Collective Action and Representation in Autocracies: Evidence from Russia's Great Reforms[*]

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Abstract

How do autocratic elites respond to threats of unrest by excluded groups? We explore the relationship between collective action and representation with unique data on peasant disturbances and institutional design during the period of Russia's Great Reforms under Tsar Alexander II. Consistent with the Acemoglu-Robinson model of political transitions, and inconsistent with many other theories of regime change and liberalization, we find that peasants were granted less representation in *zemstvo* assemblies in districts that experienced more frequent unrest in preceding years. Our instrumental-variables estimates suggest that this association is driven by the greater incidence of unrest in regions where serfdom was historically prevalent, which we interpret as consistent with the awareness by elites of disturbances among former serfs following the Emancipation Reform of 1861.

When do autocratic elites transfer power to excluded groups? Numerous theories of regime change and liberalization suggest that representation is granted in response to fear of social unrest. Yet among such theories, there is disagreement as to whether capacity for collective action among the disenfranchised is more or less likely to produce institutional change.

The predominant view in the literature is that regime change and liberalization are more likely the greater the threat that excluded groups pose. Intuitively, autocratic elites are vulnerable to social disturbances, so frequent unrest that poses a threat to regime stability should encourage institutional change. Yet in a series of influential contributions, Acemoglu and Robinson (2000, 2001, 2006) argue precisely the opposite. In their theory, representation (democratization) is a commitment mechanism that is exploited only when the elite is otherwise unable to credibly commit to future redistribution—that is, when the majority poses an infrequent threat of unrest. In the Acemoglu-Robinson model, collective action and representation are substitutes.

Are capacity for collective action and representation positively or negatively related? We explore this question in a novel empirical setting: the 1864 creation in Russia of the *zemstvo*, an institution of local self-governance with the power to assess taxes and allocate revenues to local public goods. Power in the *zemstvo* was exercised by an elected assembly, with statutory allotments of seats for the gentry and peasantry that varied greatly across 365 districts in which *zemstva* [pl.] were established. We relate peasant representation in the *zemstvo* assemblies to the frequency of peasant unrest at the district level, which we measure using data drawn from a Soviet-era chronicle of such incidences in nineteenth-century Russia. To support a causal interpretation and correct for possible measurement error in the unrest data, we exploit variation across Russia in the historical incidence of serfdom and French occupation during the Patriotic War with Napoleon in 1812.

Consistent with the Acemoglu-Robinson model of political transitions, and inconsistent with many other theories of regime change and liberalization, we find that peasants were granted less representation in *zemstvo* assemblies in districts that experienced more frequent peasant unrest in the years preceding 1864. Our instrumental-variables estimates suggest that this association is driven by the greater incidence of unrest in regions where serfdom was historically prevalent, which we interpret as consistent with the awareness among elites of unrest among former serfs following the Emancipation Reform of 1861. In contrast, our estimates imply a negligible local average treatment effect of unrest when instrumenting on Napoleonic occupation, a variable that is strongly correlated with unrest from 1851–1863, likely due to legacies of partisan activity during 1812, but one that is less likely to have been well understood by policy makers. In further exercises, we show that the negative effect of serfdom on representation is concentrated among regions plausibly understood as having greater capacity for collective action due to the nature of peasant obligations prior to emancipation.

To situate our empirical exercise, we begin by surveying the theoretical and empirical literature on collective action and regime change. Following this, we describe our research setting: Imperial Russia during the period of the Great Reforms under Tsar Alexander II. The remainder of the paper is devoted to presentation of our data, empirical strategy, and results.

1 Theoretical and empirical perspectives

Beginning with the seminal work of Lipset (1959), theories of regime change and political liberalization have emphasized a number of variables, including economic development, economic inequality, elite divisions, pacts, and popular mobilization. With respect to the last of these variables—the focus of this paper—there is debate about the importance and even direction of any effect. On the one hand, social unrest may be epiphenomenal to other events driving transition. As Geddes (1999) writes with respect to regime change in Latin America, "Popular mobilizations took place in many countries, but they usually occurred relatively late in the process, when democratization was well underway and the risks of opposition had diminished" (p. 120). On the other hand, the ability of political actors to exploit economic and other shocks may depend on their capacity for collective action, which elites in turn may anticipate.

Among theories that suggest a causal effect of collective action on representation, most conclude that democratization or liberalization is more likely to occur when excluded groups find it comparatively easy to overcome their collective-action problems.[1] Collier (1999), for example, suggests that labor unions, with their inherent capacity for mobilization, play a critical role in the "destabilization and extrication" of nondemocratic regimes. Boix (2003), in turn, argues that greater mobilization among the poor or disadvantaged increases the likelihood of establishing a democratic state, though only when economic inequality is relatively low. Gandhi and Przeworski (2006) and Gehlbach and Keefer (2011) both predict that co-option (through the creation of legislatures and ruling parties, respectively) is more likely when the ability to suppress popular uprisings is small, though Gehlbach and Keefer also argue that ruling parties are likely to be larger when collective action among the *elite* is difficult. More recently, Bueno de Mesquita (2010) suggests that unrest fosters regime change by signaling widespread dissatisfaction with the incumbent regime. Besley et al. (2014) argue that political leaders who are less "resilient," which may be determined by the mobilizational capacity of excluded groups, are more likely to create institutionalized checks on the power of the executive branch.

In contrast, Acemoglu and Robinson (2000, 2001, 2006) predict a negative relationship between capacity for collective action and regime change. In their theory, representation (democratization) serves as a commitment mechanism when autocratic elites are otherwise unable to commit to future redistribution, given limited capacity for collective action among the poor. Figure 1, which is adapted from Gehlbach (2013, p. 203), illustrates the argument. In any period in a nondemocracy, the poor pose a credible threat of revolution with probability q. (The variable q thus measures capacity for collective action, which might arise from various factors.) In such periods, the elite can attempt to forestall revolution by redistributing to the poor. This will only be successful, however, when the poor anticipate being in the same (credible) state in future periods with sufficiently high probability—that is, when q is high. In contrast, when q is low, then promises of future redistribution are not

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[1]Such theories are related to, but mostly distinct from, those that trace the stability and efficacy of already-established democracies to collective action, including Almond and Verba (1989), Putnam (1993), and Weingast (1997). Another strand of the literature ties liberalization to factors other than collective action among excluded groups, including a desire to undermine special interests (Lizzeri and Persico, 2004) and increase war effort (Ticchi and Vindigni, 2008).
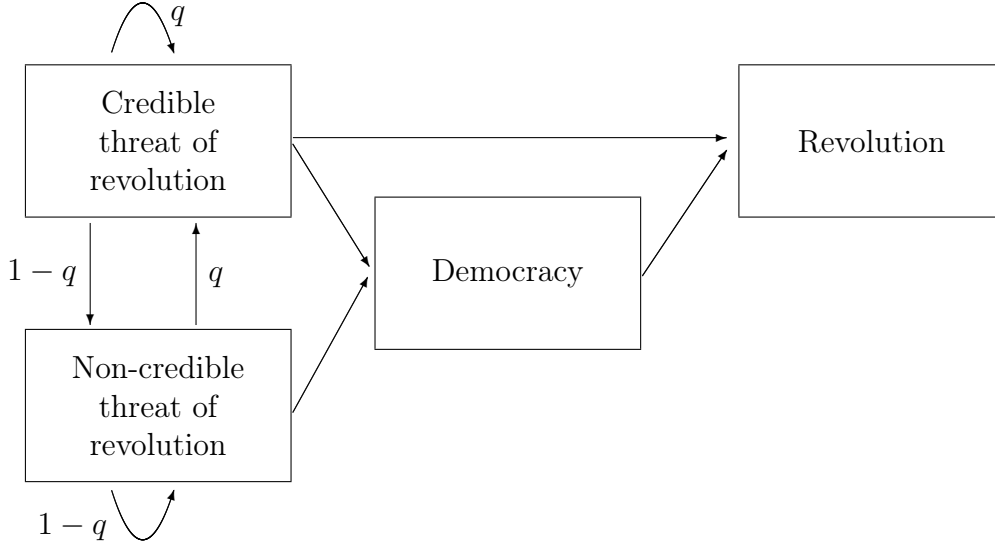
Figure 1: The commitment mechanism in the Acemoglu-Robinson model of political transitions. In any period in a nondemocracy, the poor pose a credible threat of revolution with probability q. Expectations of future redistribution are lower, and the value of democratization as a commitment mechanism correspondingly higher, when q is small.

credible, since with high probability the poor will not pose a credible threat of revolution in subsequent periods. It is in such cases that the elite may democratize as a way of committing to future redistribution.[2]

Acemoglu and Robinson (2000, p. 1185) illustrate the commitment mechanism with the following example: "At first sight, one might expect franchise extension in Germany [where unions and the socialist movement posed a nearly constant threat of unrest] rather than in Britain and France. Our model, in contrast, predicts that the German elite should have had more flexibility in dealing with social unrest by promising future redistribution, which was the pattern in practice." Thus, collective action and representation are substitutes rather than complements. Although the underlying model treats the granting of representation as a discrete decision—democratization or not—the logic extends to a setting in which any level of representation can be chosen, as we show formally in the Appendix. The more frequently an excluded majority poses a credible threat of unrest, the less representation the elite provides to the majority.

A large empirical literature has emerged to test the link between the transition to democracy and various economic variables. One robust finding is a positive relationship between adverse economic shocks, which are often correlated with social unrest, and democratization (Brückner and Ciccone, 2011). Aidt and Jensen (2010) investigate the relationship between

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[2]Observe that revolution may nonetheless be more attractive to the poor than accepting democracy. Limited capacity for collective action is a necessary but not sufficient condition for democratization in the Acemoglu-Robinson model.

the threat of revolution and the extension of the franchise in Europe and find that revolutionary activity in neighboring countries strongly predicts political liberalization. Przeworski (2009) also finds a positive relationship between domestic social unrest and suffrage extension.

Cross-country analyses of this sort are effective in demonstrating that changes in representation can be driven by collective action,[3] but they leave open the question of how regime change and liberalization are related to the *capacity* for collective action. If collective action is a transient condition, as assumed by Acemoglu and Robinson (2000, 2001, 2006) and implied by the results in Brückner and Ciccone (2011), then changes in political institutions should indeed occur only when collective-action problems are overcome. But redistribution, repression, and other actions of the elite are also more likely to occur at such critical junctures. The question that we explore is whether, *at such moments*, representation is more or less likely to be granted when an excluded group poses a more constant threat of unrest that manifests a persistent capacity for collective action. (Expressed in terms of the Acemoglu-Robinson model, we ask whether representation is more or less likely to be granted when q is large, conditional on being in the state where the excluded group poses a credible threat of unrest.) Answering this question requires that we have data on unrest not just when, but before, institutional change occurs. The research setting that we describe in the following section provides such an opportunity.

2   The *zemstvo* reform in historical perspective

Our empirical analysis is grounded in the historical context of mid-nineteenth century Imperial Russia. The period from 1850 to 1870 saw dramatic changes in the institutional structure of rural Russia as serfdom came to an end through a complicated set of reforms. In this section, we first describe the pertinent features of serfdom, the emancipation reforms, and their immediate impact on peasant unrest. To frame the trade-off between representation and the capacity for collective action expressed by unrest, we then delve into the origins and structure of the *zemstvo*'s system of representation.

2.1   Serfdom, emancipation, and peasant unrest

Russian serfdom was shaped by two interacting factors—the rulers' need to maintain a large number of military and civil servitors, necessary for state building and territorial expansion beyond Muscovy, and the land/labor ratio (Domar, 1970). Noble service was compensated by land grants, but the availability of vast unsettled territories coupled with the peasants' freedom of movement threatened to put the servitors' economic well-being at substantial risk. To overcome this problem, the state gradually introduced ever-increasing restrictions on the mobility of peasants. This led, in the seventeenth century (1649), to the formalization of serfdom as a set of legal restrictions on the rights and freedoms of peasants residing on private estates.

Serfs, in addition to being bound to the land, were subjugated to the relatively unconstrained rules and regulations imposed by their seigniors. The landowner had practically unlimited judicial and policing rights over her serfs, who could be sold or mortgaged (Dennison, 2011; Zaionchkovskii, 1968). In return for access to land (and possibly other goods

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[3]Though this need not imply that collective action is driven by distributive conflict, as typically assumed in the theoretical literature: see Haggard and Kaufman (2012).

and services), serfs were generally expected to provide aristocratic landowners with unpaid agricultural labor (corvée, or *barshchina* in Russian), payment in money or kind (quitrent, or *obrok*), or a combination of both.

Critically, serfs residing on private land were but one part of the Russian peasantry. A slightly smaller group was the state peasants, who cultivated and lived on state-owned lands, and who, by the mid-nineteenth century, could own property, were obligated for quit-rent payments, and may have exhibited relatively more labor and social mobility. While there was some differences in the geographic distribution of these two largest peasant groups, many provinces and districts had very mixed populations. In addition, there was also a relatively small population of court peasants, who lived on the lands owned by the royal family and paid *obrok* only.[4]

Until the nineteenth century, reforms of the Russian peasantry were limited, despite government concerns over spasms of peasant violence, ranging from brutal murders of individual landowners to large-scale peasant uprisings such as the Pugachev Rebellion (1773–75). Such unrest often necessitated military intervention, the cost of which was largely borne by the central state rather than the affected landowners. Some measures were finally enacted for the court and state peasants between the 1820s and 1840s. Although hard evidence is limited, these reforms appear to have fostered slightly improved economic conditions for these non-serf peasants. However, there is little evidence that these reforms generated significant differences in the specific institutional practices of village communes among different peasant groups.[5]

Although these earlier measures likely served as a model, the Tsar's fear of a backlash from the nobility prevented meaningful movement towards substantive reforms of serfdom. It took the humiliating defeat of the Crimean War (1853–56) to clearly demonstrate the country's institutional and economic backwardness. The war itself led to an increase in peasant unrest, spurred in part by false rumors that serfs would be freed upon joining the wartime militia (Finkel, Gehlbach, and Olsen, 2015). Despite serfdom's profitability for individual landowners (Domar and Machina, 1984), the increasing fear of peasant rebellion led Tsar Alexander II to declare in 1856 that it was better to end serfdom "from above" than to wait for it to happen "from below."

The Emancipation Manifesto of 1861 gave former serfs immediate legal freedom but fell far short of meeting their expectations with regard to land ownership. The reform's content was a convoluted compromise between different factions of the elite over how much land, if any, should be awarded to the peasants (Khristoforov, 2011, p. 9). The final statutes gave former serfs the right to buy out their houses and adjacent garden plots, but property rights over a portion of each estate's arable land were only transferred over a period of decades, often in deals that overwhelmingly favored the former landowners.

This "redemption" process, whereby arable land was transferred from landowners to former serfs, mandated that former serf communes receive at least a minimum amount of land per male member (i.e., per "soul"). Estate owners were not required to transfer more than a

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[4]On the population shares of peasant groups and the differences among them, see Kabuzan (2002) and Nafziger (2014).

[5]See Deal (1981), Druzhinin (1946 and 1958), and the discussion in Moon (1999, pp. 107-108). Although public good provision (i.e., schools) was possibly greater among the state peasantry, this seems to have been externally generated (by the Ministry of State Domains), rather than an outcome of communal differences.

specified maximum amount per male, and they were allowed to keep all complementary property like forests and pasture. Moreover, until the redemption settlement was reached, former serfs remained "temporarily obligated" to their former lords, albeit under some guidelines regarding the amount of quitrent or labor service. Critically, the minimum and maximum allotment norms were defined district-by-district and corresponded to set mortgage-like valuations per acre that communes were to collectively pay off over a projected 49-year period. In contrast to these changes for former serfs, court and state peasants eventually entered into similar redemption reform processes (in 1863 and 1866) that largely maintained their respective status quos with regard to land rights and obligation levels. Evidence suggests that the parameters of these redemption processes largely dictated the nature of peasant land rights into the 20th century.[6]

Emancipation's design and subsequent implementation fell short of many ex-serfs' expectations, leaving many materially worse off than before and generating renewed unrest across the Russian Empire. Finkel, Gehlbach, and Olsen (2015) document a sharp increase in disturbances among former serf peasants after 1861, versus a much smaller, statistically insignificant decrease among the non-serf peasant population. The government responded by committing more than 80 infantry and cavalry regiments to put down the unrest (Zaionchkovskii, 1968). It was precisely in this period that a relatively small number of bureaucrats in St. Petersburg were occupied with drafting another reform, that of a new unit of rural self-government, the *zemstvo*. Indeed, Garmiza (1957, p. 42) asserts that, "The fundamental and decisive factor driving the [zemstvo] reform was the revolutionary situation in the country."

2.2 The zemstvo

In early 1864, Tsar Alexander II issued the *Statutes on Provincial and District Zemstvo Institutions* as part of the larger effort to modernize Imperial Russia. This act established a new institution of local self-government—the *zemstvo*—in 34 of the 50 provinces of European Russia at both the provincial (*guberniia*) and district (*uezd*) levels.[7] The 1864 law did not establish the *zemstvo* in more peripheral regions, either because the population was too sparse (Siberia and the north), special governing bodies already existed (military authorities in the Caucuses), or because no amount of electoral rigging could guarantee that a loyal Orthodox Russian elite would maintain control (the Belorussian and right-bank Ukrainian provinces, where the vast majority of the nobility were Catholic Poles).

The founding statutes called on the *zemstva* to undertake programs to support "the local economic and welfare needs of each province," and a certain amount of fiscal authority was granted to enable such efforts. As outlined in the initial law, annual legislative assemblies approved spending and revenue policies under simple majority voting, and these plans were then enacted by executive councils responsible for day-to-day decisions. While local policy autonomy was considerable, the statutes governed the responsibilities and revenue sources of the two levels of the *zemstvo*, with strict limitations on the extent of coordination across

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[6]Famously, most peasant communes—both former-serf and other types—received the resulting land transfers as a collective property right, while redemption obligations were subject to joint liability. For further details of this process, see Gerschenkron (1965), Nafziger (2014), and Zaionchkovskii (1968).

[7]The original statutes established *zemstva* in 33 provinces and the Don Cossack region, but the institution never opened in Orenburg and was eliminated in the Don in 1882. *Zemstva* were quickly established in most of Bessarabia (1869) and in Ufa (1875).
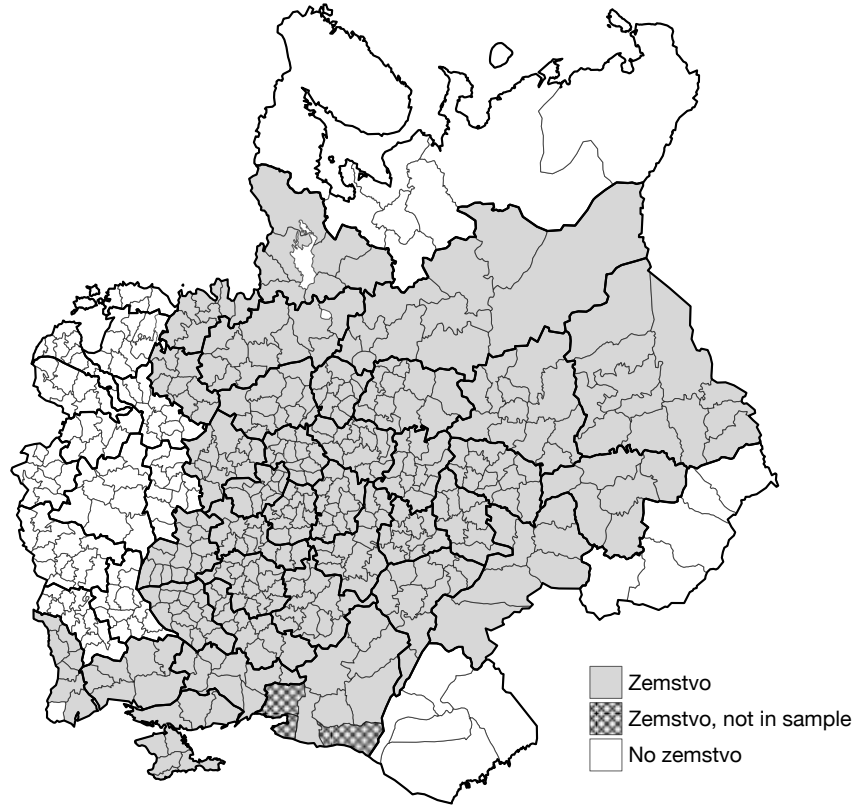
Figure 2: The geography of the *zemstvo* as defined by the 1864 law. Dark lines indicate provincial boundaries. Three cross-hatched districts are not in sample due to administrative reorganization.

zemstva. All budgets and programmatic initiatives were potentially subject to approval by the Ministry of Internal Affairs (through governors). Among other goals, it was explicitly hoped that these new bodies would provide an outlet for defusing potential unrest (Garmiza, 1957; Starr, 1972).

The Russian State Council asserted in 1889 that, "there can be little doubt that the calling of locally elected people to lead local matters has significantly improved provincial life and led to the wide satisfaction of the demands of the local population" (quoted in Zakharova, 1968, p. 142). Recent empirical research supports this assertion. Exploiting district-level data, Nafziger (2011) documents a substantial increase in the provision of publicly provided local goods and services in *zemstvo* regions. Strikingly, this improvement is most pronounced in districts where peasants had greater representation in the *zemstvo* assemblies, notwithstanding the fact that peasants rarely held a majority of seats. This likely reflects the greater ease in creating majority coalitions with progressive members of the nobility in such districts.

Variation in the degree of peasant representation was determined by the *zemstvo* statutes. Under the 1864 law, between 10 and 100 assemblymen were elected for three-year terms in balloting by three curiae of voters in each district: rural private property owners, urban property owners, and peasant communes, which had gained newly formal status as parties to the emancipation reforms. Within the first two curiae, the statutes outlined a system of

electoral meetings, in which those holding the requisite amount and type of property could participate. The third curia's assemblymen were elected by representatives from communal villages in each district. Village councils (*skhody*) of peasant household heads sent approximately one member for each ten households to township meetings, where a fixed number of electors (roughly one for every two to five *skhod* representatives) were selected for district-level primaries. The first and second curiae could only elect representatives who were eligible to vote in their respective primaries (from any class), whereas the third curia could elect non-peasant assemblymen eligible in the other two curiae.

Critically for our purposes, the statutes fixed the number of assembly seats from each curia in each district, with substantial variation across European Russia. In each district, the curiae were to elect a total number of assemblymen according to the "number of landowners, size of arable lands they own, population of the towns, number and value of urban properties, number of townships, rural population, and the amount of land in possession of the rural communities" (*Polnoe sobranie zakonov Rossiiskoi imperii*, Series II, vol. 39, no. 40457, clause 33). As such, the composition of representation in each district was supposed to reflect each curia's interest in local affairs and relative contributions to *zemstvo* revenues. However, even though the peasantry was over 85% of the population in European Russia and contributed the largest share of local taxes, policymakers argued that peasant illiteracy and political inexperience required them to weigh the seat allocation towards the first curia, where the landed nobility predominated (Garmiza, 1957, pp. 48-49).[8] Notably, we find no evidence in the historical record that this sentiment was directed at serfs in particular, as opposed to state or court peasants. The fear of peasant illiteracy and inexperience appears to have been general.

Weighting by assembly size, the first curia (rural property owners) held 47.0 percent of all seats under the 1864 law, versus 12.5 percent for the second curia (urban property owners) and 40.5 percent for the third curia (peasant communities).[9] When combined, the first and second curiae formed an overall statute majority in 323 of 365 districts in our sample. In contrast, the third curia held a plurality in 78 districts and an absolute majority in only 8 (see Figure 3). As shown in Nafziger (2011), the malapportionment of statute seats translated into peasants' holding minority positions in all but 11 district assemblies (in 1883) and in virtually all executive boards. Although beyond the focus of our paper, peasant representation was made even less proportional to population or landholdings in 1890 when a conservative reform under Tsar Alexander III significantly adjusted the allocations of seats in favor of the rural gentry.

As described above, the 1864 statutes followed guidelines that mapped local property ownership into the distribution of assembly seats. However, it also seems that there was considerable residual heterogeneity in the allocation of seats within each district *zemstvo*.[10]

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[8]The Commission on Provincial and District Institutions argued that the allocation of seats had to favor the "class that is more educated and advanced, with greater understanding of political rights and some experience in civil life" (Russia, Khoziaistvennyi departament (1885–1886), vol. 1, p. 149 and 159).

[9]Authors' calculations using data from *Polnoe sobranie zakonov Rossiiskoi imperii*, Series II, vol. 39, Issue 3 [Appendices], and Series III, vol. 10; Russia, Khoziaistvennyi departament (1878–1890); and Obchinnikov (1872).

[10]In Nafziger (2011), almost two-thirds of the variation in the 1864 law's third-curia assembly shares remains unexplained in regressions that included property requirements from a proposed version of the law,
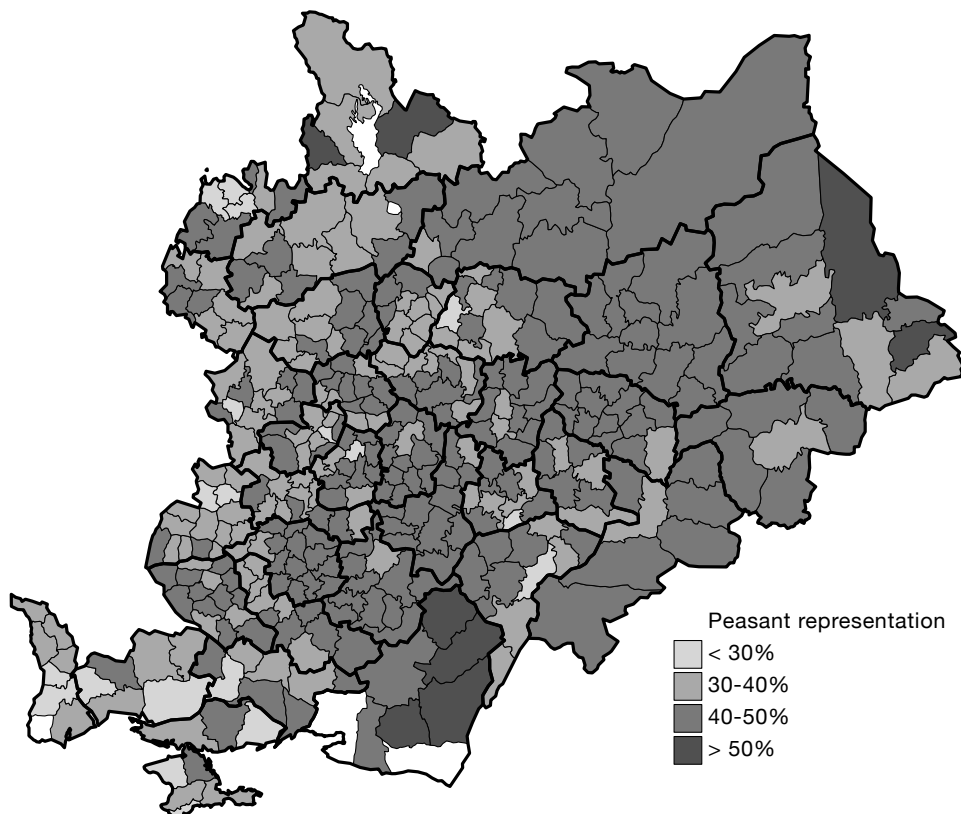
Figure 3: Share of *zemstvo* assembly seats statutorily assigned to third (peasant) curia c. 1875. Dark lines indicate provincial boundaries.

In our empirical work below, we examine the possibility that a large part of this "residual" can be explained by how policymakers responded to the unrest that accompanied the end of serfdom. To justify this analysis, it is important to reconstruct the specific historical context that generated the original 1864 statutes.

2.2.1 The roots of the *zemstvo* electoral system

The *zemstvo* was rooted in earlier initiatives to provide local public goods and services, but the institution's formulation was closely tied to the emancipation context.[11] Alexander II's call for ending serfdom meant that the subsequent authority of the nobility had to be decided. Thus, the preparations of the emancipation statutes occurred simultaneously with discussions of how local governance should be reshaped.

Such discussions took place within the Main Committee for the emancipation reforms, but in March 1859, Alexander II also appointed a special commission to formulate legislation regarding local police matters, for settling disputes between landlords and former serfs, and

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other land-ownership variables, the former extent of serfdom, a number of other controls, and provincial fixed effects.

[11]Earlier initiatives for reforming local governance are summarized by Garmiza (1957), Lapteva (1993), Malloy (1969), Russia, Khoziastvennyi (1885–86), and Starr (1972).

to decide other aspects of local administration.[12] This commission was led by the relatively liberal Deputy Minister of the Interior Nikolai Miliutin and included representation from various ministries, with some outside and local experts also brought in to advise. In April 1860, the body proposed that local public goods and services should be provided by new "economic structures," based on "elective principles," to replace the existing mixed system of local governance (Malloy, 1969, p. 90). However, the details of these new bodies remained largely unspecified into 1861.

In April 1861, Alexander II reacted to the observed increase in rural unrest following emancipation by relieving Miliutin of his duties and replacing him as chairman of the commission with the conservative new Minister of the Interior, Petr Valuev (Garmiza, 1957, p. 154). From mid-1861 until mid-1863, the Valuev-led commission worked to define the key parameters of the *zemstvo*'s electoral structure. Therefore, the specifics of the *zemstvo* reform were prepared exclusively in St. Petersburg and *not* by the provincial committees of nobility, other local bodies, or individuals (ibid., ch. 2).[13]

The main Soviet historian of the preparation of the *zemstvo* reform—V. V. Garmiza— wrote that "[i]n an environment of peasant unrest... the administration had a basic fear of the numerical dominance of the peasantry in the *zemstvo* assemblies" (ibid., p. 177). Indeed, as chair of the commission, Valuev "responded to these alarming conditions just as Catherine II had after Pugachev's uprising and sought a firm alliance with Russia's upper class and to bar 'communists and men of low morality' from the *zemstvos*" (Starr, 1972, p. 247). Nonetheless, a bureaucratic struggle took place in the commission and related committees between those who wanted to maintain a class-based system of local governance with the nobility firmly in control, and those who argued for a broader system of representation that would provide at least some equality of political voice. Supporters of the first, conservative, approach argued for an electoral system based on property ownership, where the nobility would necessarily dominate. The second, slightly more liberal group supported a population-weighted system of representation, with the nobility and the peasantry receiving roughly equal voices in the district assemblies.

This theoretical debate boiled down to setting general rules that assigned one assembly seat to each curia per a set amount of property *or* number of people in each district. The commission's proposal to the State Council in the late spring of 1863 suggested a property basis for determining the number of seats in the first and third curiae and a population basis for the second curia, with some further language about limiting the numbers of seats in a curia to no more than the sum of the other two. Following submission of the Valuev proposal, a special committee of the State Council took it up over eight sessions in July. These sessions proceeded step-by-step through the suggested statutes, modifying some and rejecting others. Unfortunately, the details of these revisions and discussions have not been preserved in the archives (Garmiza 1957, pp. 230–231). Following these sessions, the Polish Rebellion (itself part of the "revolutionary situation" in the Empire) and other issues garnered the attention

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[12]This March decree also asserted that a new local government body should involve "a level of participation of every class in the economic administration of the district" (Russia, Khoziaistvennyi departament (1885–1886), vol. 1, pp. 1-2)).

[13]During the period 1861–1863, provincial committees of the nobility responded to a call from Alexander II to consider and comment on local conditions and proposed features of the *zemstvo*. It appears that these notes had little impact.

of central policy makers, resulting in a lag before the full State Council considered the plan in December.

According to the account of Garmiza (1957, pp. 232–237), the three December sessions of the State Council led to substantive changes in the electoral statutes of the working version of the *zemstvo* law. While the Council was overwhelmingly in favor of the (pro-noble) property basis for defining the first and third curiae, the persistent "revolutionary conditions" led the body to equalize the norm for both curiae at one assemblyman per 3000 "average" allotments' worth of land in their respective categories.[14] However, until land was formally transferred to communal ownership, it was to be credited to the former estate owner (i.e., the first curia). Significantly, the accounts of these meetings also suggest that marginal adjustments were made so that "the assemblymen of one type would not exceed the total of the other two," but the allocations in final law suggests that this sort of revision was *not* completely enforced.[15] Thus, a substantial residual component to the allocation of assembly seats likely materialized *after* the application of the proposed rules. The State Council passed the final amended version of the reform on to the Tsar on January 1, 1864, when it was enacted into law.

Much of the variation in the final allocation of seats within each district *zemstvo* assembly was therefore related to heterogeneity in the amounts of communal and non-communal landed property possessed in each district *at the time of the law*. Furthermore, the exact allocation of seats in the final law does not line up perfectly with the application of the stated rules to any measurable distribution of land among the two rural curia. This suggests that the State Council may have intervened to adjust seats at the district level on the margin, either directly or by systematically setting private and communal land amounts that generated specific seat numbers once the rules and land allotment norms were applied. In this way, the timing of the law's passage and the rules regarding communal land not-yet fully transferred to the peasantry may have linked previous and contemporaneous peasant unrest to the final number of assembly seats granted to the peasant curia.

The bureaucrats in St. Petersburg who formulated the *zemstvo* reform had access to a wide range of expert commentary, alternative statutes, and information from provincial and district officials, individual nobles, and noble assemblies. The close connections between the larger peasant reform preparations and the determination of the *zemstvo* law certainly gave the commission data on the distribution of serfs and nobles and the mean size of land holdings among different groups of property owners. In addition, it appears likely that the commission and the State Council would have had access to police reports on unrest in the countryside, probably with a lag, but certainly covering the period up to early 1863. (Provincial governors and most of the law-enforcement apparatus were subordinated to Valuev's Interior Ministry.) These elements of the "information set" of the *zemstvo* "designers" allowed them to consider a variety of factors in generating the general rules and deviations governing the allocation of assembly seats among the three electoral curiae.

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[14]It is not entirely clear how these "average allotments" were determined, or how the aggregate amounts of private and communal property were defined. All these quantities appear to be related to the quantitative evidence collected in the construction of the serf emancipation statutes (see Russia, Khoziaistvennyi departament (1885–1886), Appendices).

[15]It also appears that adjustments were made to the numbers of second curia assembly seats in a somewhat ad hoc fashion, in order to address perceived over-representation in districts containing relatively large towns.

3 Empirical strategy and data

We are interested in estimating the following model:

$$\rho_i = \theta + q_i\zeta + \mathbf{Z}_i\boldsymbol{\mu} + \epsilon_i, \tag{1}$$

where ρ_i is our measure of political liberalization: *Peasant representation* in the *zemstvo* assembly in district i, defined as percentage of seats allocated to the third (peasant) curia, as provided by the 1864 statutes. The variable q_i is the *Frequency of potential unrest* in district i, that is, the frequency with which the peasantry poses a threat to the nobility. (As the notation suggests, this variable is conceptually identical to the frequency q with which the excluded group poses a credible threat of unrest in the Acemoglu-Robinson model and its extension in our Appendix.) The associated coefficient ζ is our parameter of interest: the relationship between capacity for collective action and representation. The variable θ is a constant; $\mathbf{Z}_i$ is a vector of district-level covariates (discussed at various points below), with parameter vector $\boldsymbol{\mu}$; and ϵ_i is an idiosyncratic error.

The empirical challenge in estimating Equation 1 is that we do not observe the frequency q_i with which the peasantry in district i poses a threat of unrest to the nobility, but rather the actual *Frequency of unrest* in district i, $\tilde{q}_i = q_i + \eta_i$, where η_i is measurement error idiosyncratic to district i. Our measure of $\tilde{q}_i$ uses event-level data from Finkel, Gehlbach, and Olsen (2015), who code a Soviet-era chronicle of peasant disturbances compiled during the Khrushchev Thaw (Okun' 1962, Okun' and Sivkov 1963, Ivanov 1964, Zaionchkovskii and Paina 1968). In particular, we define $\tilde{q}_i$ as the proportion of years between 1851 and 1863, inclusive, for which Finkel, Gehlbach, and Olsen record any disturbances:

$$\tilde{q}_i = \frac{1}{T}\sum_{t=1}^{T} d_{it},$$

where d_{it} is an indicator that takes a value of 1 if there are any disturbances in district i in year t. Figure 4 maps variation across districts in this variable.

At least three forms of measurement error imply that $\tilde{q}_i \neq q_i$. First, and most obviously, the chronicles on which the event data are based almost certainly underreport actual disturbances. At the same time, some reported disturbances may pose little real threat to the nobility. The empirical frequency of unrest $\tilde{q}_i$ may therefore be either an underestimate or overestimate of q_i.

Second, the number of years T over which disturbances are aggregated may be either too small or too large. In particular, if q_i is stationary, then $\tilde{q}_i$ will be a better estimate of q_i when T is large, that is, when the time series is long. In practice, observations of unrest closer to the period in which representation is chosen are likely to be more informative to policymakers, given that the threat of unrest may change over time. Our choice of $T = 13$, which corresponds to the period from 1851 (the first year examined by Finkel, Gehlbach, and Olsen, 2015) to 1863, represents a plausible middle ground between these two considerations.

Third, in the period before establishment of the *zemstva*, landowners may have responded to the threat of unrest by providing local concessions, thus dampening actual disturbances d_{it}. In practice, the incentives for decentralized reform of this sort were limited, given that the local nobility did not fully internalize the cost of unrest (e.g., because the central state
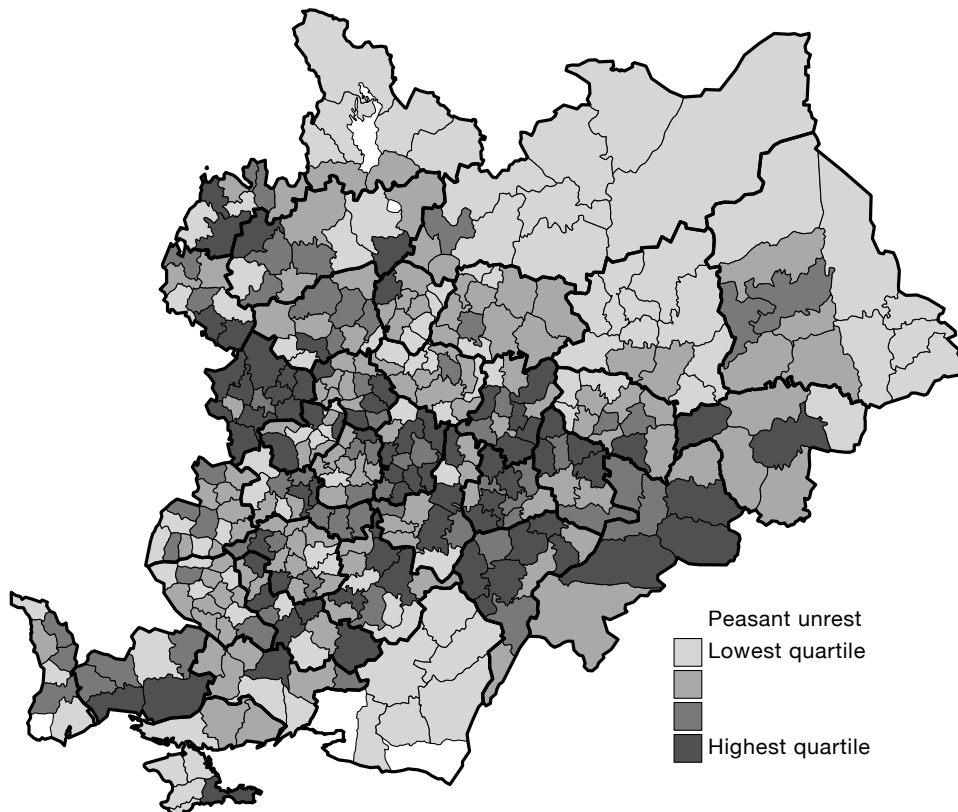
Figure 4: Frequency of peasant unrest, 1851–1863. Dark lines indicate provincial boundaries.

bore the cost of calling out military detachments, as discussed above). Nonetheless, to the extent that any such tendency is greater in regions with a higher baseline threat of unrest, then the variable q_i will be correlated with the measurement error η_i.

As this discussion illustrates, both classical and systematic measurement error complicate estimation of Equation 1. To address this issue, as well as any concerns about simultaneity or omitted-variable bias, we instrument for $\tilde{q}_i$ in various ways. Our first instrument is the historical incidence of *Serfdom*, which we define as the proportion of serfs in the district population in 1858 using data from Troinitskii (1861) and Bushen (1863).[16] As discussed above and documented in Finkel, Gehlbach, and Olsen (2015), serfdom was associated throughout the 1850s and early 1860s with greater incidence of unrest, a correlation that seems to have been foremost in the minds of the bureaucrats who set the statutory allocations of seats in district *zemstvo* assemblies. As Figure 5 illustrates, the historical origins of serfdom (and its subsequent location) lie in the territorial expansion of the Muscovite state. As the Grand Duchy of Moscow expanded at the expense of neighboring duchies and the retreating Golden Horde, land grants were made to members of the gentry in return for military ser-

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[16]Troinitskii (1861) provides the number of serfs according to a last tax census taken before Emancipation. We employ Bushen's (1863) population figures, which are administrative tallies rather than census totals, because aggregates are not available from the tax census at the district level.

vice (Kimerling Wirtschafter, 2008). The greater prevalence of serfdom in districts close to Moscow persisted up to the Emancipation Reform of 1861.
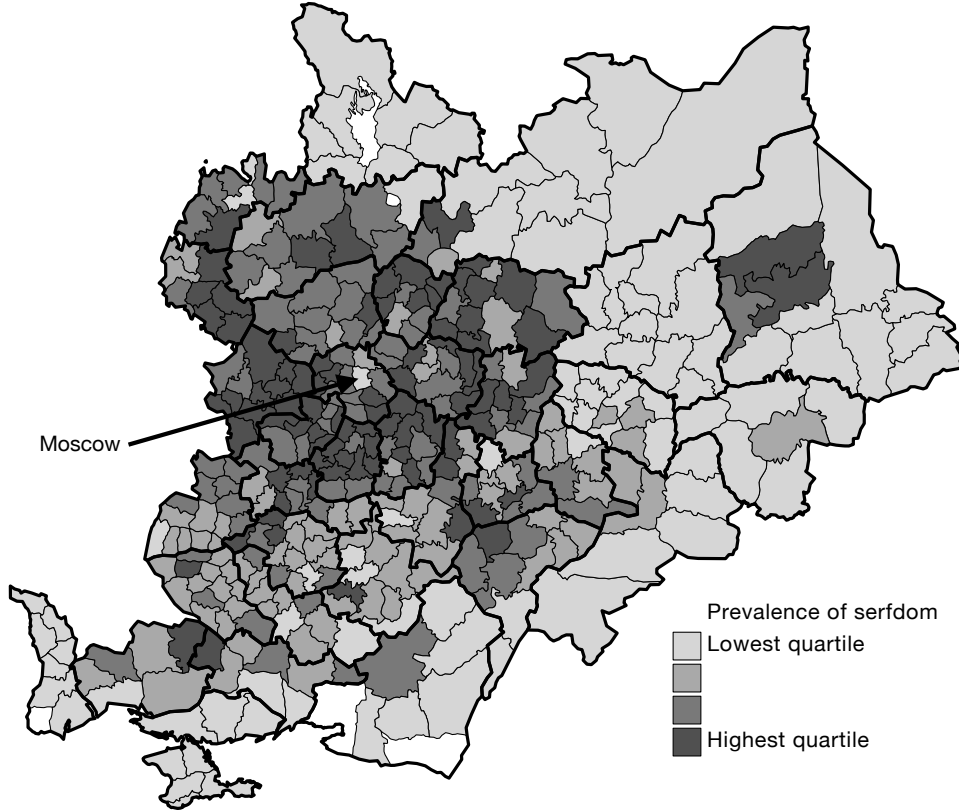

Figure 5: Prevalence of serfdom, 1858. Dark lines indicate provincial boundaries.

This geographic pattern suggests a second, related instrument for unrest: a district's distance from Moscow. Conceptually, instrumenting on this variable is equivalent to estimating by sequential two-stage least squares a simultaneous-equation model in which serfdom is used as an instrument for frequency of unrest, while distance from Moscow is used as an instrument for serfdom. In what follows, we emphasize results using the serfdom instrument, given that it is more strongly correlated with frequency of unrest, but report results using the distance instrument as a robustness check.

The excludability of serfdom (or distance from Moscow) relies on properly controlling for other characteristics of districts (in $\mathbf{Z}_i$) that are plausibly correlated with both the instrument and peasant representation. As discussed above, representation in the various curiae was determined in a mechanical way by the property holdings of rural and urban landholders. Although the formulae that governed these relationships were themselves the outcome of political contestation, we control for *Urban population* and *Rural population*, from Bushen (1863), to partial out the serfdom-induced effect of unrest on representation. We separately include each variable in log form to implicitly capture not only scale effects but the relative urban share of the district population.[17] We also condition on whether the district hosts

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[17]Recall that $\alpha \ln a + \beta \ln b = \alpha \ln \frac{a}{b} + (\beta + \alpha) \ln b$, so that including both log urban and log rural population

a *Provincial capital*, as such cities were more likely to have their own quasi-representative legislative assemblies, perhaps limiting the need for representation of the masses. Districts with provincial capitals would also typically have had less peasant landownership, even controlling for urban population.

We also control for the quality of agricultural land, which may have influenced the spread of serf estates. Moreover, as Finkel, Gehlbach, and Olsen (2015) show, unrest driven by liberation-related grievances was greater in 1861–63 in districts with relatively fertile soil. We construct a district-level measure of *Fertile soil*, using GIS-coded data on soil type from the Food and Agriculture Organization (FAO),[18] which we overlay on a map of nineteenth-century Russian administrative boundaries. The resulting dataset provides the proportion of land in each district belonging to one of 22 soil types or to other categories such as water. Based on a classification by Brady and Weil (2002), we define *Fertile soil* as any of the following soil types observed in our data: Chernozem, Greyzem, Histosol, Kastanozem, Phaeozem, or Vertisol. (Although the FAO data are from 1990, soil type—as opposed to soil quality, which can be affected by land use—unfolds over the course of millennia, and we assume that soil types for our sample of Russian provinces did not fundamentally change over the succeeding 120–140 years.)

As an alternative instrument for unrest in some of our empirical exercises, we exploit the geographic variation in French occupation during the Patriotic War of 1812. Napoleon's invasion gave rise to guerrilla activity in northwest European Russia, as peasants offered armed resistance and even attacked French units and garrisons. The proximate cause of the insurgency was the Napoleonic army's large-scale requisitions of food and fodder from peasant communities located along the invasion route, coupled with cases of offensive French behavior, such as turning local churches into stables (Lieven 2010, p. 219). "In every village the gates were closed: young and old manned them with pitchforks, pikes, hatchets and sometimes firearms" (Davydov 1999, p. 87).

Partisan groups operated in close cooperation with, but were institutionally independent from, special units of the Russian army dispatched behind French lines, thus allowing many peasant guerrillas to gain valuable organizational experience. Recent work has emphasized the legacy that such experience can have, even decades later, on capacity for collective action (Bellows and Miguel 2009; Blattman 2009; Daly 2012; Jha and Wilkinson 2012; Finkel 2015). As we show below, peasant unrest in the late 1850s and early 1860s is indeed correlated with Napoleonic occupation in 1812, which we measure using georeferenced maps of the Napoleonic campaign. We define the indicator *Napoleonic occupation*, which takes a value of one if any portion of the district was occupied by French troops during the advance on or retreat from Moscow. Twenty-eight districts in our sample experienced such occupation.

One potential concern with this variable as an instrument is that areas that experienced French occupation might have experienced governance changes during or after the war that persisted to later periods, as with other areas occupied by Napoleon (Acemoglu et al. 2011). This was not the case in Russia. The campaign was short, and the French army was not accompanied by a bureaucracy that could have forced institutional reform. Contrary to

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in the equation implicitly controls for log urbanization.

[18]Data available at `http://www.fao.org/nr/land/soils/harmonized-world-soil-database/download-data-only/jp/`.

fears of the Russian government, the French did not interfere with peasant-landlord relations (Bychkov 1954). After the war, several peasant fighters were decorated for their service, but in the affected regions the serfs' lot and status remained unchanged. There was little to distinguish the districts that experienced French occupation but that they lay along the most direct to Moscow.

After controlling for the covariates described above, the pairwise correlation between the two instruments is 0.175. Thus, they are picking up largely distinct parts of the variation in our measure of peasant unrest. The estimates from our two (sets of) instrumental-variables regressions therefore represent different local average treatment effects, which we use to examine the empirical reach of the theory that we are testing.

4   Results

Table 1 provides results from our first set of empirical exercises, in which we exploit the historical prevalence of serfdom as an instrument for peasant unrest. Column 1 presents the "naive" regression, in which we regress peasant representation in the district *zemstvo* assemblies on the observed frequency of peasant unrest from 1851 to 1863. Consistent with a commitment theory of institutional change, and inconsistent with many other theories of collective action and liberalization, we find a negative relationship between peasant unrest and the statutory allocation of district *zemstvo* assembly seats to peasant communities in 1864. The point estimate implies a decrease in peasant representation of approximately 0.7 percentage points for every one-standard-deviation increase in the frequency of peasant unrest. As previously discussed, this estimate is possibly biased by measurement error and/or may reflect omitted factors, considerations that motivate the results presented in the remainder of the table.

In Column 2, we instrument frequency of unrest on the prevalence of serfdom in 1858. The estimated effect of unrest is substantially larger than that in Column 1, consistent with attenuation bias resulting from measurement error (recall that our OLS estimate is denominated in units of $\tilde{q}$, whereas the IV estimates are denominated in units of q), as well as the fact that the IV estimates represent *local* average treatment effects. The first-stage F-stat is quite large, reflecting the strong correlation between the instrument and the potentially endogenous variable: a one-standard-deviation increase in serfdom is associated with a very precisely estimated one-half-standard-deviation increase in unrest frequency. In Column 3 (and hereafter) we include province (*guberniia*) fixed effects to control for time-invariant features of districts in the same province, as well as to capture any spillover from policy vis-à-vis provincial *zemstva* to the district level. The point estimate is larger still.

Table 1: **Peasant representation and unrest induced by history of serfdom**

	(1) OLS	(2) IV	(3) IV	(4) IV	(5) IV	(6) IV (Moscow)
Frequency of unrest	−4.686**	−26.720***	−52.704***			−29.983**
	(1.905)	(5.132)	(12.725)			(14.605)
Frequency of unrest (large events)				−72.453***		
				(16.537)		
Intensity of unrest					−0.157***	
					(0.031)	
Urban population (log)	−2.353***	−1.793***	−2.728***	−2.811***	−3.054***	−2.459***
	(0.398)	(0.472)	(0.856)	(0.750)	(0.769)	(0.736)
Rural population (log)	4.862***	6.196***	8.061***	5.349***	1.418	5.741***
	(0.917)	(0.889)	(2.096)	(1.657)	(1.276)	(1.937)
Provincial capital	−2.241*	−3.225**	−0.898	1.466	−2.848*	−1.607
	(1.326)	(1.432)	(2.027)	(1.939)	(1.639)	(1.554)
Fertile soil	0.013*	0.019**	0.045	0.042*	0.051**	0.042**
	(0.008)	(0.009)	(0.028)	(0.022)	(0.022)	(0.021)
Province fixed effects	No	No	Yes	Yes	Yes	Yes
First-stage F-stat		98.33	29.74	33.66	46.51	12.72

Notes: The dependent variable is percentage of seats statutorily allocated to peasant communities in the district *zemstvo* assembly. The proportion of serfs in the district population in 1858 is used as an instrument in Columns 2–5, distance from Moscow in Column 6. The sample in all regressions is 365 districts. Heteroskedasticity-robust standard errors in parentheses. Significance levels: *** = 0.01, ** = 0.05, * = 0.10.

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As previously discussed, the unrest data incorporate various types of disturbances, some more serious than others. To check that our results are not driven by events unlikely to pose a real threat to the nobility, we recalculate frequency of unrest using only events that span multiple villages or districts. As shown in Column 3, our qualitative results are unchanged; the larger point estimate reflects the smaller standard deviation for this alternative measure of unrest frequency. In Column 4, in turn, we estimate the effect of "intensity" rather than frequency of unrest, that is, the total number of events from 1851 to 1863. Here, too, the relationship with peasant representation is negative, with a one-standard-deviation increase in intensity associated with a nearly 8-percentage-point decrease in representation.

Column 6 of Table 1 presents results using distance to Moscow as an alternative instrument for unrest. As before, the estimated relationship between frequency of unrest and peasant representation is negative, with a magnitude somewhat smaller (though still sizable) than that in the analogous regression in Column 3.

With respect to covariates, the negative estimated effect of urban population across all specifications is consistent with the formulaic allocation of seats to the second curia in proportion to urban property holdings, as well as the lesser "need" for peasant representation where the peasantry was less numerous. The positive estimated effect of rural population can be explained similarly. Finally, the greater level of peasant representation in districts with more fertile soil—a result that is statically significant in most specifications—may reflect the greater importance of the rural economy in such areas.

Beyond the various robustness checks reported in Table 1, the estimated relationship between unrest and representation is unaffected by other changes in specification and sample. Linguistic and religious heterogeneity is pronounced in the southwestern regions of Novorossiya and Bessarabia, as well as in districts surrounding Kazan and east of the Volga river, but both the significance and magnitude of our results are essentially unaffected by inclusion of measures of linguistic and religious fractionalization and polarization. We also obtain very similar results if we exclude Moscow and St. Petersburg, by far the two most populous districts, from the sample.

Potentially more consequential is the role of mechanical formulae for the allocation of seats. The historical record suggests that statutory seat allocations to the first and third curiae were ultimately determined by the local allotment norms defined under the emancipation reforms and the amounts of land held by private property owners and peasant communes, with some apparently substantial adjustments at the margin. Although allotment norms and the distribution of land were themselves the outcome of political contestation, we can examine the degree to which any late adjustments were a response to unrest by holding constant the variables by which seats were to have been allocated.

To do so, we use published data on arable land owned by the nobility, in redemption, and assigned to communes in temporary obligation in 1877, on the assumption that all of this land would have been credited to private owners (i.e., the nobility) in 1864. We normalize the sum of these three values by the projected amount of private land per 1st curia seat in 1863 (defined in the Valuev commission's proposal), when the final shape of the *zemstvo* reform was still being negotiated. Consistent with the historical record, the resulting variable, *Projected seats*, is strongly and positively correlated with the number of seats assigned to the first and third curiae (pairwise correlations of 0.70 and 0.64, respectively), but conditioning on this variable leaves our qualitative findings unchanged (indeed, the estimated effect of

frequency of unrest on peasant representation is somewhat larger than before).

Finally, we reexamine the excludability of serfdom as an instrument. As previously discussed, even relatively liberal administrators felt that peasant illiteracy and political inexperience necessitated overrepresentation by the nobility in *zemstvo* assemblies. To the extent that such fears were directed at former serfs, as opposed to state and court peasants, this would suggest an impact of serfdom on representation other than through unrest. Although there is no evidence of such sentiment in the historical record of which we are aware, we can proxy for skills useful for governance with the number of *Rural schools* circa 1860.[19] In fact, there are fewer rural schools per capita in districts where serfdom is prevalent, but the estimated effect of unrest on representation is very similar when conditioning on the (log of) rural schools.

Table 2 presents two-stage least squares regressions using Napoleonic occupation as an instrument, with Column 1 reproducing results from the "naive" regression for convenience. French occupation in 1812 largely followed provincial boundaries, implying that there is little variation in the instrument remaining after including province fixed effects.[20] We therefore adopt the less conservative empirical strategy of allowing time-invariant characteristics of provinces (not captured by other covariates) to be included in the error term.

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[19]The data source on which we draw was published in 1894, but the data were likely available at the time of reform within the Ministry of Internal Affairs or the Ministry of Popular Enlightenment.

[20]A regression of Napoleonic occupation on province fixed effects produces an R-squared statistic of 0.82, and there is no significant effect of the instrument in the first stage of a model analogous to that of Column 3 in Table 1.

Table 2: Peasant representation and unrest induced by history of Napoleonic occupation

	(1) OLS	(2) IV	(3) IV	(4) IV
Frequency of unrest	−4.686**	1.291		
	(1.905)	(5.924)		
Frequency of unrest (large events)			3.442	
			(15.738)	
Intensity of unrest				0.004
				(0.017)
Urban population (log)	−2.353***	−2.505***	−2.507***	−2.483***
	(0.398)	(0.407)	(0.409)	(0.389)
Rural population (log)	4.862***	4.500***	4.514***	4.650***
	(0.917)	(0.955)	(0.946)	(1.065)
Provincial capital	−2.241*	−1.974	−2.084	−1.955
	(1.326)	(1.413)	(1.309)	(1.451)
Fertile soil	0.013*	0.011	0.011	0.012
	(0.008)	(0.008)	(0.009)	(0.008)
Province fixed effects	No	No	No	No
First-stage F-stat		24.87	11.21	18.13

Notes: The dependent variable is percentage of seats statutorily allocated to peasant communities in the district *zemstvo* assembly. Occupation by French troops in 1812 is used as an instrument in Columns 2–4. The sample in all regressions is 365 districts. Heteroskedasticity-robust standard errors in parentheses. Significance levels: *** = 0.01, ** = 0.05, * = 0.10.

As the results in Columns 2–4 demonstrate, unrest in 1851–1863 is strongly associated with the presence of French troops during the Patriotic War of 1812, and thus with a history of partisan activity, but there is no evidence of a causal effect on *zemstvo* representation of unrest induced by Napoleonic occupation. Observe that this does not represent a weak-instrument problem: as the F-stats reported in Table 2 indicate, Napoleonic occupation is strongly correlated with frequency of unrest. Regardless of whether we use our baseline measure of unrest frequency, restrict attention to "large" disturbances, or use intensity rather than frequency of unrest, the estimated effect of unrest induced by a history of Napoleonic occupation is not close to conventional levels of statistical significance.

5   Interpretation

Tables 1 and 2 tell two very different stories. On the one hand, unrest induced by a history of serfdom is strongly associated with decreased peasant representation in district *zemstvo* assemblies. On the other hand, unrest induced by a history of partisan activity shows no such effect. Column 1 of Table 3, which presents "reduced form" results of an OLS regression with both serfdom and Napoleonic occupation on the right-hand side, further illustrates this difference: the estimated effect of serfdom on representation is negative and large (a one-standard-deviation increase in the former leading to a nearly one-half-standard-deviation decrease in the latter), whereas the estimated effect of Napoleonic occupation is not significantly different from zero.

What accounts for the different effects of serfdom and Napoleonic occupation? A likely explanation is that the policymakers who set the statutory allocations for the three curiae were well aware of the relationship between serfdom and unrest, whereas they had little idea of the connection between partisan activity in 1812 and contemporary peasant disturbances. (As a metaphor, one might think of policymakers as envisioning a first-stage regression of unrest on serfdom but not Napoleonic occupation.) With respect to the former relationship, Russia had just experienced a large peasant revolt motivated by the terms of emancipation, one that had required the deployment of more than eighty infantry and cavalry regiments to put down (Zaionchkovskii 1968, pp. 166–167). In contrast, most policymakers would have remembered little if any of the Napoleonic Wars—Interior Minister Petr Valuev was born in 1815, and the lower-level bureaucrats who likely determined seat allocations for specific districts were even younger—and in any event nineteenth-century bureaucrats would not have had the data or methodologies to extract the signal of partisan activity from the background noise of other variables.

One can thus interpret the results in Table 2 as a sort of placebo test. In principle, a finding of a negative effect of unrest on representation when using partisan activity as an instrument could raise questions about our empirical strategy, given the unlikelihood that policymakers could have projected unrest onto a history of partisan activity as easily as we can. In practice, both our finding of a negative relationship in Table 1 and our non-finding in Table 2 lend support to theories that suggest that collective action and representation are substitutes.

To further explore the substitutability of collective action and representation, we turn to two variables that Finkel, Gehlbach, and Olsen (2015) identify as being (weakly) related to peasant unrest following the emancipation of the serfs in 1861. The logic of collective action (Olson 1965) suggests that the larger is peasant *Settlement size*, the more difficult

should be collective action.[21] In contrast, capacity for collective action may have been greater where serfs were responsible for labor obligations rather than monetary or in-kind payments (*Barshchina share*), as on such estates the commune was responsible for organizing work on the demesne (Hoch, 1989). To the extent that these relationships were understood at the time of reform—presumably more likely with barshchina share than with settlement size, given that the logic of collective action would not be developed for another 100 years—we might expect to see an effect of serfdom on peasant representation that is conditional on the values of these variables.

Column 2 of Table 3 demonstrates that settlement size is indeed negatively associated with frequency of unrest in this sample, whereas barshchina share is unrelated.[22] In columns 3 and 4, we include each variable in turn among the regressors of an equation in which peasant representation is the dependent variable, together with their interaction with serfdom. Consistent with the idea that the relationship between settlement size and collective action would have been poorly understood by nineteenth-century Russian administrators, there is no significant interaction between serfdom and settlement size. In contrast, the effect of serfdom on peasant representation is larger (i.e., more negative) in regions where barshchina is predominant. Thus, even though we observe no relationship between barshchina share and unrest, the perception that peasants providing labor obligations were easier to mobilize could have encouraged reformers to particularly discriminate against barshchina serf regions, as opposed to serf regions in general. The results in Table 3, when interpreted in terms of what *zemstvo* designers likely knew and did not know, therefore generally reinforce the conclusion that collective action and representation were substitutes.

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[21]Although the numerator of this variable—number of settlements—is measured in 1893, we have little reason to suspect that the number of communities changed substantially in the four decades following emancipation, given that peasant mobility was restricted by collective responsibility for redemption payments.

[22]This divergence from the results reported in Finkel, Gehlbach and Olsen (2015) may be related to a difference in level of analysis: province in that paper, district here.

Table 3: Reduced form, settlement size, and barshchina share

Dependent variable:	(1) Peasant representation	(2) Unrest	(3) Peasant representation	(4) Peasant representation
Serfdom	−12.102***	0.206***	−12.787***	−5.500
	(1.884)	(0.045)	(2.608)	(3.689)
Napoleonic occupation	1.418			
	(1.686)			
Settlement size		−0.079*	−1.622	
		(0.047)	(2.535)	
Barshchina share		0.027		3.447
		(0.045)		(2.263)
Serfdom × settlement size			−0.319	
			(5.626)	
Serfdom × barshchina share				−8.697**
				(4.049)
Urban population (log)	−2.553***	−0.005	−3.377***	−2.440***
	(0.649)	(0.011)	(0.627)	(0.624)
Rural population (log)	2.990***	0.129***	3.969***	3.104***
	(1.100)	(0.023)	(1.025)	(1.181)
Provincial capital	−2.446*	0.020	−1.568	−1.871
	(1.244)	(0.032)	(1.118)	(1.245)
Fertile soil	0.032*	0.000	0.033*	0.024
	(0.016)	(0.000)	(0.017)	(0.017)
Province fixed effects	Yes	Yes	Yes	Yes
Observations	365	326	332	359

Notes: The sample in all regressions is 365 districts. Heteroskedasticity-robust standard errors in parentheses. Significance levels: *** = 0.01, ** = 0.05, * = 0.10.

6 Conclusion

Our finding of a negative association between political representation and unrest induced by the historical prevalence of serfdom is consistent with the Acemoglu-Robinson model of political transitions, but also perhaps with other, unmodeled theories. In future work, we plan to explore the empirical implications of various alternative channels by returning to primary sources and by analyzing the relationship between collective action and representation in the tax and spending policies of district *zemstva*—that is, after the moment of institutional design.

Our finding of no association, in turn, between political representation and unrest induced by a history of partisan unrest emphasizes the informational constraints facing elites when designing institutions. Policymakers cannot condition on what they do not observe. As a consequence, elites will make mistakes, sometimes granting liberalization when they should not have, and sometimes denying it when they should have liberalized. This perspective suggests a complementarity between incomplete-information theories of liberalization (e.g., Boix 2003) and complete-information theories such as the Acemoglu-Robinson model (see also Powell 2004). Integrating these two approaches is a top priority for future theoretical work.

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Appendix: A Generalization of the Acemoglu-Robinson Commitment Story

In this section, we present a simple adaptation of the Acemoglu-Robinson model of political transitions that allows for a continuous institutional choice by the elite, as in the empirical setting that we study. As we show, the key empirical implication of the model is qualitatively simlar to that of the Acemoglu-Robinson model: the elite liberalizes less when the excluded group more frequently poses a threat of unrest.

6.1 Environment

The model is a Markov game in which in each period the political regime is either unliberalized (U) or liberalized (L). There is an elite (E) and an initially excluded majority (M), which we treat as unitary actors. In an unliberalized regime, the elite has full control rights over policy. In a liberalized regime, control rights are divided between the elite and majority according to a process described below.

At issue is the distribution of income between the elite and majority. For reasons of parsimony, we abstract from the initial distribution of income, focusing instead on a simple divide-the-pie environment (as in Gehlbach 2013, Section 8.4.1). In particular, in any period t, whoever has control rights over policy names a division x_t of an infinitely divisible resource of size one, where x_t is the portion of the resource received by the majority; the remainder $1 - x_t$ is received by the elite. We assume that the majority and elite receive payoffs from this distribution equal to x_t and $1 - x_t$, respectively. In what follows, we suppress the subscript t for notational simplicity.

Regardless of whether the political regime is liberalized, in any period the majority decides whether to revolt after observing the policy choice x. The payoff from revolution is given by the random variable $\mu \in \{\kappa, 1\}$, which is realized prior to choice of policy x and observed by both elite and majority. We assume $\kappa \in (0, 1)$, with $\Pr(\mu = \kappa) = q$. If the majority revolts, the state immediately transitions to the absorbing state (R, μ). In this state, in any period the majority receives payoff $1 - \mu$, whereas the elite receives payoff 0. Thus, revolution is attractive to the majority only if $\mu = \kappa$.

Up to this point, the game is essentially identical to the basic Acemoglu-Robinson model but for the stylization of the economic environment. In a departure from the Acemoglu-Robinson framework, we assume that the elite can liberalize by adopting any level of majority representation $\rho \in (0, 1)$. The variable ρ determines who has control rights over policy in a liberalized regime. In particular, in any period, after realization of μ, the random variable $\alpha \in (e, m)$ is realized, where $\Pr(\alpha = m) = \rho$. If $\alpha = e$, the elite chooses policy in the current period, whereas if $\alpha = m$ the majority does.

To summarize, the state space in a liberalized regime is

$$\{(L, \kappa, m), (L, \kappa, e), (L, 1, m), (L, 1, e)\},$$

whereas that in an unliberalized regime is $\{(U, \kappa), (U, 1)\}$. In a liberalized regime, following realization of the random variables μ and α, whoever has control rights over policy (elite or majority, depending on α) names a distribution x, following which the majority decides whether to revolt. In an unliberalized regime, following realization of the random variable μ, the elite decides to liberalize or not. If the elite chooses not to liberalize, it subsequently

A1

names a distribution x, following which the majority decides whether to revolt. In contrast, if the elite chooses to liberalize, the random variable α is realized, following which the game proceeds as in any period in which the regime is liberalized. In particular, the value of the random variable μ "inherited" from the unliberalized regime persists until the start of the next period.

Both players discount payoffs by the common discount factor δ.

6.2 Equilibrium

We solve for a Markov-perfect equilibrium, where players' strategies are conditioned only on the current state. We begin by analyzing behavior in the unliberalized regime, given that the elite chooses not to liberalize. Writing down the Bellman equation for the majority for each of the two possible states gives

$$
\begin{aligned}
V_M\left(U, \kappa\right) &= \hat{x} + \delta\left[q V_M\left(U, \kappa\right) + \left(1 - q\right) V_M\left(U, 1\right)\right] \\
V_M\left(U, 1\right) &= 0 + \delta\left[q V_M\left(U, \kappa\right) + \left(1 - q\right) V_M\left(U, 1\right)\right],
\end{aligned}
$$

where $\hat{x}$ is the division x named by the elite whenever the state is $\left(U, \kappa\right)$. The second equation exploits the assumption that revolution is unattractive when $\mu = 1$. Solving for the value to the majority when the state is $\left(U, \kappa\right)$ gives

$$
V_M\left(U, \kappa\right) = \hat{x}\left(\frac{1 - \delta\left(1 - q\right)}{1 - \delta}\right).
$$

The elite are able to prevent revolution without liberalization when the value to the poor from revolting is less than that from not revolting when the state is $\left(U, \kappa\right)$, given that the elite provide the maximum possible division $\hat{x} = 1$ in that state:

$$
\frac{1 - \kappa}{1 - \delta} \leq 1\left(\frac{1 - \delta\left(1 - q\right)}{1 - \delta}\right).
$$

Simplifying gives $\kappa \geq \delta\left(1 - q\right)$.

When $\kappa < \delta\left(1 - q\right)$, the elite must liberalize to avoid revolution. To solve for the optimal representation for the majority ρ from the perspective of the elite, we must first derive the value to the majority in the states $\left(L, \kappa, e\right)$ and $\left(L, \kappa, m\right)$, which are the two states in a liberalized regime in which the majority might be tempted to revolt. (In particular, the state will transition to one of these two states immediately following liberalization.) We begin by writing down the Bellman equation for the majority in each of the four possible states in a liberalized regime:

$$
\begin{aligned}
V_M\left(L, \kappa, m\right) &= 1 + \delta V \\
V_M\left(L, \kappa, e\right) &= \tilde{x} + \delta V \\
V_M\left(L, 1, m\right) &= 1 + \delta V \\
V_M\left(L, 1, e\right) &= 0 + \delta V
\end{aligned}
$$

where $\tilde{x}$ is the transfer chosen by the elite when it has control rights over policy and the majority poses a credible threat of unrest, and V is the continuation value common to the four states:

$$
V = q\rho V_M\left(L, \kappa, m\right) + q\left(1 - \rho\right) V_M\left(L, \kappa, e\right) + \left(1 - q\right)\rho V_M\left(L, 1, m\right) + \left(1 - q\right)\left(1 - \rho\right) V_M\left(L, 1, e\right).
$$

Solving for $V_M(L, m, \kappa)$ from this system of equations gives

$$V_M(L, m, \kappa) = 1 + \frac{\delta}{1 - \delta}\left[\rho + (1 - \rho)q\tilde{x}\right].$$

Intuitively, the majority receives the entire resource in the current period and in any future period in which it has control rights over policy, whereas the majority receives $\tilde{x}$ in any future period in which $\alpha = e$ and $\mu = \kappa$. Similarly,

$$V_M(L, e, \kappa) = \tilde{x} + \frac{\delta}{1 - \delta}\left[\rho + (1 - \rho)q\tilde{x}\right].$$

Using the latter equation, we can solve for the optimal division $\tilde{x}$ from the perspective of the elite that leaves the majority no worse off than revolting, given representation ρ:

$$\tilde{x} + \frac{\delta}{1 - \delta}\left[\rho + (1 - \rho)q\tilde{x}\right] \geq \frac{1 - \kappa}{1 - \delta}, \tag{2}$$

which implies

$$\tilde{x}(\rho) = \max\left[\frac{1 - \kappa - \delta\rho}{1 - \delta + \delta q(1 - \rho)}, 0\right] \tag{3}$$

for $\rho \geq \frac{\delta(1-q)-\kappa}{\delta(1-q)}$. When $\rho = \frac{\delta(1-q)-\kappa}{\delta(1-q)}$, $\tilde{x} = 1$, so that the majority receives the entire resource whenever $\mu = \kappa$. In contrast, when $\rho > \frac{\delta(1-q)-\kappa}{\delta(1-q)}$, the majority receives a smaller share of the pie when the elite has control rights over policy and $\mu = k$ than it does when the majority has control rights over policy. Observe that if $\rho < \frac{\delta(1-q)-\kappa}{\delta(1-q)}$, Condition 2 cannot be satisfied.

In choosing the optimal level of liberalization, the elite thus face a tradeoff: higher representation implies that the elite makes smaller concessions when they choose policy in a liberalized regime, at the cost of being in that position less often. The following lemma establishes that the latter consideration always trumps the former, that is, that the elite optimally chooses the minimum representation that ensures that the majority does not revolt in a liberalized regime.

Lemma 1. *Assume $\kappa < \delta(1-q)$, so that liberalization is necessary to avoid revolution. The optimal choice of representation by the elite is*

$$\rho = \frac{\delta(1-q) - \kappa}{\delta(1-q)}.$$

Proof. Define $V_e(L, \kappa)$ as the value to the elite of liberalization when $\mu = \kappa$, prior to realization of the random variable α, that is, before determination of who has control rights over policy in the period of liberalization. Standard manipulation of Bellman equations gives

$$V_e(L, \kappa) = (1 - \rho)(1 - \tilde{x}(\rho)) + \frac{\delta}{1 - \delta}\left[q(1 - \rho)(1 - \tilde{x}(\rho)) + (1 - q)(1 - \rho) \cdot 1\right],$$

where $\tilde{x}(\rho)$ is given by Equation 3. The elite receives $1 - \tilde{x}(\rho)$ whenever $\mu = \kappa$ and it has control rights over policy, which happens in the current period with probability $1 - \rho$ and in future periods with probability $q(1 - \rho)$, whereas it receives the entire resource whenever

$\mu = 1$ and it has control rights over policy, which happens in future periods with probability $(1 - q)(1 - \rho)$. Simplifying gives

$$V_e(L, \kappa) = (1 - \rho)\left[(1 - \tilde{x}(\rho))(1 - \delta(1 - q)) + \delta(1 - q)\right].$$

Differentiating with respect to ρ gives

$$\frac{\partial V_e(L, \kappa)}{\partial \rho} = -\left[(1 - \tilde{x}(\rho))(1 - \delta(1 - q)) + \delta(1 - q)\right] - (1 - \rho)(1 - \delta(1 - q))\frac{\partial \tilde{x}(\rho)}{\partial \rho}. \quad (4)$$

To establish the statement, we show that this expression is negative for all $\rho \geq \frac{\delta(1-q)-\kappa}{\delta(1-q)}$.

Consider first all $\rho \geq \frac{\delta(1-q)-\kappa}{\delta(1-q)}$ such that $\rho < \frac{1-\kappa}{\delta}$, which implies $\tilde{x}(\rho) > 0$. We show that $\frac{\partial V_e(L,\kappa)}{\partial \rho} < 0$ in two steps. First, we observe that $\frac{\partial V_e(L,\kappa)}{\partial \rho}$ is monotonically decreasing in ρ:

$$
\begin{aligned}
\frac{\partial^2 V_e(L, \kappa)}{\partial \rho^2} &= 2(1 - \delta(1 - q))\frac{\partial \tilde{x}(\rho)}{\partial \rho} - (1 - \rho)(1 - \delta(1 - q))\frac{\partial^2 \tilde{x}(\rho)}{\partial \rho^2} \\
&= -2(1 - \delta(1 - q))\frac{\delta[(1 - \delta)(1 - q) + q\kappa]}{[1 - \delta + \delta q(1 - \rho)]^2} \\
&\quad + 2\delta q(1 - \rho)(1 - \delta(1 - q))\frac{\delta[(1 - \delta)(1 - q) + q\kappa]}{[1 - \delta + \delta q(1 - \rho)]^3},
\end{aligned}
$$

which is easily verified to be less than zero. Second, we show that Equation 4 is negative when evaluated at $\rho = \frac{\delta(1-q)-\kappa}{\delta(1-q)}$. Recalling that $\tilde{x}(\rho) = 1$ when $\rho = \frac{\delta(1-q)-\kappa}{\delta(1-q)}$, we can rewrite Equation 4 as

$$-\delta(1 - q) + \frac{\kappa}{\delta(1 - q)}(1 - \delta(1 - q))\frac{\delta[(1 - \delta)(1 - q) + q\kappa]}{\left[1 - \delta + \delta q\left(\frac{\kappa}{\delta(1-q)}\right)\right]^2},$$

which is less than zero if $\kappa < \delta(1 - q)$, which is a premise of the statement.

Now consider all $\rho \geq \frac{\delta(1-q)-\kappa}{\delta(1-q)}$ such that $\rho \geq \frac{1-\kappa}{\delta}$, which implies $\tilde{x}(\rho) = 0$ and thus $\frac{\partial \tilde{x}(\rho)}{\partial \rho} = 0$. Equation 4 reduces to

$$\frac{\partial V_e(L, \kappa)}{\partial \rho} = -\left[(1 - \delta(1 - q)) + \delta(1 - q)\right] = -1 < 0.$$

□   □

The following proposition is an immediate implication of the preceding discussion.

Proposition 1. *The equilibrium representation granted by the elite to the majority is*

$$\rho^* = \max\left[0, \frac{\delta(1 - q) - \kappa}{\delta(1 - q)}\right].$$

The question the model addresses is how majority representation depends on q, which is the probability in any period that the majority poses a credible threat of unrest. Evaluating ρ^* for $\kappa < \delta \left(1 - q\right)$ and differentiating by q gives

$$\frac{\partial \rho^* \left(\kappa < \delta \left(1 - q\right)\right)}{\partial q} = -\frac{\delta \kappa}{\left[\delta \left(1 - q\right)^2\right]} < 0.$$

Thus, not only is liberalization of any sort less likely when the majority poses a frequent threat of unrest, as in the Acemoglu-Robinson model, but the degree of liberalization is negatively related to the same variable.