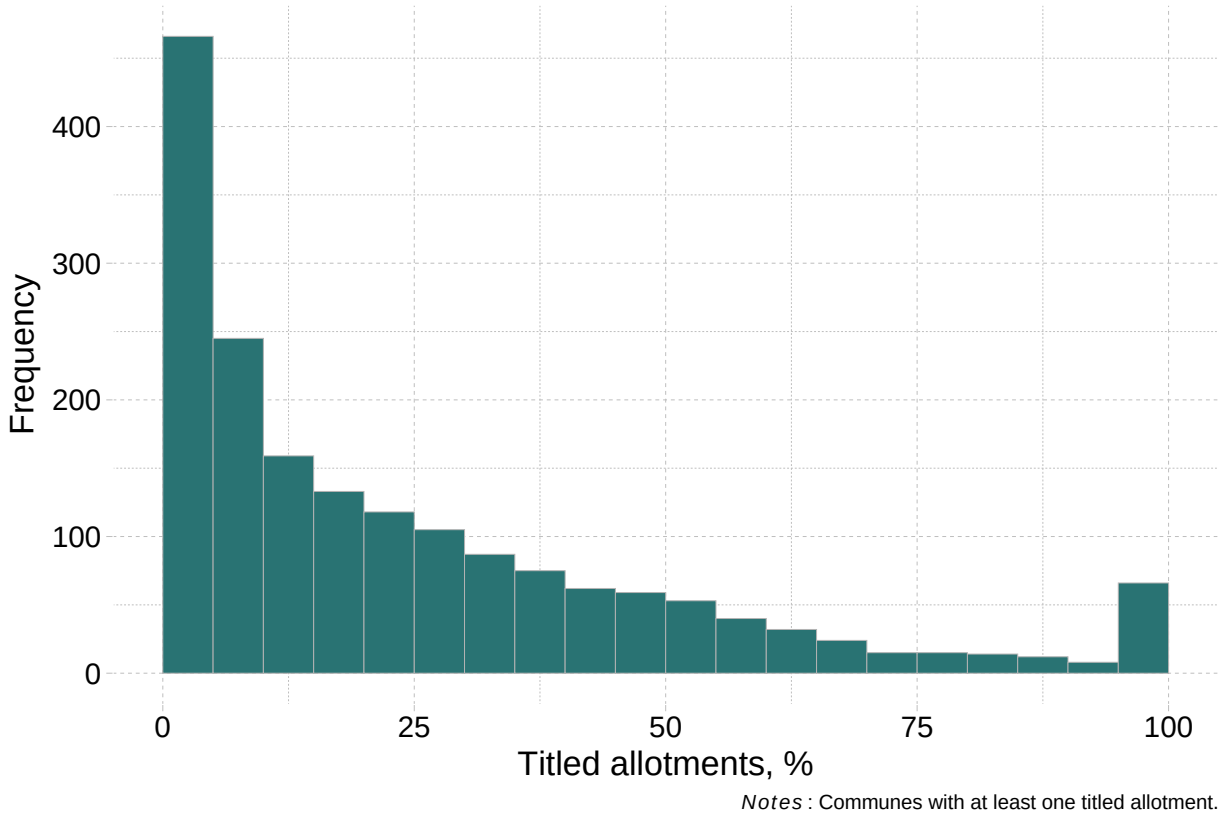
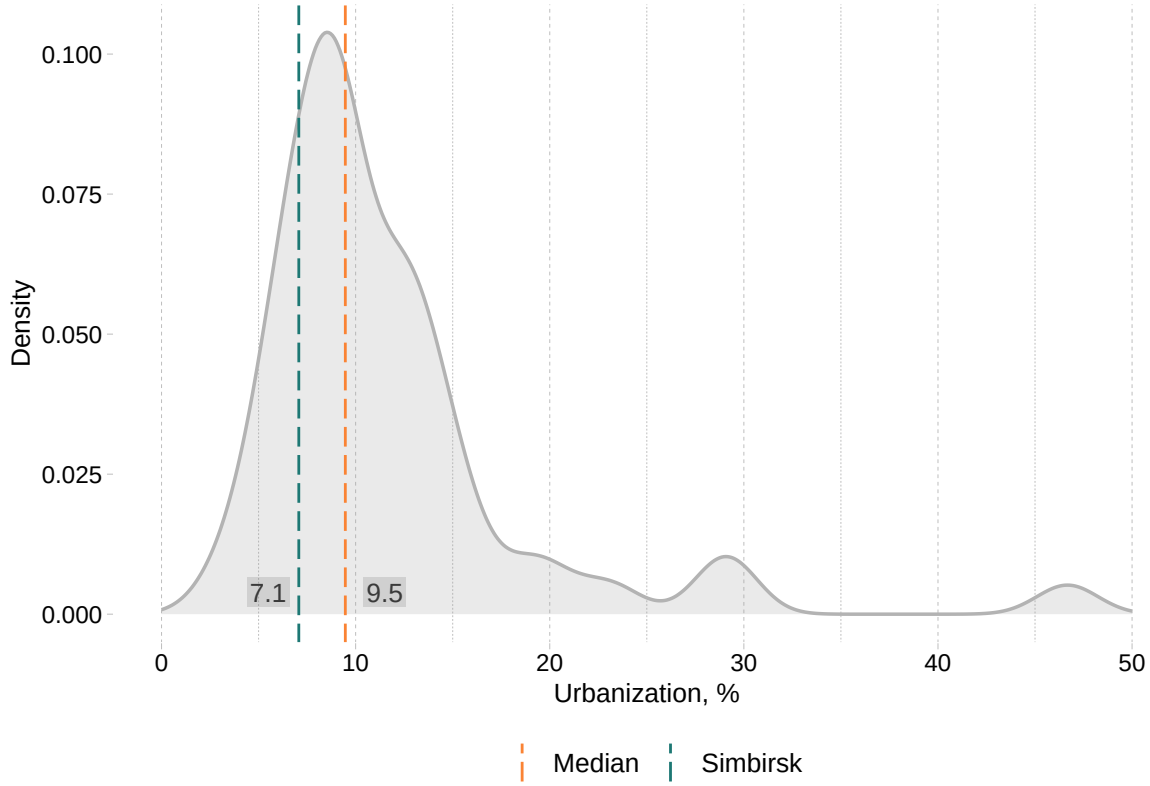
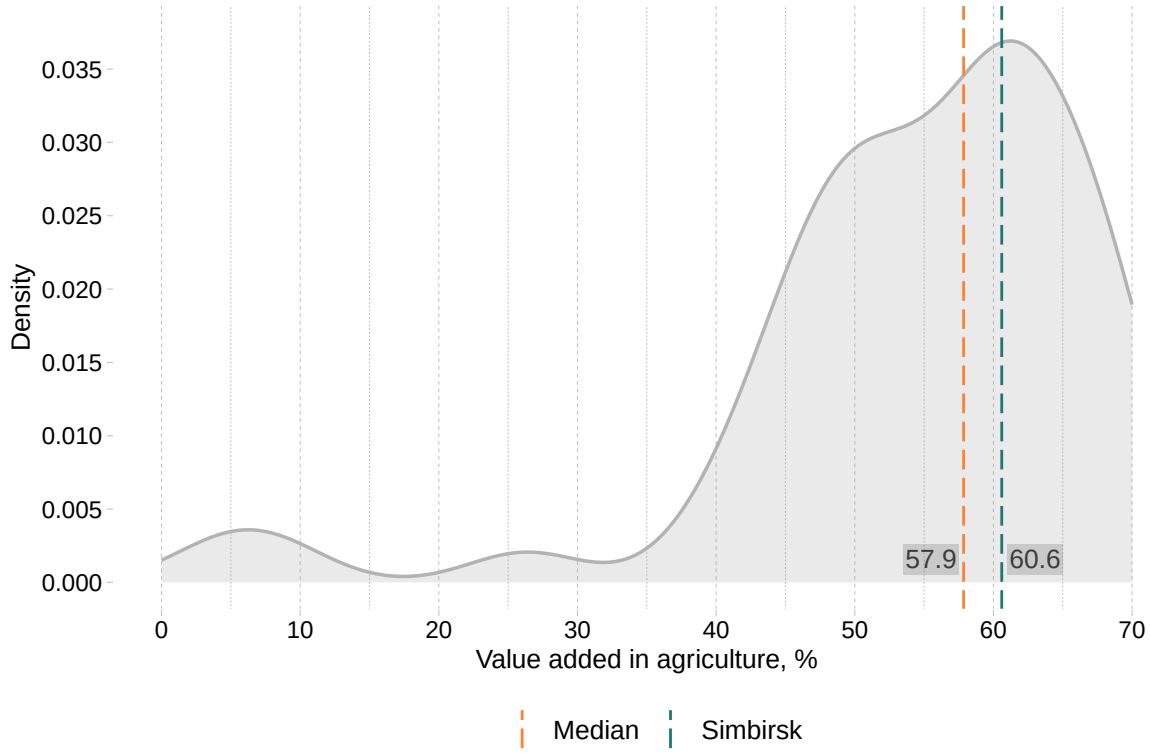


Figure D4: Land titling in Simbirsk province

Notes: The share of titled allotments across the communes of Simbirsk province by 1911. Communes with zero titled allotments excluded from the sample. Data cover 1,788 communes.



(a) Urbanization rates in 1897



Source : Markevich (2019)

(b) Share of value added in agriculture in 1897 from Markevich (2019)

Figure D5: Comparison between Simbirsk province and the Russian Empire

Notes: Figure demonstrates the distributions of urbanization rates and the agricultural sector sizes in 1897 across the provinces of the Russian Empire. Orange dashed line represents the median value across the entire sample. Green dashed line represents the value for Simbirsk.

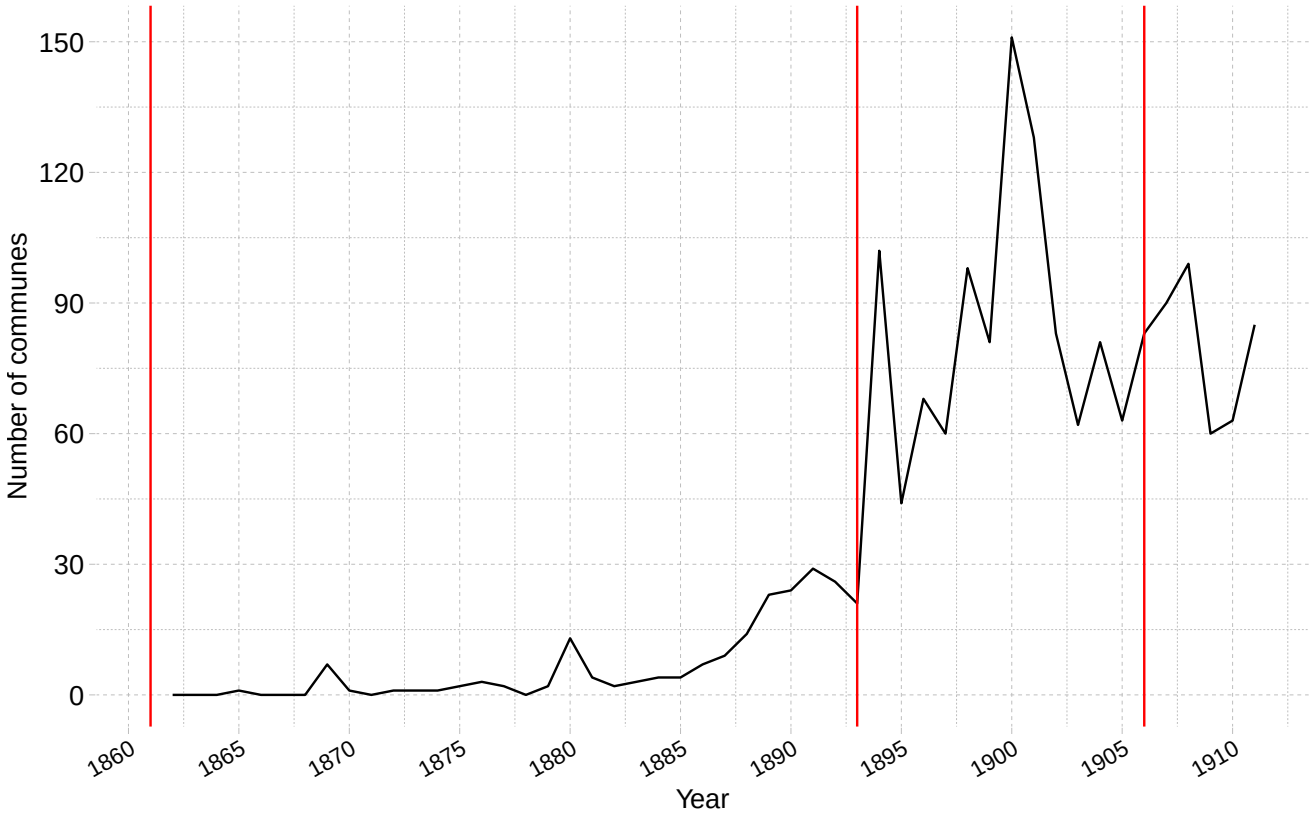
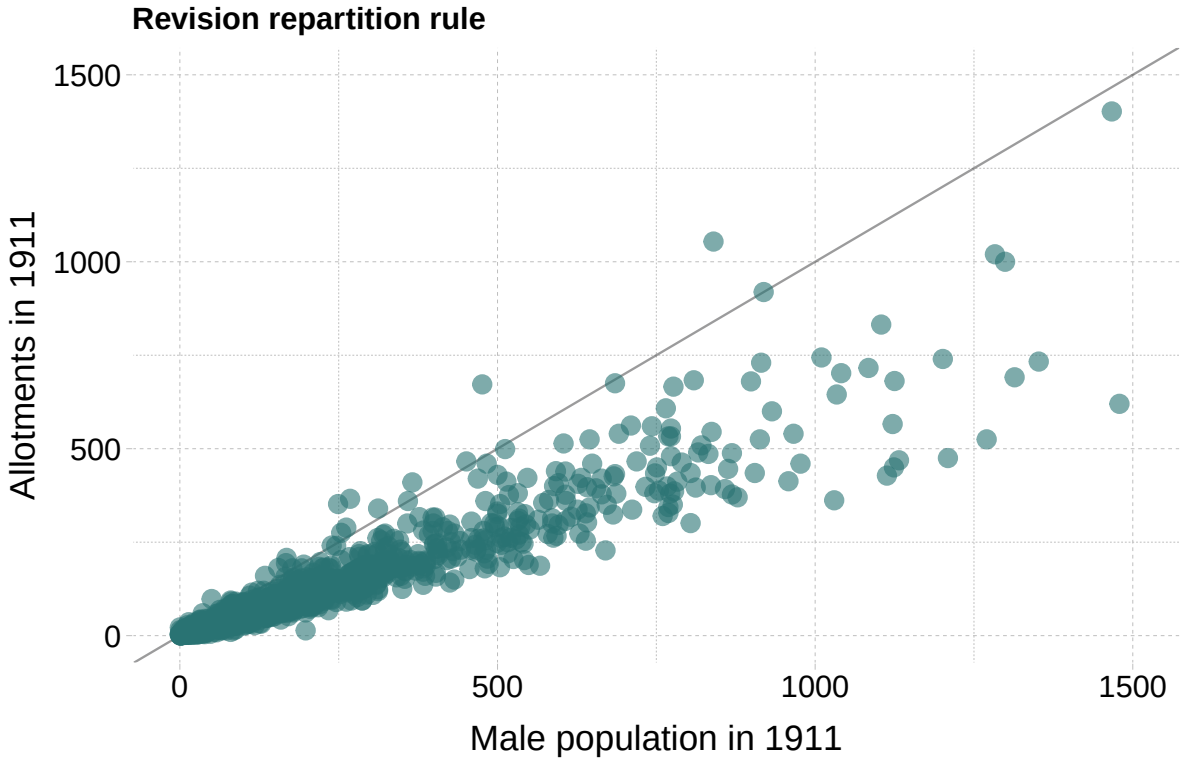


Figure D6: Year of the last repartition

Notes: Figure demonstrates the number of communes that had their most recent repartition in a given year. Red vertical lines denote the abolition of serfdom in 1861, the peasant law of 1893, and the Stolypin reform of 1906. Note that the plot does not represent the dynamics of repartitioning; data come from a cross-section of communes collected in 1910–11.

(a) Communes that employed a male repartition rule in 1911



(b) Communes that employed a revision repartition rule in 1911

Figure D7: Male population and the number of allotments in 1911 by repartition rule

(a) Communes that employed a male repartition rule in 1911

(b) Communes that employed a revision repartition rule in 1911

Figure D8: Male population in 1859 and the number of allotments in 1911 by repartition rule

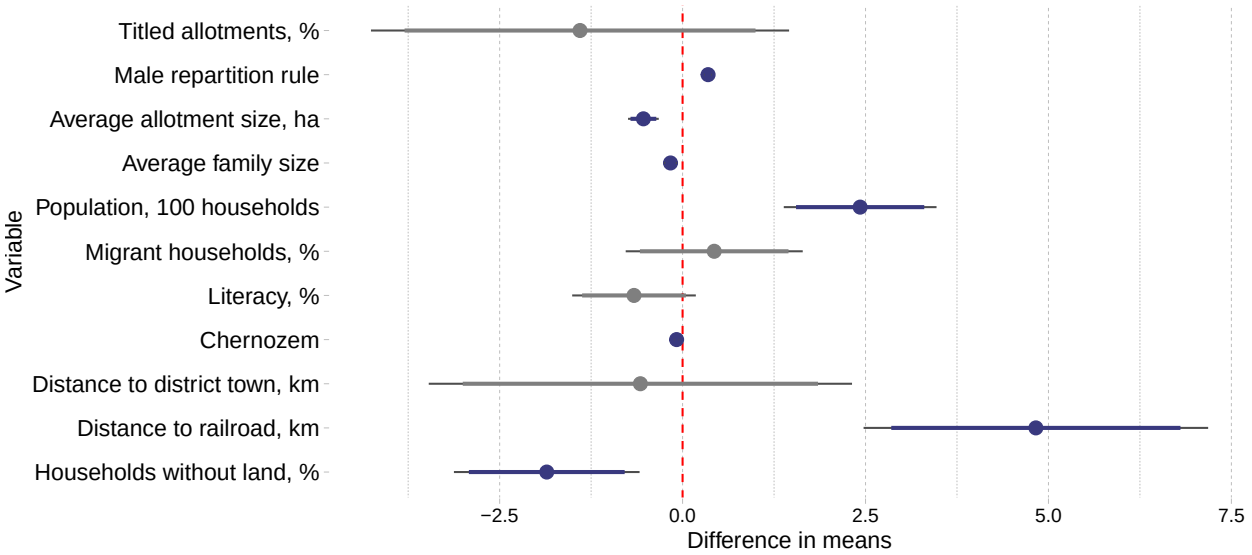


Figure D9: Difference between communes with post-reform and pre-reform repartitions

Notes: Figure shows the differences in means across two groups of communes. The first group includes 397 communes that had their last repartition stating from 1907, and the second group includes 2,117 communes that had their last repartition before 1907. Difference in means estimates with 95% and 90% confidence intervals (thick and thin lines respectively). Estimates significant at the 95% level in bright purple.

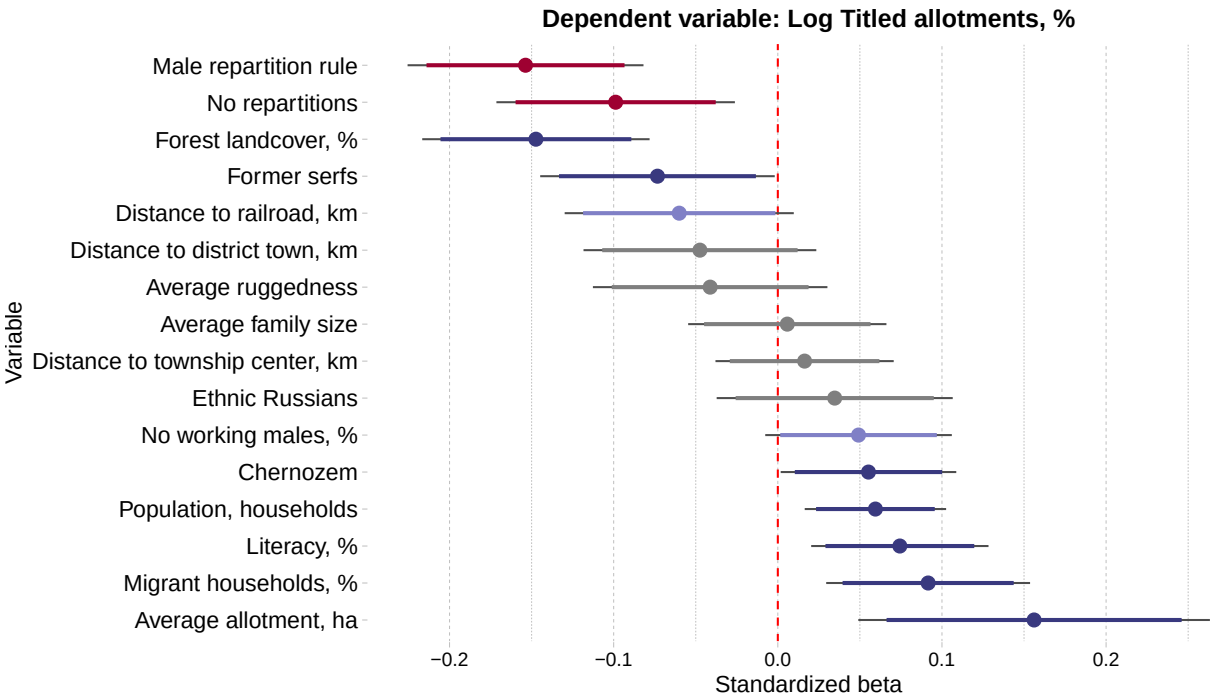


Figure D10: Correlates of land titling in Simbirsk province; logarithm of the dependent variable

Notes: Standardized coefficients from Equation 1 with 95% and 90% confidence intervals (thick and thin lines respectively). Estimates significant at the 95% level in bright purple and at the 90% level in light purple. Standard errors adjusted to spatial correlation within 10 km following Conley (1999).

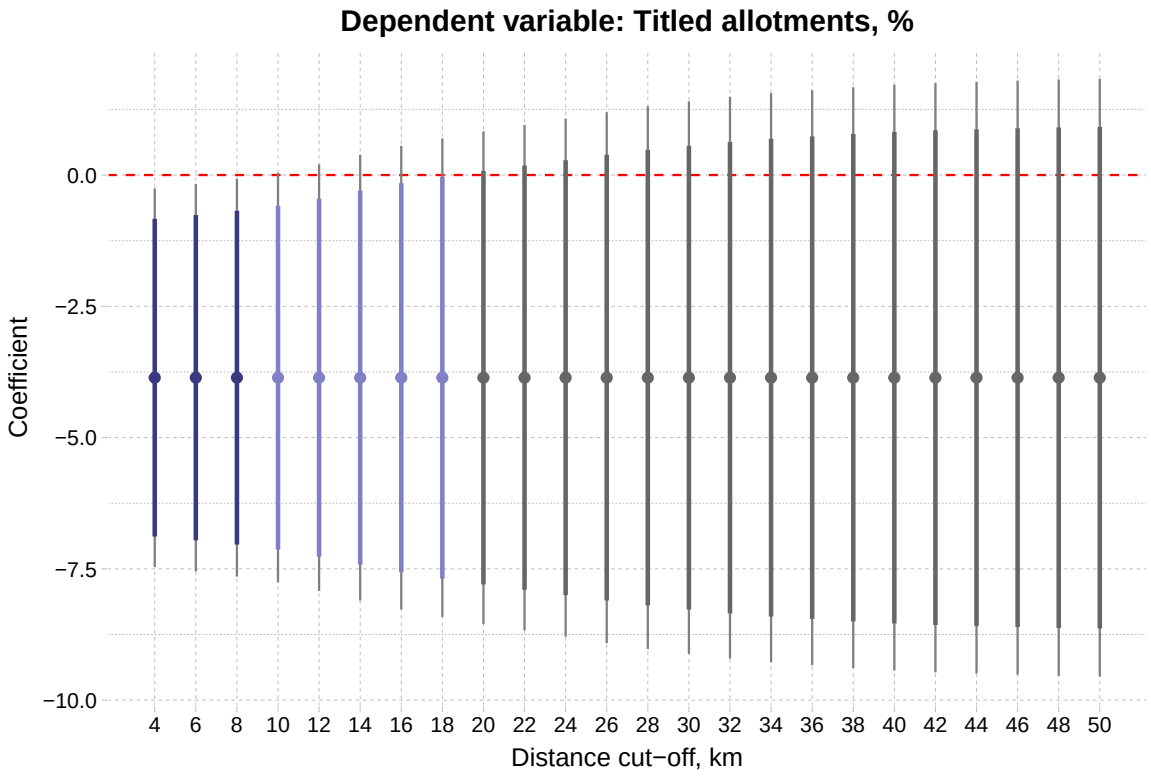
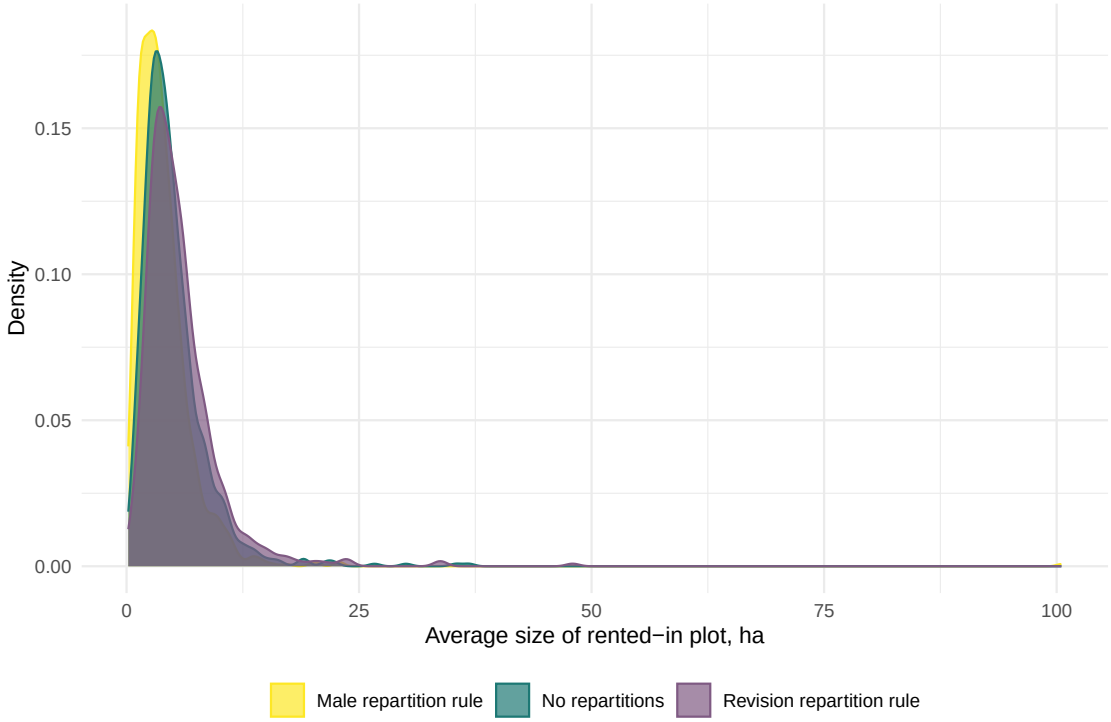
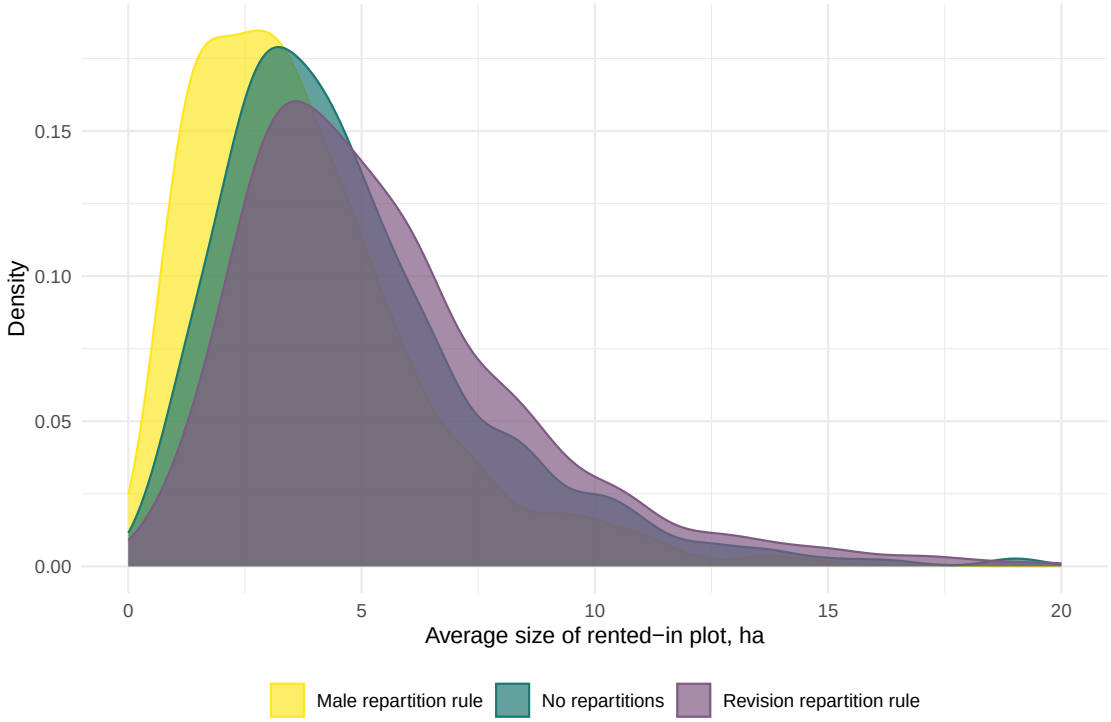


Figure D11: No repartitions and spatial bandwidth

Notes: Coefficient from Equation 1 with 95% and 90% confidence intervals (thin and thick lines respectively). Standard errors adjusted for spatial autocorrelation following Conley (1999). Distance cut-offs used for spatial clustering on the x-axis. Estimates significant at the 95% level in dark purple and at the 90% level in light purple.



(a) Full distribution



(b) Zoomed-in distribution

Figure D12: Rental market in Simbirsk province

Notes: The distributions of rented-in plot sizes in hectares across the communes of Simbirsk province grouped by a land repartition rule across the communes of Simbirsk province. Panel (a) shows the entire distribution, and Panel (b) zooms in communes with rented-in plots under 20 ha (49.4 acres). The sample consists of 2,414 observations — excluding communes with zero rented-in land.