

Imperfect Institutional Change: Peasant Disturbances Before and After Russia's Emancipation Reform of 1861*

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Abstract

We explore the impact of institutional change on social stability with a new dataset on peasant disturbances in nineteenth-century Russia. Using a difference-in-differences design that exploits the timing of various peasant reforms, we document a large short-run increase in disturbances among former serfs after the Emancipation Reform of 1861. This swing was most pronounced in regions with rich agricultural land, where landlords seized control of the implementation process to reallocate land allotments in their favor. We conclude that reforms designed to increase social stability can instead reduce it in the presence of a divided elite and limited state capacity.

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Contemporary models of political economy suggest that institutional change is often driven by a desire to prevent social unrest (e.g., Acemoglu and Robinson, 2006; Boix, 2003; Dal Bó and Powell, 2009; Dunning, 2008; Gandhi and Przeworski, 2006). Although details differ, such models are generally characterized by a bargaining environment in which the excluded group has the ability to impose a costly settlement in the event that bargaining breaks down. Institutional change reduces the likelihood that this option is pursued.¹

This perspective contrasts sharply with earlier, mostly qualitative accounts of the impact of institutional change on social stability, especially in traditional societies. Huntington (1968), for example, argues that increased political participation may produce disorder, as existing structures fail to accommodate previously marginalized groups. Scott (1976) provides a complementary perspective, demonstrating that institutional change can undermine norms and customs that ensure subsistence lifestyles, thus creating the grievances that drive rebellion.² Building on Moore (1966), Skocpol (1979) combines these perspectives, showing how institutional change driven by international pressures but constrained by elite interests can increase mobilization and discontent, to the detriment of political stability.³

What is the impact of institutional change on political order? We address this question with a case study of peasant disturbances in Russia before and after Alexander II's 1861 emancipation of the serfs. Various historical accounts, which we summarize below, stress two motives behind Alexander II's decision to do away with Russia's centuries-old institution of serfdom. First, emancipation was seen as essential to the modernization of Russian society, the need for which became apparent after Russia's defeat in the Crimean War. Second, a revolution from above was considered necessary to avoid a worse revolution

¹Lorentzen (2010) demonstrates that social unrest can instead promote political stability by signaling discontent in information-poor environments. Other models stress the role of institutional change in improving institutional performance (i.e., in expanding the size of the pie rather than affecting its distribution); these include Boix and Svoboda (2010), Gehlbach and Keefer (2011), Lizzeri and Persico (2004), Myerson (2008), and Ticchi and Vindigni (2010).

²Popkin (1979) offers a review and critique of this "moral economy" perspective.

³A closely related literature examines the relationship between regime change and protest; see, for example, Collier (1999) and Tilly (2004). Robertson (2007) shows that institutional persistence following regime change can affect patterns of mobilization.

from below. Simmering tensions between the nobility and the peasantry fostered persistent fears of another Pugachev Rebellion, the massive peasant revolt that shook Russia in the late eighteenth century.

We explore this moment of large-scale institutional change with a new dataset on peasant disturbances in Russia from 1851 to 1871 drawn from a remarkable chronicle compiled by Soviet historians in the 1950s and 1960s. We also take advantage of other data sources, including a nationwide census conducted on the eve of emancipation in 1858–9. To identify the impact of emancipation on peasant disturbances, we exploit the fact that the direct effect of the 1861 reform was primarily limited to serfs bound to the landowning nobility. The large state peasantry, and the much smaller appanage (i.e., palace) peasantry, were largely unaffected. We thus adopt a difference-in-differences design, comparing the change in disturbances before and after emancipation among landowner peasants to that of other peasants.

Our primary finding is that the relative incidence of disturbances increased among former landowner peasants (i.e., serfs) in the two-year transition period during which the details of land allotments and obligations were negotiated between the nobility and local peasant communes. We also find some evidence of a substantially smaller decline (relative to the pre-emancipation baseline) in the post-transition period. From the perspective of social stability, the emancipation reform was therefore counterproductive in the short run, but perhaps useful in the medium run—in short, a “J-curve,” a common stylization in the political economy of economic reform (e.g., Przeworski, 1991).

Our data allow us to explore the grievances articulated by peasants, so that we can examine the causes of the large swing after 1861. Not surprisingly, the sharp increase in disturbances during the transition period seems to be driven primarily by objections to the terms of liberation. We find that these grievances are most frequent in regions with relatively good soil, where the historical record establishes that the nobility often exploited their control over the implementation of reform to “cut off” existing peasant allotments.

The paper proceeds as follows. In the next section, we describe the historical backdrop to Alexander II’s Emancipation Manifesto, and we summarize the main features of this institutional reform. We then introduce our data and outline our empirical strategy. Following this, we present our main results, establishing the swings in peasant disturbances described above, and we explore the mechanisms behind the effects that we identify. We provide concluding thoughts in the final section.

1 Historical background

Compared to the rest of Europe, serfdom developed relatively late in Russia. Until the late fifteenth and sixteenth centuries, Russian peasants enjoyed legal freedom and the right to choose their place of residence and employment. Two factors—the government’s decision to create a large class of military and civil servitors, and the land/labor ratio—led to the introduction of serfdom in Russia (Domar, 1970). After liberation from the centuries-long Tatar yoke, Moscow’s rulers engaged in numerous wars and territorial expansion projects, which required a large number of servitors. These were compensated for their services by grants of land (Kimerling Wirtschafter, 2008, p. 8). However, the peasants’ freedom of movement and the availability of yet-unsettled land put substantial economic pressure on the landed nobility. Restrictions on peasant mobility, introduced and enforced by the state, increased the attractiveness of state service. This process of gradual encroachment on peasants’ freedom culminated during the late seventeenth and eighteenth centuries in the formal introduction of serfdom, the complete attachment of peasants to the land, and eventually their transformation into property of the nobility.

According to Russian legislation, serfs belonged to the aristocratic owners of the land on which they lived. They were required to provide certain obligations, the most important of which were the *corvée* (unpaid labor on landowner’s fields, known in Russian as *barshchina*) and *quitrent* (payment in money or in kind, or *obrok*). Where the land was rich, such as in Ukraine’s black-soil regions, *barshchina* was the rule; in the less fertile areas of northern

Russia, where in addition to toiling the soil peasants were often engaged in crafts and trade, *obrok* was prevalent. The combination of both was also not uncommon. As all estate land belonged to the noble landlord, he or she enjoyed complete freedom in allocating land to or withholding it from the serfs, who were legally prohibited from owning property. While the majority of serf peasants were allotted a strip of land for cultivation, subsistence, and payment of *obrok*, the peasants were in constant danger of being stripped of this plot, resettled, or sold with or without land at the owner's whim. Furthermore, the landowner also had policing and judicial powers over the serfs and was entitled to administer various punishments, such as flogging by birches, imprisonment for up to two months, and exile to Siberia. Although in theory there were some limitations on landowners' behavior, such as the restriction of *barshchina* to no more than three days per week, these safeguards were tenuous at best, as serfs were legally forbidden to lodge complaints against their owners and the law prescribed corporal punishment for such complaints (Zaionchkovskii, 1968).

A subgroup of landowner serfs were peasants consigned to "conditional serfdom." These peasants were concentrated mainly in the former Polish territories, where serfdom evolved differently than in Russia. In these regions, peasants under conditional serfdom belonged to one of three categories: specially entitled serfs, former Jesuit serfs, and feudal serfs. Specially entitled serfs lived on estates formed from the enormous patrimony established by Prince Janusz Ostrogski in the early seventeenth century in the Volhynia and Podolia *guberniyas* (regions). Former Jesuit serfs lived on property previously owned by the Jesuit Order, which was expelled from the Russian Empire in 1820. Finally, feudal serfs lived on properties granted by Polish kings to various proprietors until a break in the proprietor's lineage; after that, the land and the peasants were transferred to the Treasury. An additional group of peasants under conditional serfdom, the so-called "obligated peasants," resided in Kiev, Podolia and St. Petersburg *guberniyas* (Troinitskii, 1861).

Not all the peasants in the Russian Empire were serfs, however. State peasants, as a separate estate, were established in the early eighteenth century through the reforms of

Peter the Great. This estate included the non-Slavic peasants of the Siberian, Volga, and Ural regions; descendants of military settlers and veterans; and other peasants who were dependent on the state. The majority of state peasants paid *obrok*; exceptions were the corvée-dominated right-bank Ukraine, the Baltics, and Belarus. In addition to *obrok*, state peasants provided several additional obligations and taxes. Overall, state peasants tended to have larger land allotments than did serfs. Most important, their legal status was defined as “free agriculturalists,” meaning that they could own property, engage in other occupations, and move to other social estates.

Finally, there were the appanage (*udel'nye*) peasants, previously known as “palace peasants,” who were owned by the royal family. Appanage peasants were concentrated in eighteen *guberniyas*, mainly in northern and central Russia and the Volga region; about 40 percent of all appanage peasants lived in Simbirsk and Samara *guberniyas*. Generally, their land allotments were smaller than those of state peasants. All appanage peasants were on *obrok*, and like state peasants they had to pay taxes and fulfill several additional obligations (Zaionchkovskii, 1968).

The original justification for the introduction of serfdom was that serfs provided working hands and income for the nobles, who in turn were legally obliged to serve the Tsar and the state. However, when this obligation was removed in 1762, the moral justification for serfdom was lost. Furthermore, the often brutal and abusive treatment of serfs by the landlords or estate stewards, combined with the exploitation of peasants' labor, led to numerous instances of violence that ranged from killing or flogging landlords to massive peasant uprisings that devastated entire regions and required substantial military effort to quell. (The most notable of these, the Pugachev Rebellion during the reign of Catherine II, formed the basis of Pushkin's depiction of the “Russian riot, senseless and merciless.”) By the early nineteenth century, and especially after the Napoleonic wars, serfdom was not only morally problematic, but simply too dangerous to maintain. “Serfdom is a powder magazine under the state and the peasantry is an explosive mine,” admitted Tsar Nicholas I (1825–55). At the same time,

however, the government was afraid to institute any drastic reforms. “Doubtless serfdom as it exists at present in our country is a manifest evil; but to tamper with it now would be, of course, an even more disastrous evil,” declared Nicholas in 1842 (Volin, 1943, p. 48). One of the reasons for the government’s reluctance to free the serfs was the power of the serf-owning nobility—only several decades before, in 1801, Tsar Paul I was murdered in a palace coup, in part due to the “nobility’s indignation at Paul’s decrees establishing a legal minimal allotment of land to the serfs by the landlords” (Zenkovsky, 1961, p. 282).

Yet, some reforms did take place, mainly in the westernmost parts of the Empire. In 1816–9, the serfs of the Baltic *guberniyas* (contemporary Estonia and Latvia) were the first to be emancipated. However, while the peasants gained individual freedom, they received no land and therefore remained completely dependent on their former lords as hired laborers. In 1837, a major reform substantially improving the status of state peasants and making them “free agriculturalists” was initiated by the government. In the late 1840s, the “inventory reform,” regulating peasants’ land allotments and obligations, was introduced in the right-bank Ukraine (Kiev, Podolia, and Volhynia *guberniyas*), with a clear goal of limiting the powers of the largely Polish, Catholic nobility over the Orthodox peasants (Leonard, 2011, p. 28). A later attempt to expand the inventory reform to Lithuania failed miserably because of the local gentry’s resistance.

The main catalyst for reform was the Crimean War (1853–6), which resulted in Russia’s humiliating defeat and clearly demonstrated the country’s backwardness (e.g., Emmons, 1968; Rieber, 1966). Furthermore, the war led to numerous instances of peasant unrest and attempted migration (fueled by false rumors of freedom upon joining the wartime maritime militia) or settlement in Crimea in the aftermath of the fighting (Zaionchkovskii, 1968, pp. 64–5). While serfdom was profitable for the landowners (Domar and Machina, 1984), the central government’s increasing fear of peasant rebellion (Gerschenkron, 1965) made eventual emancipation unavoidable. It was better to emancipate the serfs “from above” than to allow this to happen “from below,” Tsar Alexander II (1855–81) warned Moscow’s nobility in

1856. On December 4, 1858, Alexander publicly announced that serfdom was soon to be abolished. (Presaging this announcement, the Secret Committee on the Peasant Question had been renamed the Main Committee on the Peasant Question in early 1858; see Moon, 2001, p. 61.)

As the general idea of emancipation became internalized, however reluctantly, by the nobility, a decisive battle was waged over the reform's content. The vast majority of the gentry owners of Russia's 111,555 estates (Pushkarev, 1968), including many influential figures in the imperial court, advocated a "Baltic model" of emancipation without (or with minimum) land. On the other side, the liberal bureaucracy (mainly from the Ministry of Internal Affairs) and the Emperor's brother, Grand Duke Konstantin, contended that landless freedom would inevitably lead to massive uprisings and even revolution.⁴

Navigating between these two camps, Alexander rejected the idea of landless emancipation, but at the same time he could not order the radical reform envisaged by the liberal bureaucracy. Therefore, the emancipation act of 1861, known as the February 19 Manifesto, was a complicated and convoluted compromise that fell short of each camp's desires. According to the manifesto, serfs gained immediate personal freedom and the right to own personal property. The peasants were granted the right to "redeem" (buy out) their houses and adjacent garden plots, but the fate of the much larger cultivated land plots depended on the landowners' will. The landowner and peasants had the option to agree on an immediate "grant allotment" of one-quarter of the maximum allotment, for which the peasants would not be required to pay or provide obligations. Otherwise, the landowner could either sell the land to her former serfs, with the state acting as financial intermediary (redemption payments were to be made to the state over 49 years), or she could keep it in her ownership, allowing the former serfs to use the land in exchange for payment or obligations.

If the peasants wished to receive their full land allotment, they became "temporarily obligated," providing the landowner with pre-emancipation payments and obligations for

⁴For a detailed description of the legislation-drafting process, see Zakharova (1984).

two more years. During this transition period, *obrok* remain largely at the pre-emancipation level, whereas *barshchina* was substantially reduced. Regulatory charters (*ustavnye gramoty*) were to be compiled by the landlord, regulating land allotments, payments, and the general framework of relations between former serfs and the landowners. Although in principle the peasants were entitled to their existing land allotments, the legislation provided ample opportunities for gerrymandering—mainly in cases where the existing allotment was below the stipulated minimum, or as was often the case, exceeded the envisaged maximum. The verification of charters and resolution of conflicts between the landlords and the peasants was entrusted to the newly created institution of peace arbitrators (*mirovye posredniki*), discussed at greater length below.

A landowner was given a year to draw up the charter, with or without consultation with the peasants. After that period, the arbitrator could draft the charter independently. Although initially both sides had to approve the charter terms, eventually a refusal to sign ceased to be an obstacle to implementation (Easley, 2002, pp. 721–6). “By July 1862, there were 20,108 charters in effect (binding on 21.3 percent of all seigniorial peasants); by the deadline of 1 January 1863, this figure leaped to 73,195 charters, applying to 68.6 percent of the seigniorial peasant population. Of these charters, about a half were unsigned by the peasants, indicating how far the process strayed from the principle of voluntary conclusion of agreements” (*ibid*, p. 721.).

In 1863, a major uprising broke out in Poland, most of which was part of the Russian Empire at the time. The rebel government in Warsaw, seeking to win the sympathies of peasants in neighboring Lithuania, Belarus, and right-bank Ukraine, issued a manifesto promising peasants land allotments without redemption fees. Forced to react, the Tsarist government revised the emancipation terms in Vilno, Kovna, Hrodna, Minsk, Mohilev, Vitebsk, Kiev, Podolia, and Volhynia *guberniyas*. As a result, redemption of land allotments in these regions became compulsory and redemption fees were decreased by 20 percent, while the peasants’ land allotments increased by 24 percent in Lithuania and Belarus and by 18 percent in

right-bank Ukraine. Landless serfs were awarded land, and local peace arbitrators, who had been predominantly Polish and Catholic, were replaced with ethnic Russians brought from Empire's heartland (Zaionchkovskii, 1968, ch. 5).

Finally, in November 1866, a law regulating the status of state peasants was approved by the government. However, the actual impact of the law was rather small, as it simply gave the peasants legal authorization to permanently use their land allotments. Although in principle peasants could buy out their land allotments, the price was so high that very few could afford it. Exceptions to this general trend were the state peasants in Lithuania, Belarus, and right-bank Ukraine, which were affected by the Polish Rebellion. Similarly to the serfs' compulsory land redemption in these regions, state peasants in the Vilno, Kovna, Hrodna, Minsk, Mohilev, Vitebsk, Kiev, Podolia, and Volhynia *guberniyas* were to become owners rather than permanent users of the land. Compulsory redemption for state peasants in these regions began in 1863, with redemption fees to be paid for forty-six years (Zaionchkovskii, 1968, ch. 7).

Table 1 provides a summary of these events.

2 Data

We assembled data on peasant disturbances from four volumes of *Krest'ianskoe Dvizhenie v Rossii* (*The Peasant Movement in Russia*), a chronicle of peasant actions between 1796 and 1917 that was published in the USSR during the 1950s and 1960s (Okun', 1962; Okun' and Sivkov, 1963; Ivanov, 1964; Zaionchkovskii and Paina, 1968). The events in these volumes were gathered by a team of Soviet historians based on two main sources of information. The first is the archival collections of the main Soviet archives—the Central State Historical Archive of the USSR (TsGIA), the Central State Archive of the October Revolution (TsGAOR), the Central State Military-Historical Archive (TsGVIA), and several smaller archives. These archives house, among other materials, the documents of the Imperial Court; the State Council; the Political Police; the Ministries of Internal Affairs,

Justice, and State Properties; the Senate; and the highest governing body of the Russian Orthodox Church. They also include reports to central authorities by regional governors, state officials, and police officers; final reports of various inspections; archives of large landholding families; and similar documents. The second main source of information for the Soviet historians who compiled the chronicles is numerous secondary historical works on peasant unrests, emancipation, and rural life in various regions.

We coded all entries from 1851 to 1871—that is, the decade before and after emancipation. Doing so resulted in a total of 3,773 events across 55 *guberniyas*, which currently constitute the Baltic States; Belarus; Moldova; most of Ukraine, Armenia, and Georgia; and almost all of European Russia. We code events in Ufa, which was carved out of Orenburg *guberniya* in 1865, as belonging to Orenburg. Missing population data (discussed below) for five *guberniyas* in the Baltics and the Caucasus further reduce our sample to 49 regions. In addition, we drop Kutaisi, Tiflis, and Bessarabia, three outlying *guberniyas* where emancipation was implemented later, for a final sample of 46 regions.

The information in the chronicles is quite rich. Figure 1 depicts a typical entry. For each event, we are able to code one or more actions taken by peasants at a particular time and place. For 2,157 events, we are also able to identify the proximate cause of the event. Peasant type is given for all but 134 events. Many events also indicate some sort of response by local officials (typically the arrival of a military detachment). With the assistance of a native-Russian research assistant, we developed a coding protocol based on analysis of a subsample of events from the pre- and post-emancipation period. We then manually coded all events during the sample window. Ultimately, all events were read twice: first by our research assistant, and then again by one of the authors, who is a native Russian speaker.

For our baseline analysis, we aggregate up from the event-level data to construct a panel dataset with event counts at the region-year level. In doing so, we face some choices about how to categorize peasant types, actions, and causes. With respect to the former, we provide separate counts for *Current and former landowner peasants* and *State and appanage peasants*.

The first category includes “landowner peasants” (i.e., serfs), “former landowner peasants,” and “temporarily obligated peasants” (i.e., those still required to provide obligations to their former owners—see the discussion above). Similarly, the second category includes peasants classified as “former state” and “former appanage” peasants. We include the small number of cases with participation by both peasant types in the count for each.

With respect to peasant actions, we derive the region-year count of events falling into each of four general categories: *Refusal*, *Theft and violence*, *Complaint*, and *Governance*. As with peasant type, we include events that fall into more than one category in the count for each. Refusals capture those instances in which peasants refuse to accept terms of liberation, pay for land, pay *obrok* or *barshchina*, and otherwise employ what Scott (1987) refers to as “weapons of the weak.” In contrast, the second category includes events in which peasants actively engaged in some act of theft or violence: seizing the landlord’s land; committing violence—murder, at times—against the landlord or management; or destroying property, including burning down the landlord’s manor house or the local pub. The third category includes those instances in which peasants made an official complaint to government officials, including the Tsar, Grand Duke, Justice Minister, Minister of Internal Affairs, governor, police, or any other official body. Governance, the fourth category, includes instances in which peasants attempted to change the estate or municipal administration, often motivated by the introduction of peasant self-administration at the village or *volost’* (an administrative unit comprising several villages) level after the publication of the Emancipation Manifesto.

As discussed above, the event description provides some indication of the proximate cause for approximately 57 percent of the cases in our sample. For these events, we divide causes into six categories and derive the region-year count of events falling into each. *Landlord/peasant relations* captures issues related to peasant obligations to the landlord, including *barshchina* and *obrok*, as well as landlord actions toward the peasants, including brutal treatment and the enlistment of serfs in the military. The variable *Property* includes eviction and the seizure of crops, livestock, or land. *Estate* captures instances in which peas-

ants expressed dissatisfaction with estate management or municipal government. A fourth category relates to peasants' *Serf status*, including desire to be released from such status or transferred to the state peasantry. A fifth cause deals specifically with *Liberation*: rumors of liberation, anticipation of a "second liberation," dissatisfaction with the terms of liberation, or distribution of printed materials calling for peasants to liberate themselves. The residual category, *Other*, incorporates a small number of causes which do not fit into the previous categories: miscellaneous events related to the Crimean War, forest fire, etc.

There are natural questions about the quality of these data. In 1857, Alexander II demanded a thorough reporting on peasant unrest—this continued until the publication of the Emancipation Manifesto in 1861. Furthermore, Soviet historians, eager to present the severity of the "revolutionary situation," may have paid more attention to the period preceding the reform. In addition, not all regions are covered equally. Some regions were subject to frequent inspections by high-ranking officials, whereas others received less attention. Finally and most importantly, the combination of primary and secondary sources implies that data were gathered only from central state archives for some regions but from both central and local archives for others (Zaionchkovskii 1968, p. 42). As this discussion illustrates, the most obvious sources of bias are period- or region-specific. The difference-in-differences strategy that we describe in the following section controls for such systematic measurement error.

In our statistical analysis, we exploit data from two additional sources. For demographic data, we use *Krepostnoe Naselenie v Rossii, po 10-i Narodnoi Perepisi: Statisticheskoe Issledovanie* (*The Serf Population in Russia According to the 10th National Census: Statistical Research*), published in 1861 by Aleksandr Troinitskii (Troinitskii, 1861). As a member of the Ministry of Internal Affairs Statistical Committee, and later as deputy minister, Troinitskii had unique access to several sources of information, including the Ministry of Finance *guberniya*-level Revenue Department registries and—most important—the 10th *Reviziia*, or Tax Census, ordered by the government in 1857 and completed in 1859. Although the main purpose of the Census was financial, as it determined the size of the taxable population and

tax payments for each estate, an additional goal of the Census was to provide the authorities with demographic data on the serf population on the eve of emancipation. For our statistical analysis, we define *Serf population* and *Total population* at the *guberniya* level, and we calculate *Non-serf population* as the difference between these two variables. Unfortunately, Troinitskii does not provide data on the state or appanage peasantry. In the following section, we discuss different approaches to this problem.

Finally, one of the primary issues surrounding the implementation of emancipation was the distribution of land. As such, we might expect soil quality to also influence the frequency of peasant disturbances. To account for soil type, we obtained GIS-coded data on soil type from the Food and Agriculture Organization (FAO), which we overlaid on a map of nineteenth-century Russian administrative boundaries.⁵ The resulting dataset provides the proportion of land in each *guberniya* belonging to one of 22 soil types or to other categories such as water, urban, etc. Based on a classification by Brady and Weil (2002), we define *Good soil* as any of the following soil types observed in our data: Chernozem, Greyzem, Histosol, Kastanozem, Phaeozem, or Vertisol. Figure 2 shows the distribution of good soil across our sample of 46 regions.

3 Empirical strategy

We employ a difference-in-differences research design that takes advantage of the fact that the Emancipation Reform of 1861 had a direct effect only on landowner peasants (i.e., serfs), not on state or appanage peasants. Our data allow us to separately estimate the rate of disturbances for these two classes of peasants. By comparing the change in rate after emancipation for each group, we are able to hold constant the various sources of measurement error discussed above. The key identifying assumption is that such bias should affect landowner and non-landowner peasants equally. Beyond measurement error, this empirical strategy

⁵Data available at <http://www.fao.org/nr/land/soils/harmonized-world-soil-database/download-data-only/jp/>. Although the FAO data are from 1990, soil type unfolds over the course of millennia, and we assume that soil types for our sample of Russian regions did not fundamentally change over the succeeding 120–140 years.

holds constant economic or other shocks that affect all regions equally.

In particular, our baseline empirical model assumes that peasant disturbances for both landowner and non-landowner peasants are generated by a Poisson process with observation-specific mean (i.e., a negative-binomial model). For each group of peasants, we assume that the expected rate of disturbances μ_{it} in region i and year t is given by

$$E(\mu_{it}) = \exp(\alpha + \mathbf{w}_t\beta + \ln(z_i)), \quad (1)$$

where \mathbf{w}_t is a vector of time variables, z_i is an exposure variable given by the population of landowner or non-landowner peasants in region i (of which more below), and α and β are (vectors of) parameters to be estimated. We assume $\mathbf{w}_t = (x_t, y_t)$, where x_t is a dummy variable equal to one if $t = 1861$ or $t = 1862$, and zero otherwise, and y_t is a dummy variable equal to one if $t > 1862$, and zero otherwise. Thus, we estimate the change in rate of peasant disturbances for the two-year transition period and the post-emancipation period, relative to the pre-emancipation baseline. Our difference-in-difference estimates come from comparing the estimates of β for landowner and non-landowner peasants, respectively.

As discussed in the previous section, the 1858–9 Census provides a region-level measure of serf population, which serves as the exposure variable z_i when estimating the rate of disturbances among landowner peasants. Unfortunately, no information is provided on the population of other classes of peasants. In our baseline model, we use the non-serf population (total population less serf population) as the exposure variable when estimating the rate of disturbances among non-landowner peasants. The obvious disadvantage of this measure is that, in addition to non-serf peasants, it includes the urban population of the region plus non-peasants living in the countryside (e.g., Jews). As a robustness check, we therefore also assume a constant exposure across regions for non-landowner peasants. Although neither assumption is correct, a finding that results are not sensitive to operationalization of the exposure variable would suggest that there is little consequence of this source of measurement

error.

One potential problem with the specification in Equation 1 is that the rate of peasant disturbances could be driven by time-invariant regional characteristics other than the size of the peasant population. In principle, we could control for such characteristics through a fixed-effects design. In practice, however, there is no way to condition out fixed effects in a negative-binomial model, and including dummy variables for the fixed effects introduces a potential incidental-parameters bias. We therefore employ two alternative models to control for time-invariant regional characteristics. First, we estimate a negative-binomial model in which the dispersion parameter is fixed for each region (the `xtnbreg` command in Stata, with option `fe`, which Stata refers to as a “fixed-effects negative binomial model”). Second, we estimate a linear fixed-effects model.

Finally, as discussed in the following section, we check the robustness of our results to various changes in sample that take advantage of the historical record to identify particular regions or years that might violate the difference-in-differences assumption of common trends in the absence of treatment.

4 Estimation

Before presenting our estimation results, we illustrate the evolution of peasant disturbances graphically. Figure 3 depicts the average annual count of disturbances for each of the four categories described above for landowner and non-landowner peasants, respectively. Three features stand out. First, for all four categories, the rate of reported disturbances is substantially greater for landowner peasants than for non-landowner peasants. Second, the two most frequent disturbances—refusals and theft/violence—show a substantial increase during the transition period for landowner peasants but not for non-landowner peasants. Third, for both landowner and non-landowner peasants, the incidence of complaints drops completely or nearly completely to zero after emancipation.

The largest swings thus involve disturbances among former serfs following publication of

the Emancipation Manifesto in 1861. The following events, drawn from the chronicles used to assemble our dataset, illustrate the extent of the uprising. In Spring 1861, approximately nine thousands peasants in Saratov *guberniia* refused to cultivate their landlords' fields and began preparations for an armed uprising. Military units were called in to put down the unrest. In Hrodno (contemporary Belarus), a thousand peasants on more than twenty estates, doubting the authenticity of the Tsar's manifesto, refused to provide obligations to their landlords. Again, troops were called in. The peasants, however, were not always on the receiving end of the violence. In the Penza region, peasants dissatisfied with their land allotments mounted armed resistance against government troops. Similar armed resistance took place in Vitebsk *guberniia*, where peasants refused to provide obligations to their landlords. In Voronezh, ten thousand peasants called for immediate emancipation; in Ryazan they demanded to see the estate's accounting ledgers. In Chernigov, more than twenty-six thousand peasants protested against their landlords, and troops sent to put down the unrest were attacked by armed villagers. In Yekaterinoslav, 2,500 peasants simply refused to obey the orders of local authorities. More than eighty thousand peasants were involved in various unrests in Podolia; numerous peasants were killed, and many were more wounded.

Further evidence of the uprising's magnitude can be inferred from the scale of the military response. The Russian army, not fully recovered from its humiliating defeat to France and Britain in the Crimean War, and fighting a major uprising in the Caucasus, had few extra troops at its disposal. Yet in addition to numerous police and internal security forces, more than eighty infantry and cavalry regiments—a formidable force, especially by the standards of a military not yet based on universal conscription—were involved in quelling peasant disturbances in various parts of the Russian Empire (Zaionchkovskii 1968, pp. 166-7).

To more systematically examine the impact of emancipation on peasant disturbances, we now turn to statistical estimation. In doing so, we restrict attention to the two most common disturbances: refusals and theft/violence. The almost complete non-incidence of reported complaints post-emancipation implies that any difference-in-differences design would

be driven mostly by differences in frequency pre-emancipation, and there are only a handful of governance-related actions in the data.

Table 2 presents results for various specifications and samples for peasant disturbances involving refusals. Column (1) is our baseline specification. We run separate negative binomial models for landowner and non-landowner peasants, estimating in each case the rate of disturbances during the pre-emancipation, transition, and post-emancipation periods. As discussed in the previous section, for landowner peasants we assume an exposure equal to the serf population in 1859, whereas for non-landowner peasants we assume an exposure equal to the non-serf population. The parameter estimates indicate an enormous 752-percent increase in refusals among landowner peasants during the transition period ($\exp(2.142) - 1 \approx 7.52$), versus a much smaller, statistically insignificant decrease among non-landowner peasants. In contrast, there is a small, 21-percent decrease in refusals among landowner peasants during the post-emancipation period, relative to the pre-emancipation period, versus a sizable 78-percent increase among non-landowner peasants.

The bottom panel of Table 2 provides the change in the expected number of refusals for the transition and post-emancipation periods, relative to the pre-emancipation period, holding the exposure variable at its mean value. We generate confidence intervals for these first differences through parameter simulation via the `Clarify` package for Stata (King, Tomz and Wittenberg, 2000; Tomz, Wittenberg and King, 2003). Our interest is in the difference in first differences—that is, the relative change in disturbances among landowner peasants during each of the two periods—which as discussed above holds constant any measurement error or economic shocks that affect landowner and non-landowner peasants equally.

As Table 2 shows, the transition period is marked by a very large relative increase in refusals among landowner peasants: nearly 8 events per region-year. In contrast, there is a small relative decrease in disturbances among landowner peasants during the post-emancipation period (0.31 events per region-year). Comparison of the confidence intervals for first differences indicates that both difference-in-differences estimates are statistically

significant at conventional levels.

In the following columns we check the robustness of these results to changes in specification and sample. In Column (2), we assume a constant exposure across observations for non-landowner peasants, rather than inferring (as in Column (1)) the population of non-landowner peasants from the non-serf population. Both the parameter and difference-in-difference estimates are qualitatively similar to those in Column (1). Column (3) reports results from a “fixed effects” negative binomial model, where the dispersion parameter is fixed for each region. Again, the parameter estimates are qualitatively similar to those in Column (1). In Column (4), we model the count of disturbances as a continuous variable and estimate a linear fixed-effects model. The difference-in-difference estimates are somewhat larger than those produced by the negative-binomial model, though the same qualitative pattern emerges.

As we discuss above, there was a further reform of the state peasantry in 1866. For most *guberniyas*, the legal impact of this reform was relatively small, but mandatory redemption (i.e., purchase of land allotments) was established for state peasants in the nine western regions affected by the Polish Rebellion that began in 1863. The same nine regions saw substantial changes in land allotments and redemption terms for former serfs. To verify that these events are not driving our qualitative results, we drop all observations after 1865 in Column (5) and all observations in the nine *guberniyas* affected by the Polish Rebellion in Column (6). With respect to the first exercise, there is little change in estimates for the two-year transition period when dropping observations after 1865—not surprising given that the transition period concluded in 1863—but the difference-in-differences estimate for the post-emancipation period is now positive, albeit statistically insignificant. In contrast, dropping the nine western regions results in a smaller difference-in-differences estimate for the transition period (an increase of 6.80 disturbances, versus 7.88 disturbances in Column (1)), but the qualitative change is similar to that with the full sample.

Table 3 presents analogous results for disturbances involving theft and violence. Although

such events are less frequent than refusals, the qualitative patterns are similar to those in Table 2. The sharpest swing is in the transition period, where our baseline estimate shows a relative increase of 1.83 events among landowner peasants. As with refusals, this result is robust to changes in specification and sample.

The pattern that emerges is thus the following: The 1861 reform leads to a sharp increase in peasant disturbances among former serfs during the transition period, when the terms of emancipation were being worked out at individual estates, followed by a decline to levels similar to (and perhaps slightly below) those before the 1861 reform. In the following section we explore the underlying causes for this pattern.

5 Interpretation

Why would a reform that granted serfs their freedom lead to a sharp increase in disturbances? How could an institutional change developed to promote social stability instead reduce it? In this section we examine the mechanisms behind the surge in peasant disturbances that followed publication of the Emancipation Manifesto in 1861.

Based on the detailed event descriptions in *Krest'ianskoe Dvizhenie v Rossii*, we are able to identify the proximate cause of approximately 57 percent of the disturbances in our dataset. Figure 4 summarizes the incidence of disturbances among landowner peasants across the six categories discussed above for the pre-emancipation, transition, and post-emancipation periods. The largest increase during the transition period is in events concerning liberation: rumors of liberation, anticipation of a “second liberation,” dissatisfaction with the terms of liberation, or the distribution of printed materials calling for peasants to liberate themselves.

The source of peasants’ dissatisfaction was twofold. First, the reform design itself was not especially favorable to the serfs. As already mentioned, the nobility had succeeded in watering down the ambitious plans of liberals in the Russian bureaucracy. By the time the Emancipation Manifesto was published in 1861, fear of the peasants’ reaction was great

enough for special security measures to be taken, with stallions at the ready in case the Tsar needed to escape from a rebelling capital (Zaionchkovskii, 1968, p. 159). Disappointed with the terms of emancipation, many peasants simply refused to believe in the Manifesto's authenticity and to abide by its terms. Rumors claiming that after the two-year transition period a new, "real" Manifesto would be issued were so widespread that Alexander himself undertook to convince the peasants that no additional reform would be forthcoming (Zaionchkovskii, 1968, p. 194). In our data, we see 30 disturbances in 1861 and 1862 tied to anticipation of a "second liberation," with an additional 33 such events in 1863.

Second, notwithstanding attempts to shelter the reform process, its actual implementation was captured by the nobility. Although the broad outlines of emancipation were set in St. Petersburg, preparation of the regulatory charters that specified land allotments and obligations was entrusted to the landowners themselves. To some extent, this was a way of credibly committing to taking the landowners' interests into account. At the same time, centralized implementation would have required an enormous bureaucracy and a national land cadastre that did not exist in the mid-nineteenth century. In the event, the landowners abused their control rights to "cut off" peasants' existing land allotments, provide them with different allotments, resettle peasants to different land entirely, and more generally ensure that the estate's most fertile lands would remain in the landlord's hands.

In an attempt to limit such manipulation, the government had introduced peace arbitrators (*mirovye posredniki*) to verify the charters' legality and resolve conflicts between former serfs and landowners. Although the approximately 1,700 arbitrators were selected from the local landowning (and often serf-owning) nobility, they were appointed by the governors, who had received explicit instructions to stack this new institution with reform sympathizers—men such as Leo Tolstoy (who served as a peace arbitrator in Tula *guberniia*) who were ardent supporters of emancipation (Easley, 2002; Ust'iantseva, 1992). The reality on the ground turned out to be more complicated, however, as supporters of emancipation among the nobility were often nowhere to be found. Government efforts notwithstanding, the rank

of arbitrators included people of “every political stripe, with varying degrees of vulnerability to local pressures” (Easley, 2002, p. 711). Many found it difficult to remain neutral in conflicts involving neighboring landowners, and some used outright violence (e.g., flogging) to compel peasants to accept the charter terms.

Even when the arbitrators were willing to confront the nobles, the landlords were often able to neutralize their influence with a plethora of methods that included social ostracism, complaints to the capital, demands for dismissal, or even beating the arbitrator. “They want to beat me up, they want me to be put on trial ... I am simply waiting until they calm down a bit (*pougomonilis*’) and then I will retire,” wrote Tolstoy about his relations with the landlords (Ust’iantseva, 1992, p. 179). Tolstoy’s experience was far from unique: between 1861 and 1863, more than 25 percent of the arbitrators quit their jobs, often as a result of pressure and hostility from landowners (Easley, 2002, p. 727). With so many reform supporters sidelined, not only the writing of the charters, but also control over their legality, was nearly completely captured by a nobility interested in the preservation of their income and privileges. The only thing the peasants could do in this situation was protest and riot.

The hardest hit were the peasants of the *chernozem*, the fertile “black soil” regions. There were several reasons for this. Relative to expectations, the design of the emancipation reform fell especially short for peasants in these regions. Where the soil was poor, peasants often engaged in crafts and trade and therefore cared less about the land. In the *chernozem* areas, on the other hand, peasants had every reason to hope for improved liberation terms.

As to reform implementation, in regions with bad soil, the main source of landowners’ income was monetary *obrok*, implying less need for the landlord to engage in gerrymandering to ensure control over the land. In contrast, the nobility in regions with good soil depended on *barshchina* (unpaid labor on the landowner’s fields) for income, so that cutting off as much of the peasants’ land as possible became an imperative. The fact that *barshchina* obligations were substantially reduced during the transition period, while in principle benefiting the peasants, further drove the landlords in the *chernozem* to reduce peasants’ land allot-

ments and subsequently rent the very same land back in exchange for money or additional obligations (Zaionchkovskii, 1968, pp. 135–7).

Finally, as the price of land destined for redemption was based on the pre-emancipation *obrok*, the returns to landowners from redemption were lowest in the rich *chernozem*, where *barshchina* rather than *obrok* was the rule. The decision to initiate redemption was entirely up to the landlord, and in such regions it was rational for landlords to retain ownership of the land, thus continuing peasants’ dependency on their former owners and creating more opportunities for resentment and unrest. Only the Polish Rebellion could force the government to reverse its initial policies and introduce compulsory redemption in the western *guberniyas*.

The relationship between soil type and peasant discontent is evident in our data. As Figure 5 illustrates, controlling for population size, the total number of disturbances driven by liberation grievances involving landowner peasants over the transition period (1861–2) is larger in regions with better soil. Table 4 reports results from the underlying linear regression and an analogous negative-binomial model. For the latter model (Column (3)), a one-standard deviation (0.349) increase in the proportion of good soil increases the predicted incidence of liberation-driven disturbances by 25 percent ($\exp(0.349 * 0.640) - 1 \approx 0.25$). The estimated relationships are even stronger if regions affected by the Polish Rebellion are dropped. To some extent, this may be driven by the fact that peasants in right-bank Ukraine (Kiev, Podolia, and Volhynia) had already suffered cut-offs of land allotments during the earlier inventory reform (Zaionchkovskii, 1968, p. 131), and so perhaps had less to lose from emancipation.

6 Conclusion

The failure of Alexander II to craft a reform that would satisfy the peasants had both short- and long-term consequences. The immediate effect, as we demonstrate, was to worsen rather than lessen social unrest. Although this intense conflict was relatively short-lived, the

continued misery of the peasants helped to set the stage for the Revolutions of 1905 and 1917 (e.g., Skocpol, 1979). The peasant rebellions of 1861 and 1862 thus foreshadowed the eventual fall of the Tsarist regime.

Alexander's inability to forge a successful revolution from above suggests two constraints underemphasized in the literature on the political economy of institutional change. First, divisions within the elite sharply reduced the ability of the Tsar to propose a reform that would satisfy the peasants. In essence, there may have been no policy that could simultaneously guarantee social peace and prevent a palace coup.⁶ Second, limited administrative capacity forced Alexander to rely upon the nobility for the actual implementation of reform. As the landlords perverted the emancipation process to monopolize the best land holdings, peasants increasingly turned to passive and active resistance.

The constraints we highlight illustrate why revolution in practice is often "on the equilibrium path." Divisions within the elite and limits to state capacity inhibit institutional change that could ensure order.⁷ Future models may incorporate these constraints to provide a fuller picture of political change and revolution.

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⁶Put differently, the landowning elite may not have fully internalized the impact of their actions on social stability.

⁷On the persistence of bad institutions, see, e.g., Acemoglu and Robinson (2008), Eggertsson (2005), and North, Wallis and Weingast (2009).

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ЦГИА, ф. 1286, оп. 21, 1860 г., д. 636, л. 106—111; ф. 1291, оп. 123, 1860 г., д. 1, л. 192, 197 об.—198 об., 211 об.—217; ЦГАОР, ф. 109-И, 4 эксп., 1860 г., д. 230, л. 10; «Документы и материалы по истории Мордовской АССР», стр. 345—359.

Figure 1: A typical chronicle entry from *Krest'ianskoe Dvizhenie v Rossii* (*The Peasant Movement in Russia*), indicating that violent action was taken on October 16, 1860 against the management of an estate in Penza *guberniya* in response to brutal treatment. The indented text at the bottom gives the archival sources on which the entry is based.

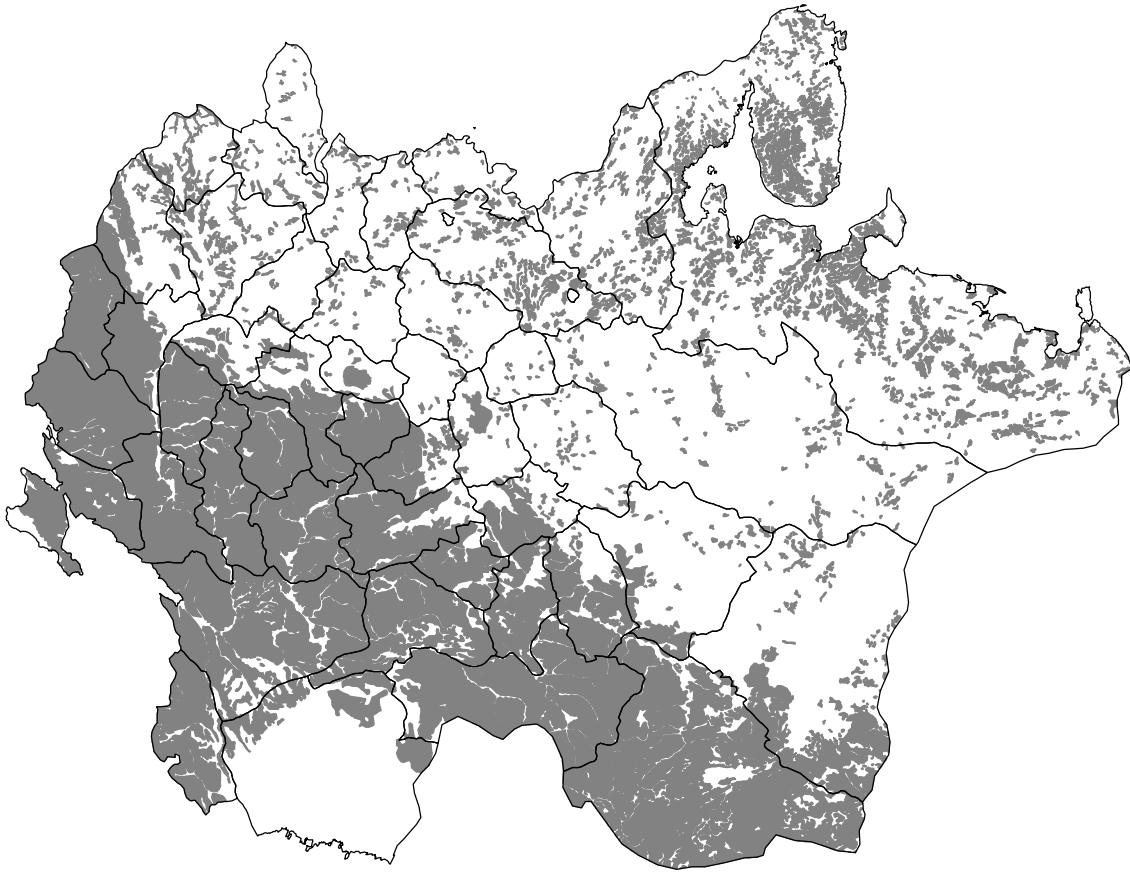


Figure 2: Distribution of soil highly suitable for agriculture across regions in sample; see text for details.

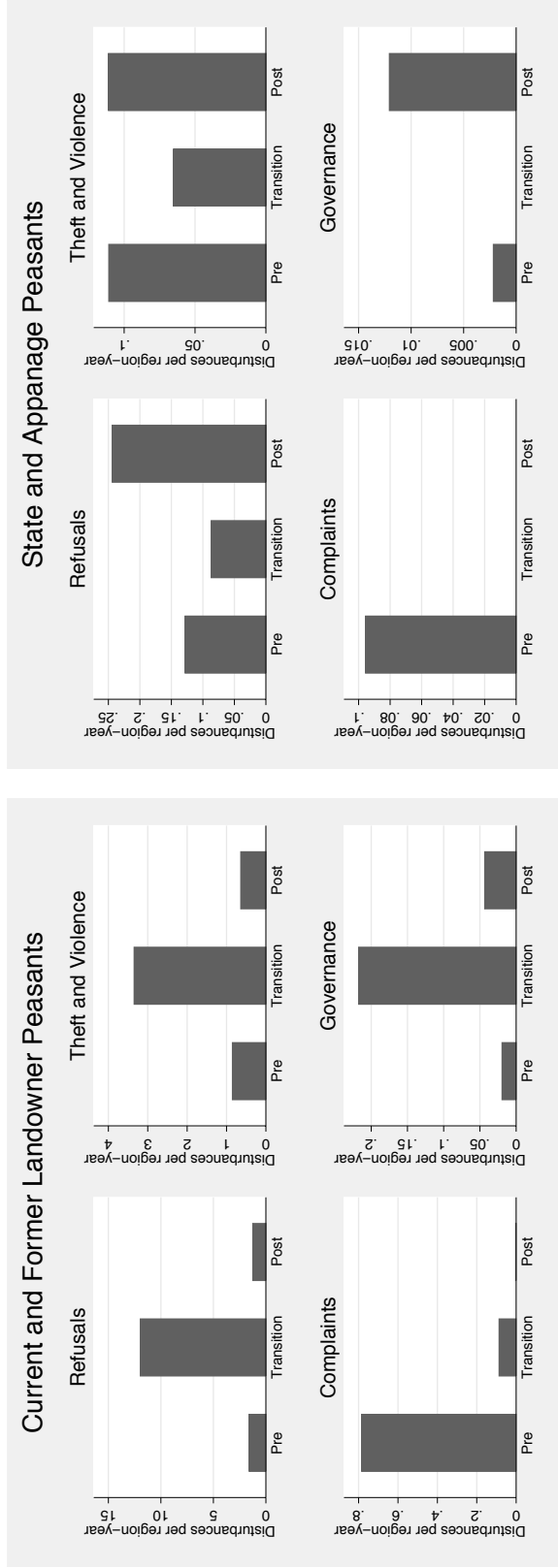


Figure 3: Dynamics of reported disturbances, landowner vs. non-landowner peasants.

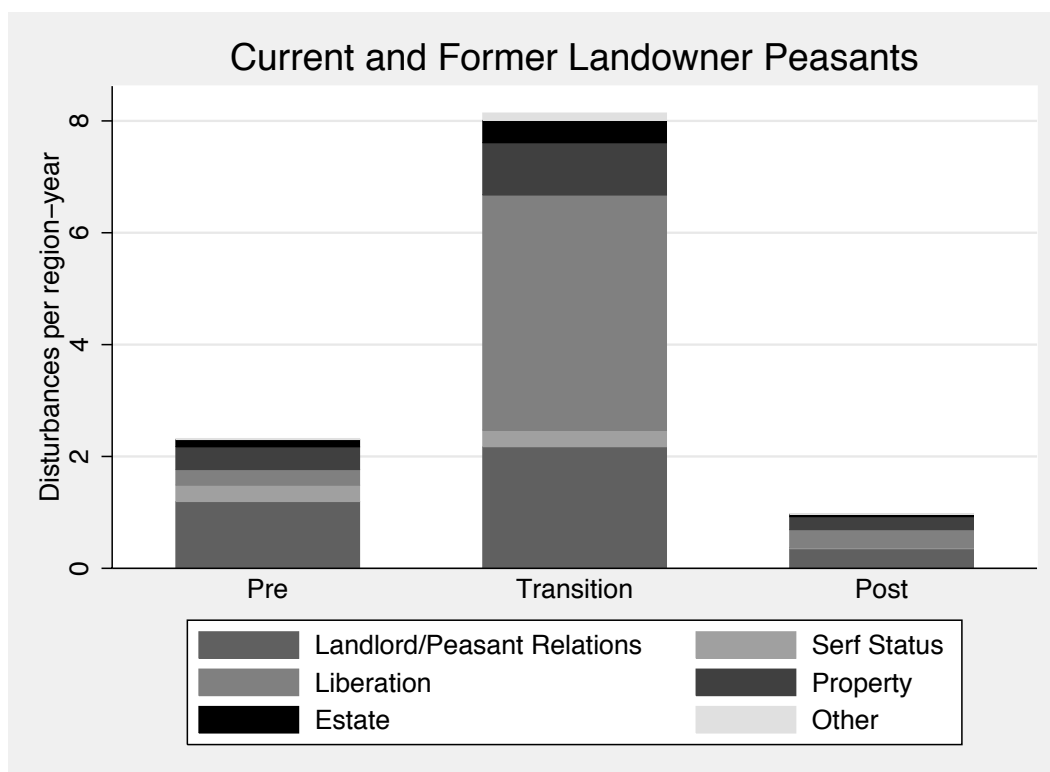


Figure 4: Proximate cause of reported disturbances, landowner peasants.

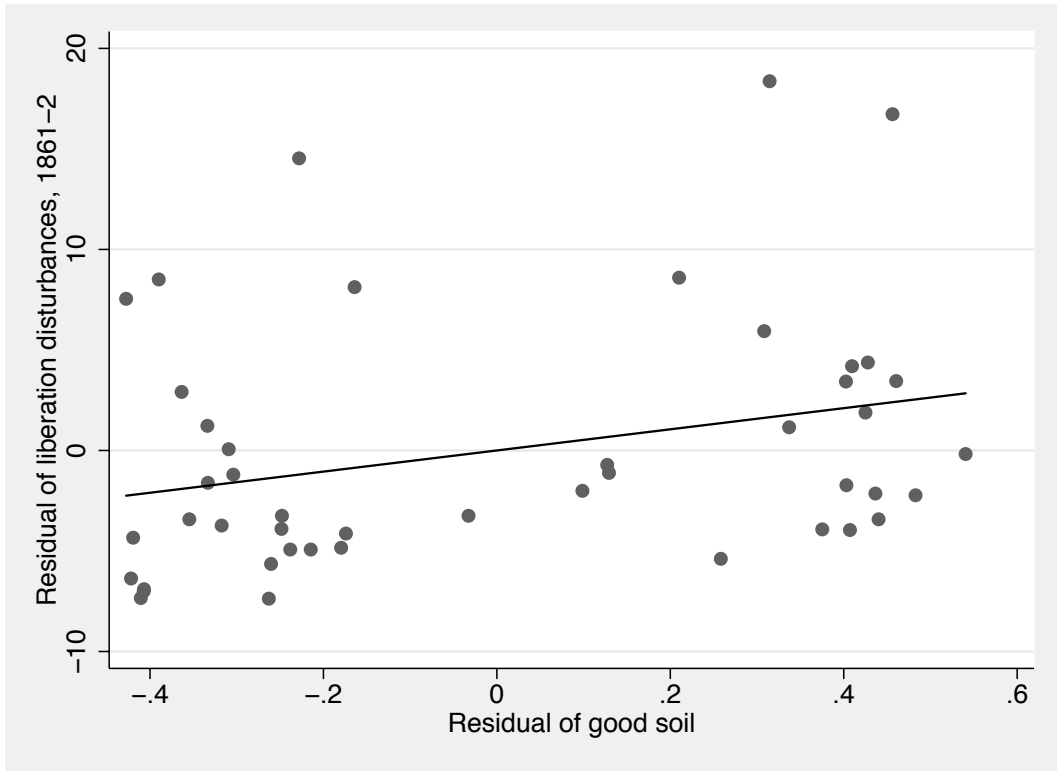


Figure 5: Partial residual plot illustrating relationship between soil type and disturbances driven by liberation grievances. The linear model on which the plot is based controls for serf population.

Table 1: Reform Timeline

1803	Alexander I establishes rules for voluntary emancipation of serfs by their owners.
1816–9	Emancipation of the serfs in the Baltic <i>guberniyas</i> of Estlandia (1816), Kurlandia (1817), and Livonia (1819).
1837–56	Peasants residing on treasury and public lands gain the legal status of “free agriculturalists.”
1846	“Inventory reforms” in the right-bank Ukraine (Kiev, Podolia, and Volhynia guberniyas).
Late 1840s	Unsuccessful introduction of inventory reform in Lithuania.
1848	Serfs are allowed to purchase immovable property in their own name, conditional on agreement by the serfs’ landowner.
1853–6	Crimean War.
1856	Alexander II announces that it is better to emancipate the serfs “from above” than to allow this to happen “from below.”
1858	Alexander II announces publicly that the serfdom is to be abolished.
1858–9	Several national and <i>guberniya</i> -level bodies are created to work on the content of emancipation reforms.
1858–9	Appanage peasants granted legal freedom.
1861	The Emancipation Manifesto.
1863	The end of two-year waiting period for redemption of land allotments.
1863	Beginning of land reform for appanage peasants; redemption operation begins two years later.
1863	Under the influence of Polish rebellion, emancipation terms are improved for Vilno, Kovno, Hrodno, Minsk, Mohilev, Vitebsk, Kiev, Podolia and Volinhia <i>guberniyas</i> .
1864–5	The abolition of serfdom in Tiflis and Kutaisi guberniyas.
1866	Reform of state peasants’ land ownership rights.
1867–1913	Emancipation in North Caucasus and Transcaucasia regions.

Table 2: Disturbances Among Landowner and Non-Landowner Peasants: Refusals

	Baseline (1)	Constant exposure (2)	NB “fixed effects” (3)	Linear fixed effects (4)	Drop > 1865 (5)	Drop western regions (6)
PARAMETER ESTIMATES						
Landowner peasants						
Transition period	2.142 (0.140)		1.996 (0.079)	10.367 (0.404)	2.140 (0.136)	2.052 (0.155)
Post-emancipation period	-0.241 (0.098)		-0.150 (0.085)	-0.346 (0.240)	0.433 (0.130)	-0.373 (0.110)
Constant	-12.550 (0.066)		-13.278 (0.097)	1.600 (0.165)	-12.553 (0.064)	-12.444 (0.073)
Alpha	1.141 (0.095)				1.055 (0.097)	1.085 (0.103)
Non-landowner peasants						
Transition period	-0.457 (0.444)	-0.339 (0.441)	-0.415 (0.399)	-0.041 (0.077)	-0.445 (0.428)	-0.407 (0.451)
Post-emancipation period	0.581 (0.213)	0.643 (0.213)	0.312 (0.187)	0.116 (0.046)	1.227 (0.246)	0.500 (0.222)
Constant	-15.534 (0.161)	-2.054 (0.160)	-14.554 (0.264)	0.128 (0.031)	-15.544 (0.154)	-15.415 (0.167)
Alpha	3.486 (0.751)	4.008 (0.818)			2.587 (0.669)	3.065 (0.701)
CHANGE IN EXPECTED DISTURBANCES						
Transition period						
Landowner peasants	7.84 (5.88, 10.15)	7.84 (5.88, 10.15)		10.37 (9.57, 11.16)	7.80 (5.85, 10.02)	6.66 (4.72, 9.01)
Non-landowner peasants	-0.04 (-0.11, 0.06)	-0.04 (-0.11, 0.06)		-0.04 (-0.19, 0.11)	-0.04 (-0.10, 0.05)	-0.04 (-0.12, 0.08)
Difference in differences	7.88	7.88		10.41	7.84	6.80
Post-emancipation period						
Landowner peasants	-0.22 (-0.41, -0.04)	-0.22 (-0.41, -0.04)		-0.35 (-0.82, 0.12)	0.56 (0.18, 0.95)	-0.31 (-0.48, -0.14)
Non-landowner peasants	0.09 (0.02, 0.16)	0.12 (0.04, 0.20)		0.12 (0.03, 0.20)	0.29 (0.14, 0.48)	0.09 (0.02, 0.18)
Difference in differences	-0.31	-0.34		-0.47	0.27	-0.40

Notes: Model (4) is linear fixed-effects model; all others are negative-binomial models. Model (2) assumes constant exposure for non-landowner peasants. Model (3) assumes a dispersion parameter fixed for each region (`xtnbreg`, `fe` in Stata). Model (5) drops observations for years after 1865, and Model (6) drop regions affected by the Polish rebellion; see text for details. Sample is annual data from 1851–1871 (but for Model (5)) for 46 regions (but for Model (6)). Standard errors in parentheses for parameter estimates, 95-percent confidence intervals for first differences. Changes in expected disturbances for both transition and post-emancipation periods are relative to pre-emancipation period.

Table 3: Disturbances Among Landowner and Non-Landowner Peasants: Theft and Violence

	Baseline (1)	Constant exposure (2)	NB “fixed effects” (3)	Linear fixed effects (4)	Drop > 1865 (5)	Drop western regions (6)
PARAMETER ESTIMATES						
Landowner peasants						
Transition period	1.446 (0.161)		1.334 (0.102)	2.496 (0.188)	1.438 (0.149)	1.295 (0.162)
Post-emancipation period	-0.335 (0.116)		-0.393 (0.106)	-0.212 (0.112)	0.430 (0.142)	-0.842 (0.131)
Constant	-13.179 (0.077)		-13.162 (0.132)	0.852 (0.077)	-13.189 (0.073)	-13.048 (0.078)
Alpha	1.251 (0.139)				1.024 (0.125)	0.902 (0.134)
Non-landowner peasants						
Transition period	-0.590 (0.496)	-0.531 (0.489)	-0.523 (0.469)	-0.046 (0.045)	-0.584 (0.488)	-0.452 (0.504)
Post-emancipation period	-0.021 (0.249)	0.002 (0.245)	-0.061 (0.227)	0.000 (0.027)	0.770 (0.295)	-0.066 (0.266)
Constant	-15.690 (0.171)	-2.199 (0.168)	-14.492 (0.388)	0.111 (0.018)	-15.694 (0.168)	-15.662 (0.182)
Alpha	3.809 (1.170)	4.034 (1.223)			3.325 (1.088)	3.390 (1.141)
CHANGE IN EXPECTED DISTURBANCES						
Transition period						
Landowner peasants	1.79 (1.18, 2.52)	1.79 (1.18, 2.52)		2.50 (2.13, 2.87)	1.76 (1.25, 2.36)	1.43 (0.94, 2.04)
Non-landowner peasants	-0.04 (-0.10, 0.05)	-0.04 (-0.11, 0.06)		-0.05 (-0.13, 0.04)	-0.04 (-0.10, 0.04)	-0.03 (-0.11, 0.09)
Difference in differences	1.83	1.83		2.55	1.80	1.46
Post-emancipation period						
Landowner peasants	-0.16 (-0.27, -0.06)	-0.16 (-0.27, -0.06)		-0.21 (-0.43, 0.01)	0.30 (0.09, 0.54)	-0.30 (-0.40, -0.22)
Non-landowner peasants	0.00 (-0.06, 0.05)	0.00 (-0.05, 0.06)		0.00 (-0.05, 0.05)	0.12 (0.03, 0.27)	0.01 (-0.07, 0.05)
Difference in differences	-0.16	-0.16		-0.21	0.18	-0.31

Notes: Model (4) is linear fixed-effects model; all others are negative-binomial models. Model (2) assumes constant exposure for non-landowner peasants. Model (3) assumes a dispersion parameter fixed by each region (`xtnbreg`, `fe` in Stata). Model (5) drops observations for years after 1865, and Model (6) drop regions affected by the Polish rebellion; see text for details. Sample is annual data from 1851–1871 (but for Model (5)) for 46 regions (but for Model (6)). Standard errors in parentheses for parameter estimates, 95-percent confidence intervals for first differences. Changes in expected disturbances for both transition and post-emancipation periods are relative to pre-emancipation period.

Table 4: Disturbances Involving Liberation Grievances Among Landowner Peasants

	Ordinary Least Squares		Negative Binomial Models	
	Drop western regions		Drop western regions	
	(1)	(2)	(3)	(4)
Good soil	5.260 (2.620)	8.116 (2.661)	0.640 (0.335)	1.210 (0.348)
Serf population (100,000s)	0.649 (0.330)	1.011 (0.352)		
Constant	2.949 (2.069)	-0.531 (2.191)	0.390 (0.192)	0.001 (0.217)
Alpha			0.422 (0.112)	0.298 (0.101)
Observations	46	37	46	37

Notes: Negative binomial models assume exposure equal to serf population. Dependent variable is sum of disturbances involving liberation grievances among landowner peasants over transition period (1861–2). Models (2) and (4) drop regions affected by the Polish Rebellion; see text for details. Standard errors in parentheses.