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DEMOCRATIC SUPPORT FOR THE BOLSHEVIK REVOLUTION: AN EMPIRICAL INVESTIGATION OF 1917 CONSTITUENT ASSEMBLY ELECTIONS

Andrei Markevich and Castaneda Dower

ECONOMIC HISTORY

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JEL Classification: D72, H7, N44, P26

Keywords: Revolution, Regime Change, Popular support, Elections, Communism, Russia

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Democratic support for the Bolshevik Revolution: An empirical investigation of 1917 Constituent Assembly elections

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1. Introduction

One of the most striking observations concerning political economy in the modern era is the clustering of democracy and income per capita across countries (Robinson 2006, Treisman 2020). While some scholars view this positive correlation as driven by democratic factors that are especially conducive to economic growth (Goodell and Powelson 1982, Sen 1999, Acemoglu et al. 2019), others have proposed a variety of explanations for why democracy is unstable at low levels of development (Lipset 1959, Huntington 1991, Acemoglu et al. 2018).[2] In particular, Moore (1966) argues that democracy is unstable in agrarian societies. Political movements in such societies may gain less by committing to the democratic path. In this paper, we use the lens of dynamic inconsistency to investigate the instability of democracy during the birth of communism in the agrarian society of early twentieth century Russia.

The overthrowing of tsarist autocracy in early March of 1917 launched an eight-month democratic interregnum in Russia. The newly established Provisional Government granted democratic freedoms, including universal suffrage for all adult males and females, a major global achievement at the time that was preceded only by a handful of much less populous countries. The national election to the Constituency Assembly was scheduled on the 25th-27th of November 1917. Three weeks earlier, the Bolsheviks captured power in Russia by displacing the Provisional Government. Hoping for an electoral success, they allowed the election to happen but later disbanded the assembly after having failed to obtain plurality. With nearly one quarter of the votes, the Bolsheviks, based on Marx's blueprints, initiated one of the most significant social experiments in history, remaining in office for more than seventy years.

Lenin (1969c, e and f, originally published in 1918, 1919, 1920) justified the Bolshevik Revolution and the establishment of non-democratic rule with a promise of building a better, more inclusive future. He argued that democratic rule lacked the commitment power to transform society, and, without such a transformation, democracy would preserve the existing inequalities that fed social instability. His argumentation had important consequences beyond Russia as it ignited an international debate that divided the European left into radical communists (the Bolsheviks changed the name to the Communist Party in 1919), who were ready to suspend democracy in the name of socialism if necessary, and reformist social democrats, who viewed

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[2] See Norris (2012) for a typology of these theories.

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democracy as a foundation to their political objectives (for more details on this debate see e.g. Newman 2005 Chapter 1).

In modern theories of democratic transition, the stability of democracy is a widespread presumption (Acemoglu and Robinson 2000, 2001; Gradstein 2007; Greif and Laitin 2004). In the influential Acemoglu-Robinson model (2001), democracy takes hold precisely because it solves the elites' inability to commit to redistributive policies in the future.[3] However, models of democratic transition typically abstract from the commitment problem associated with Big Push-style policies that are designed to transform an agrarian society into an industrialized one (Alesina and Rodrik 1994; Murphy et al. 1989, Fernandez and Rodrik 1991). The multitude of post-WWII failed democracies in low-income countries and the recent rise of authoritarian populism across the globe suggests that, when the policy space moves beyond a simple divide-the-pie environment, the stability of democracy is not automatic.

In dynamic games with endogenous institutions, the stability of a political rule depends upon its dynamic consistency (Lagunoff 2009, Acemoglu et al. 2015). Given some institutional strategy that specifies a political rule for each period, dynamic consistency at time t would require the future pivotal voter at time $t+1$ to prefer the political rule specified at time $t+1$. A political rule is not stable if it fails the condition of (forward) dynamic consistency. For example, in the Acemoglu-Robinson (2001) setting, democracy is dynamically consistent because the median voter prefers to tax the elite today and these preferences are stable in the future.[4] Dynamic inconsistency can emerge when the pivotal voter changes over time in such a way to create a conflict in preferences over policies.

Both the Bolsheviks and the social democrats expected the pivotal voter of the future to be the industrial worker because of technical progress and industrialization. However, they differed in their belief about how governance should be done during the transition period. The Bolsheviks worried that peasants, the pivotal voter under majority rule in Russia in 1917, would not undertake the investments necessary for rapid industrialization, and if such investments did not happen or were limited, the industrial worker would not become a pivotal voter at some near

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[3] In their model, the commitment power of democracy stems from the incentive structure of the elite. Once the threat of revolution dissipates, the elite will not choose a policy of redistribution.

[4] Models of democratic transition that allow the elite to stage nondemocratic coups relax the assumption that democracy is an absorbing state (Acemoglu and Robinson 2006). However, these models are ill-suited to study political regime established by communists. The Bolshevik coup favored and undertook redistribution to the masses unlike the elites in typical models.

future date. Lenin (1969e and f, originally published in 1919, 1920) additionally justified this logic by arguing that the identity of the median voter was unstable; hence, in modern terms, democracy could be dynamically inconsistent. For Lenin, only the dictatorship of the proletariat, i.e. a regime willing to use coercion to protect the interests of the proletariat, would secure the radical transformation of society. The policies implemented under this dictatorship were brutal but effective as Acemoglu and Robinson's (2012) argue in their analysis of Soviet industrialization. Lenin believed, once industrialization eliminated differences between classes, socialist democracy would become stable and "the dictatorship of the proletariat will be unnecessary" (Lenin 1969e, first published in 1919, p. 279). Indeed, changes in the Soviet constitutions (1918, 1924, 1936 and 1977), which gradually relaxed the initial legal bias in favor of industrial workers, demonstrate the Bolshevik commitment to a transition back to popular democracy, at least on paper (see on-line appendix A1 on legal changes in the Soviet constitutions). In 1961, the new program of the Communist Party of the Soviet Union officially declared that the dictatorship of the proletariat was no longer needed.

Despite a vast amount of scholarship in the social science and historical literatures on the Russian Revolution, scant quantitative analysis of the political economy of the Bolshevik's rise to power exists (for a literature review on the 1917 Russian Revolution, see Smith 2015, Wade 2016, Petrov 2017). In particular, Lenin's hypothesis on the instability of Russian democracy in 1917 has never been rigorously tested. The validity of his interpretation depends upon i) the democratic support for the Bolsheviks by the proletariat, whom he viewed as the pivotal voter of the future, and ii) whether the peasants, the pivotal voter in 1917, supported policies that postponed rapid industrialization. In this paper, we test Lenin's explanation of regime change in 1917 Russia, systematically investigating, which factors were associated with spatial variation in Bolshevik vote share in national elections to the Constituent Assembly.

Over recent decades, historians have improved our knowledge on nuances of the spread of the revolution in 1917 Russia. Far from a singular event in Saint Petersburg and Moscow, the modern literature highlights the substantial variation across the empire in the triad of most prominent causes of the Bolshevik Revolution – the proletariat, redistribution and war.[5] The variation in these factors provides crucial information about the support for the Bolsheviks in 1917 and indicates how this support would change upon the realization of different states of the

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[5] See the multi-volume edition on Russia in the Great War and 1917 Revolution (McDonald et al. 2018).

world. In terms of Lenin's interpretation, the first factor represents the preferences of the pivotal voter of the future and the second two factors reveal citizens' preferences over the Bolsheviks' strategic policy choices during the revolution. In particular, we can test for heterogeneity in proletariat support with respect to these nuances of the revolutionary period to better understand how stable the proletariat's preferences would be over time.

Using data on nearly five hundred districts located in fifty-eight electoral constituencies across the Russian Empire, we regress votes for the Bolsheviks per voting age population in a district on the share of the proletariat, measured by the number of industrial workers per eligible voter. Our estimation strategy uses constituency fixed effects to account for unobservable factors that are constant within a constituency and instrumental variables estimation to account for measurement error and aggregation bias. Specifically, we follow Fernihough and O'Rourke (2014) and De Pleijt et al. (2020) by using the prevalence of carboniferous geological strata, which is rich in coal and is unlikely to affect voter preferences other than through industrialization, as an instrumental variable for the spread of the proletariat during the 19th – early 20th century.

We find that, in line with Lenin's view, the Bolsheviks' popularity was rooted in class structure. In particular, we cannot reject the hypothesis that a majority of the proletariat supported the Bolshevik Party. We also find no evidence that the support of the proletariat varied with the industrial composition of the economy. These findings are consistent with the first condition of Lenin's interpretation of the instability of democracy, under the assumption that proletariat support is not too sensitive to the Bolsheviks' strategic policy choices (which we explore below).

To assess peasant preferences, we examine how support for the Bolsheviks was associated with the land reform, which redistributed all private land to peasants. The Bolsheviks initiated the reform on the second day in office and before the elections. Lenin strategically borrowed the reform from the Socialist-Revolutionary Party to get additional votes, despite the reform's direct conflict with the Bolsheviks' vision of socialism (they believed in the nationalization of all land and the subsequent collectivization of agriculture rather than in simple redistribution to the poor). We show that the share of votes for the Bolsheviks was systematically larger in districts with higher share of private land. Rewarding the Bolsheviks with votes for the land redistribution is

in line with the commitment problem that Lenin worried about: peasants' preferred policies would not result in rapid, large-scale reallocation of peasant labor to factories from the land.

How credible ex ante was Lenin's promise of democracy once the transformation would be over? To answer this question, we investigate heterogeneity in proletariat support for the Bolsheviks with respect to their strategic policies. The results point to a weakening base of support for the Bolsheviks as their policy of socialist transformation of society, which in the next decade would include the collectivization of agriculture into large-scale farms, unfolded. First, voting for the Bolsheviks was strongly associated with the presence of unskilled workers in districts with higher returns of the land redistribution reform. These unskilled workers were often former peasant farmers who continued to maintain connections to the countryside. Second, voting for the Bolsheviks was less associated with the presence of industrial workers in grain deficit regions and more associated in grain proficient regions with higher quality of land. The Bolsheviks' promise of a secure livelihood for the proletariat and their commitment for grain redistribution in favor of industrial workers, for which the policy of "War Communism" (1918-1920) is an appealing illustration, should have increased rather than decreased support in grain deficit regions. The opposite result suggests that redistribution of land initiated by the Bolsheviks was more important for industrial workers than redistribution of grain, presumably because of rural ties of the young Russian proletariat.

Last but not least, we investigate the Bolsheviks' policy of peace and how sensitive the electorate was to the costs of war, measured by the level of mobilization, and the presence of soldiers in a district, measured by garrison dummy and number of hospitals per capita. Soldiers clearly composed a powerful minority given their ability to use arms. We find that Bolsheviks' vote share was positively associated with a garrison dummy and number of hospitals per capita in a district, suggesting that the electorate rewarded the Bolsheviks for their peace negotiations, initiated on their next day in office. This policy, however, did not stem from an ideological commitment to peace, rather it was a strategic choice that split social democrats in 1914. For the Bolsheviks, the transformation of society was a global agenda that could require revolutionary wars outside of Russia. They expected the proletariat to support them if such a war did occur. If their expectations were correct, we should find that the proletariat's support of the Bolsheviks to be less sensitive to the costs of war relative to the rest of the population. We find the opposite.

With these findings, we contribute to three strands of literature. First, we contribute to the political economy literature on revolutions, democratic transition and autocratic regimes. Our findings shed light on how revolutionaries can exploit a commitment problem facing democratic development that could make democracy dynamically inconsistent. Fearon (2011) shows that, if an autocratic regime loses an election, annulling the results and staying in power might still form an equilibrium strategy if the regime can credibly commit to democratizing in the future. While we confirm Lenin's preoccupation with the tension between democracy and his development strategy, we show that, given 1917 preferences of industrial workers and the Bolshevik development strategy, Lenin's commitment to democracy was not credible. In most models of regime change, the disadvantaged are modeled as a homogenous group, and attention has been focused on securing stability in the face of revolution from below at the expense of the interests of the elite and/or the middle class (Acemoglu and Robinson 2006, Gehlbach, Sonin and Svolik 2016). Related arguments about the instability of democracy in agrarian economies typically focus on the conflict of interest among the elite between rich landowners and industrialists (Moore 1966). Our results demonstrate that the Bolsheviks mobilized support across multiple oppressed groups with conflicting interests that are not neatly ordered by social structure.

Next, our results inform the current narratives on the political economy of the 1917 Russian Revolution. In particular, our findings in favor of Lenin's story of the Russian Revolution are limited. Lenin correctly stressed the support of the proletariat, the key social group according to Karl Marx. He, however, underestimated ties to the rural economy of industrial workers. While the peasantness of the proletariat likely increased the costs of political stability in a socialist democracy, the observed patterns of voting for the Bolsheviks do not support Lenin's view on the dynamic inconsistency of Russian democracy.

Finally, we contribute to the recent empirical literature on the rise of political extremism in the first half of the twentieth century, which has focused on political parties on the right (Bromhead et al. 2013, Voigtlaender and Voth 2019, Acemoglu et al. 2020, Russo 2020). Equally important were the radical political movements on the left (Toke and Jensen 2014). First, the rise of the radical right was in part a response to a fear that the "red menace" of the Bolsheviks would take root further afield in Europe. Acemoglu et al. (2020) and Russo (2020) both show that electoral success of the socialists is a driver of support for Italian fascists. Second, the Russian Revolution became a role model for the left. In the interwar period, communist

parties in many countries in continental Europe averaged above ten percent of the vote share (Bromhead et al. 2013). The Bolsheviks were unique in their political achievement, but they were no exception in terms of level of popular support. Their relatively higher vote share is explained by opportunistic behavior at the expense of ideological concerns.

In the remaining sections of the paper, we first give an overview of the debate on the Bolshevik revolution. Next, in section 3, we very briefly discuss Russian politics in 1917 and the Constituent Assembly elections. We present the data in section 4 and the empirical analysis in section 5. Section 6 gives a conclusion.

2. An overview of the debate on the Bolshevik Revolution

The Bolshevik Revolution initiated an immediate debate about whether suspending democracy could form a successful strategy of socialist governance within the European leftist movement. Karl Kautsky (1964, first published in 1918), one of the leaders of social-democrats in Germany, known as the "Pope of Marxism" for his popularization and interpretation of Marx's ideas, argued that the dictatorship of the proletariat could not bring a society to socialism against the will of the masses and would transform into a dictatorship of the Bolshevik Party or even of particular individuals. He believed that only the spread of hired labor in the rural areas, which could require some time, would eventually provide majority support for socialism.

In his response to Kautsky, Lenin (1969c, e first published in 1918 and 1919) provided theoretical grounds for the Bolshevik strategy. For him, socialism meant the elimination of differences between classes, first of all between industrial workers and peasants. As Kautsky and other social democrats, Lenin (1969d, g first published in 1919 and 1921) believed that an expansion of industrialization was a necessary condition for such elimination. But, in contrast to Kautsky, he argued that only the dictatorship of the proletariat would be able "to neutralize the petty bourgeoisie, and especially peasants" during the transition period (Lenin 1969e first published in 1919). In a democratic environment, potential alliances of the proletariat, such as peasants and other pretty bourgeoisie groups, would be manipulated by capitalists. The alliances would heavily discount the long-run and widespread benefits of industrialization, and socialism would never happen. According to Lenin (1969e first published in 1919), the proletariat, led by a vanguard party, such as the communists, would need state power and dictatorship to secure transition, after which democracy would be restored. Lenin underlined democratic miscalculation in application to the Russian Constituent assembly election. In December 1917, i.e. after the

election but before the forced closure of the Assembly in early January 1918, he argued that, at the moment of elections, many citizens have not yet realized all the potential benefits of Bolshevik governance (Lenin 1969b first published in 1917).[6]

This debate institutionalized the division of the global leftist movement into reformist social democrats and radical communists. The Bolsheviks initialized the establishment of the Communist International in 1919. The condition of joining required accepting Lenin's concept of 'democratic centralism' that left little room for democratic procedures even within communist parties. In contrast, the collaboration of German social-democratic leaders with the old German elite led to establishment of the Weimar Republic in 1919 and marked a shift in politics of social-democratic parties in Europe toward achieving socialism through democratic means (Newman 2005).

Once it became clear that the Bolshevik regime in Russia would last, the debate on the dictatorship of the proletariat and socialism transformed into a broader discussion of factors shaping the Bolshevik Revolution. Already in 1920, Lenin published an article containing his analysis of why, despite the lack of majority support in the elections, the Bolsheviks could win the Civil War (Lenin 1969f first published in 1920). He stressed the support of the proletariat, whose interests the Bolsheviks sought to represent. The other two factors, according to Lenin, were the support of the army and support in key areas of the country, which he defined to be either the two capitals or more broadly urban (the most educated and advanced) localities. Lenin argued that these key areas, and industrial workers in particular, were able to implement a "lead" effect over the rural countryside. Lenin's view shaped the Soviet narrative, which largely underlined the inevitability of a victorious socialist revolution driven by the working class. The official Soviet view incorporated various history-specific nuances, such as the influence of the Bolshevik Party on the Imperial Army during the First World War.

In contrast, the narrative on the Bolshevik Revolution outside the Soviet Union was first presented by those vanquished in the Russian Civil War. Initially, this narrative focused largely on economic crises, triggered and deepened by the First World War, as well as on idiosyncratic Russian politics of 1917. After the 1960s, the search for "social support" for the Bolshevik

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[6] He considered the split of the socialist-revolutionaries party into the left and the right in November 1917, i.e. at the moment of elections, as another example of manipulation under democracy. Since voting lists were formed before the split, PSR participated in the elections as a single body.

Revolution became a major objective of the so-called "revisionist" historical literature (Kotkin 1998).

The debate on the causes of the 1917 Russian Revolution lives on in the modern historical literature. The first debate concerns the role of the proletariat (e.g. Koenker and Rosenberg 1989, Fitzpatrick 2017). Increasing urbanization and rapid industrialization produced the working class but its profile fit poorly Marx's model; many industrial workers retained their ties with land (Fitzpatrick 1988). In addition, this social group also remained relatively small in 1917, forcing Lenin and his colleagues to suggest and implement policies in favor of other social strata.

Second, the literature debates the role of redistribution. Poor living conditions across the empire created demand for redistribution (Service 2009). Lindert and Nafziger (2014) show that income inequality in 1904 was higher in the capital provinces of Moscow and Saint Petersburg, where the major 1917 events took place. In the pre-war politics, the key issue was the redistribution of the land that had remained in private ownership of the Russian gentry after the emancipation of serfs in 1861 (Figes 1997). Leon Trotsky, one of leaders of the Bolshevik Revolution, argued that the agrarian problem was fuel for the worker revolution (Trotsky 1932-1933). The Bolsheviks borrowed their land policy from the Socialist-Revolutionary Party that presumably had to increase their support among peasants (Gerschenkron 1968). In the words of Stephen Smith (2015), "the dynamics between land redistribution and nascent state formation cry out for further research." In addition, ongoing war and deepening crises in the Russian economy created demand for food security and redistribution of grain among the non-agricultural population. While the Bolsheviks offered a strong commitment to supplying grain to cities, the imperial and provisional governments were also concerned about food security and engaged in grain redistribution (Lih 1990).

Third, the literature debates the role of the war (e.g. Holquist 2002). The war difficulties produced political and financial instability as well as devastation and loss of life that were acutely experienced by citizens, particularly drafted soldiers, giving rise to political extremism both in and beyond Russia (Bromhead et al. 2013). In the Russian case, Robert Service succinctly summarizes this point: "No First World War, no October Revolution." (Service 2009).

In our empirical analysis, we leverage these factors to evaluate the nature of popular support for the Bolshevik Party and Lenin's justification for abandoning democracy after the revolution.

3. Russian politics in 1917 and the Constituent Assembly elections

The Russian Revolution overthrew the "old" autocratic tsarist regime in March of 1917 and transferred power to the Provisional Government as a political compromise between major political parties. The new government, as a temporary one, had the mandate to keep stability in a country at war, to organize democratic elections to the Constituent Assembly and to secure a smooth transition. The Constituent Assembly was widely viewed as the true "master of Russian lands", which should decide on the political development of the country (Protasov 1997).

The cornerstone of the election law was the universal suffrage for adults older than 20 years old (18 was the minimum voting age for soldiers). Initially, the new leaders believed that the organization of the elections would require between three and six months to set up. These expectations were not met because of political turbulence (Protasov 1997). The Provisional Government decided to postpone the elections, originally scheduled for the 30th of September, to the 25th-27th of November 1917.

The Provisional Government did not have a clear party identification and did not support openly any party running for seats in the Constituent Assembly. Nevertheless, the Party of Socialist-Revolutionaries (PSR) was a de facto incumbent party. The prime minister and several ministers of the last Provisional Cabinet were members of this party as well as key regional officials in many provinces. The PSR positioned itself as a peasant party calling for land redistribution. The Mensheviks, a reformist wing of Russian Social-Democrats, aligned with PSR on a number of issues.

The Bolsheviks represented the major alternative from the left. They positioned themselves as a party of the proletariat whose ultimate goal was the establishment of communism following Marx' blueprints. Another prominent point of their program was an immediate start of peace negotiations with the Central Powers and the signing of a peace treaty without annexations or contributions. The Bolsheviks received support from the left wing of PSR because of their push for peace. They also adopted the land reform from the PSR' plans, temporarily shelving their original program of the nationalization of land.

The Constitutional Democrats Party (*Cadets*)*,* formally called Party of People's Freedom, was the major alternative from the right. As a classical liberal party, the urban middle class formed the basis of their support. The failure of the Kornilov putsch in early September 1917 weakened the political movement to the right of Cadets and led to a very limited number of candidates from the far right running for seats in the Constituent Assembly.

Various parties reflecting the interests of ethnic minorities represented another dimension of Russian politics in 1917. These parties catered to one particular ethnic group and often came in pairs, one socialist and the other non-socialist (Protasov et al. 2014).

The law on the elections to the Constituent Assembly divided the country into seventy-three constituencies (Protasov et al. 2014). Each constituency roughly corresponded to a province, the administrative division of the country (but there were exceptions, like the Transcaucasia constituency which included seven provinces). The law prescribed that one deputy should be elected for every two hundred thousand voters. Accordingly, the number of seats in a constituency varied between one and thirty-six. There were no national lists of candidates; different lists of candidates ran in different constituencies. Parties could form strategic blocks in one region but run separately in the rest of the country.

The law required only one hundred signatures of registered voters to set up a list of candidates in a constituency. All in all, 689 lists of candidates were registered, i.e. a bit less than ten per constituency on average (Protasov et al. 2014). A particular individual could run in no more than five separate constituencies; if elected in more than one constituency, this candidate had to decide where he or she would be a deputy and transfer deputy mandates in other constituencies to the next in line of the corresponding lists of candidates.

The formation and registration of lists of candidates went on during September and October of 1917 and had to be completed thirty days prior to the elections, i.e. by the 25th of October. The Bolsheviks confirmed the timing of the elections two days after they captured power on the 7th of November. However, the change of government in Saint Petersburg caused violent conflicts in several cities that forced local election commissions in corresponding provinces to postpone elections. The actual timing of voting varied between late November 1917, when elections took place in the bulk of regions, and February 1918. In some provinces, elections did not take place at all or their results were annulled because of improper counting.

Provinces also differed in terms of which political forces oversaw the elections, either those appointed by the Provisional Government, new officials who supported the Bolsheviks or other political agents. There is no evidence that local authorities falsified the results; in particular, the Bolsheviks did not want to do this because they had initially believed that they (together with the left wing of Socialist-Revolutionists) would get a majority in the Constituent Assembly, legitimizing their regime. There were some instances of local groups, such as soldiers, trying to

manipulate the electoral outcomes on the ground by applying direct pressure and, in some cases, violence against voters. Historians agree, however, that this pressure could hardly have changed the election results and did not have a systematic bias across constituencies. In this respect, the historical narrative portrays these elections as reasonably free and fair (Protasov 1997).

Once it became clear that the Bolsheviks would not get a majority, they changed their attitude toward the Constituent Assembly. The Bolsheviks postponed the opening session of the Constituent Assembly as long as they could. At their first meeting day in early January 1918, the assembly refused to legitimize the Bolshevik coup d'état and the Bolsheviks disbanded the assembly.[7] In the end, the only accomplishment of the Constituent Assembly was a unique snapshot of the preferences of Russian citizens in 1917, soon after the Bolsheviks took power.

4. Data

The national results of the elections to the Constituent Assembly were never published officially. Instead, a team of prominent Russian historians, led by the main specialist on the 1917 assembly elections, Lev Protasov, collected and published all available information on election results almost one hundred years after the event. We rely on the latest edition of these efforts (Protasov et al. 2014). Figure 1 shows the election fingerprints for the Bolshevik Party. The histogram does not demonstrate an upward-to-the-right smear nor a positive correlation between vote share and voter turnout, two features that are indicative of election irregularities (Klimek et al. 2012). We also see an absence of a downward-to-the-left smear or negative correlation between vote share and voter turnout, two features that would have suggested that the Bolsheviks were unfairly discriminated against in the elections.

We combine these electoral statistics with available censuses, namely the only population census conducted in the Russian Empire in 1897, the 1905 land census, the 1912 census of agricultural machines, the 1912 horse census, the 1916 agricultural census and the 1910 city census, as well as official statistics published annually before the First World War. We also use data on peasant representation in local zemstvos, local self-governance bodies established in 1864 as part of liberal reforms by Alexander II, which had a mandate to supply public goods, and the major tsarist tax redistribution reform from the early 1880s. In addition, we use the province-

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[7] That the Bolsheviks took power as a minority is a great instance of irony in history. Their name was formed from the Russian *bolshinstvo* ("majority"), because they were in majority at the Second Congress of Russian Social Democratic Party, which approved the first party program. The reformist wing of Russian Social Democrats, which was in minority at this congress, became known as Mensheviks, i.e. those who are in minority (*menshinstvo).*

level reconstruction of Russian national income around 1900 (Markevich 2019). We often need to rely on variables measured in years earlier than 1917 because of the lack of relevant figures for the revolutionary year. Table B1 in the online appendix provides a full list of our sources with precise references.

Altogether, we have data on election results in more than four hundred and fifty districts (*uezds*) located in fifty-eight constituencies all over the Russian Empire. We construct our main dependent variable, the vote share for the Bolshevik Party in a district, by assigning particular lists of candidates to the Bolshevik Party and then attributing the votes for these lists to the Bolsheviks and dividing by the estimated voting age population in a district. In the majority of cases, the Bolsheviks clearly self-reported their party identification and the classification does not raise any controversy.[8] We divide by the voting age population to avoid potential bias due to selection into voting and to provide a microfoundation for our regression equation.[9]

Given that this would be the first chance for the population to express their political preferences and the fact that about half of all adults were illiterate, it is difficult to imagine that citizens voted strategically in a way that would produce bias in the aggregate. We assume that the bulk of citizens voted according to their first-best preferences. We accept that measurement problems are still possible.

Those districts, for which we do not have data, either did not hold elections, or voting procedures had been violated or votes were not properly counted. We check that the selection of districts with elections is not driven by observables once we account for constituency-specific characteristics. While there are statistically significant differences across these districts, once we demean observables with constituency-specific averages, the differences between districts with election data and districts without them disappear, suggesting that selection primarily occurred at

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[8] In 48 constituencies, the Bolsheviks ran as a separate party and did not establish any coalitions, in four constituencies, namely Olonetz, Samarkand, Turgaj and Ural, they did not run at all, and in six constituencies, namely Altai, Bessarabiya, Irkutsk, Kiev, Liflyandia and Tobol'sk, they ran in a coalition with the Mensheviks. For our baseline results, we assign zero vote share to the places where the Bolsheviks did not run, assuming that they had correctly forecasted that they would get no support and decided not to waste resources. For constituencies where the Bolsheviks were in a coalition, we assign all votes for the coalition to the Bolsheviks since it is likely that they were the main coalition partner. In the appendix, we reproduce our major specifications from table 2 of the main text but excluding those constituencies where the Bolsheviks did not participate or run in coalitions (table B3 of the online appendix).

[9] The exact number of eligible voters per district is not known; we approximate this variable by multiplying 1913 population by the share of the population that is of the eligible voting age known from 1897 census.

the constituency level and providing further support for our identification strategy which accounts for constituency FEs (table B2 of the online appendix).[10]

Table 1 presents descriptive statistics of our dataset. The Bolsheviks got 15,279 out of 72,101 votes or 24.1 percent in an average district, i.e. about 14.2 percent of eligible voters, but the variation was huge.[11] Figure 2 portrays the geography of voting for the Bolsheviks in 1917. They achieved better results in the center and in the Northwest of the country, i.e. in the most developed industrial regions between Moscow and Saint Petersburg. Outside of these territories, their share of votes mostly did not exceed twenty percent.

According to the pre-war statistics, in 1913, there were about 243,000 people in the average district, and only about ten percent of them lived in urban areas. The 1917 (unknown) figures are most likely higher because of the flow of the refugees from the occupied provinces who largely settled in industrial centers. In line with the low level of urbanization, literacy rate was relatively low, about twenty percent. The number of industrial workers in the country was not high either. According to 1897 census, the share of employees occupied in industrial sectors among the voting age population was only about 5.5 percent in the average district.[12] About eighty percent of all industrial workers were males and about twenty percent were females. Roughly fifteen percent of proletarians, regardless of gender, worked in sub-branches of industry that required a substantial level of qualification from all involved in the production process (metal, chemicals, polygraphy and production of instrumental equipment) and the remaining were occupied in relatively unskilled sub-sectors, where skills of employees varied a lot (metallurgy, production of fibrous substances, production of animal substances, wood industry, ceramics, production of wine and beverages, food industry, tobacco industry, clothes production, jewelry).

In the countryside, the main asset and means of production was land. More than three-quarters of land had communal tenure and a bit less than a quarter was under possession of

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[10] Alternatively, we ran regressions with the dependent variable as an indicator for having election data and our set of covariates as independent variables and control for province fixed effects. None of coefficients on variables for which we have data is statistically significantly different from zero.

[11] Since we estimate the number of eligible voters in 1917 rather than use the actual (unknown) figures, the Bolshevik share as well as the turnout measure could be larger than one. There is one such district (Ardatovskij) for the Bolshevik share and four districts (Ardatovskii, Nevel'skii, Tsarskosel'ski, and Yerevanskii) for turnout.

[12] The 1910 city census reports information on the number of industrial workers in cities and large industrial settlements but exclude those who lived and worked in the small ones. Factory workers composed about 3.4 percent of citizens in an average city in 1910. We use these data in our city-level analysis.

individual private owners. An average hectare generated 778 kilograms of grain before the war. Peacetime grain surplus varied substantially between grain deficit and grain surplus districts. We do not know wartime surplus in each district because of poor statistics on both population and local grain productivity during the war. The change in cropped area of grain per pre-war citizen between 1913 and 1916 provides a proxy for the level of change. In the average district, grain cropped area per capita decreased by almost five percent. Because of the mobilization of males into the army, the gender balance in rural areas (the difference between females and males) increased by 7.1 percent over the war years. Before the war, there were about two percent more females than males in the rural area of an average district. Another prominent feature of the wartime was the presence of military garrisons and hospitals in many Russian cities and settlements. There were garrisons in about forty percent of districts in our sample by November 1917. Where they were present, there was usually one garrison per district. In contrast, hospitals were almost in each district substantially varying in their numbers.

The bulk of districts in our dataset had some experience with local democracy in the form of zemstvo by 1917. Peasants, who represented the majority of population in all districts, hold only about thirty percent of seats in these representative bodies. In terms of languages, Eastern Slavic language (Russian, Ukrainian and Byelorussian) speakers dominated, accounting for eighty percent of the population in districts. We distinguish them from the rest of population due to the low barriers in communication across these similar languages.

5. Empirical analysis

We employ regression analysis to estimate the relationship between popular support for the Bolsheviks and the proletariat as well as other factors. We estimate our regression model using district-level data since individual-level data are unavailable. Given that the election law allows the number and characteristics of running candidates to differ across constituencies, we employ constituency fixed effects to account for strategic factors at the constituency-level that are unobservable to us. The identifying variation, thus, is within-constituency variation.[13]

To be precise, we estimate the following econometric model:

$$Share\_Bolsheviks_{ij} = \beta * Share\_Prole_{ij} + \mathbf{X_{ij}}'\gamma + \psi_j + \varepsilon_{ij}, \qquad (1)$$

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[13] We perform a Hausman-style test (modified to allow for clustered standard errors and weights that vary within election constituencies) and can reject the null hypothesis that there are no systematic differences in the estimated coefficients at the 5% level. This rejection of the random effects model suggests that there is indeed strategic voting list formation.

where the subscripts *i* and *j* index districts and constituencies. *Share_Bolsheviks* denotes the share of votes for the Bolshevik party in a district. By share, we refer to the share of eligible voters. *Share_Prole* stands for the number of industrial workers as registered in the 1897 census per voting-age population (which was about 5.5% in the average district) as a measure of the proletariat. We control for the share of Eastern Slavic language speakers, 1913 urban share of the population and area under grain crops per rural citizen. These controls are denoted by $\mathbf{X_{ij}}$; ψ_i are the constituencies fixed effects, and ε_{ij} is an idiosyncratic error term. We use analytical weights to account for the fact that variables are aggregated over different population sizes and we cluster standard errors at the constituency-level.

We would like to interpret the coefficient on the share of industrial workers as an estimate of the average voting tendency of individual industrial workers. In such a case, the estimate of β would inform Lenin's hypothesis by indicating the strength of proletariat support; the estimate should be positive and have a magnitude above 0.5. Since we want to directly infer individual behavior from this aggregated data, we risk succumbing to an ecological fallacy. Fortunately, Spenkuch (2018) has shown that both OLS and IV estimation can solve the problem of ecological inference under similar assumptions as required for estimation of causal effects when the district-level regression is micro-founded.[14] We take the IV approach because it requires weaker assumptions and remedies the measurement error issue that we face using data on the number of industrial workers from 1897. We use the prevalence of carboniferous geological strata as an instrumental variable for the share of proletarians in 1917.[15] We follow Fernihough and O'Rourke (2014) and De Pleijt et al. (2020) who argue that the presence of rock strata from the Carboniferous epoch, which is rich in coal, is an exogenous predictor of 19th century

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[14] The main problem with OLS estimation is that there may be a correlation between the district aggregate and the district error term induced by a correlation between the variable of interest for individual *i* and the error term of individual *j* even when the OLS assumptions hold at the individual level. To interpret the coefficient in the district-level regression as an effect on individual behavior, we need to assume that we have an instrument, observed at the district level, that is uncorrelated with the error term of the individual level voting regression. Then, the identification assumption for individual *j* rules out any correlation between the individual *i's* realized value of the instrument and the error term of individual *j*. We note that this IV solution cannot separately identify the effect of a given factor on individual behavior from the effect of the district aggregate of the same factor on individual behavior. In our case, this would mean that our estimated effect could be due to the effect of being an industrial worker on the likelihood of voting for the Bolsheviks and/or the effect of industrial workers per voting age population on voting age individuals' likelihoods of voting for the Bolsheviks. The latter effect is likely to be small; however, this still identifies a causal relationship between the presence of industrial workers and voting for the Bolsheviks.

[15] To be precise, we combine an administrative map of the Russian Empire (Kessler and Markevich 2015) with the 1:5 Million an International Geological Map of Europe and Adjacent Areas (Asch, K., 2005) and construct a dummy variable equaled to one if the district has geological stratus containing the word 'Carboniferous' in its title.

industrialization. We argue that voting patterns in 1917 were unrelated to the geography of Carboniferous strata other than through the industrialization channel.[16]

5.1 Results

In Table 2, we present results of running the regression in (1). In column (1), we find that the main claim by Lenin is consistent with the election data. The share of industrial workers is positively correlated with the share of votes going to the Bolsheviks in a district. We can interpret this positive association as a causal effect of the presence of industrial workers in a district since the IV estimates are also positive and statistically significant at the five percent level (column 3). While the first stage, reported in column (2) is weak (F-stat=9.9), we see that this inference is robust since the coefficient on the Carboniferous strata dummy is statistically significant in the estimation of the reduced-form regression (column 4).[17]

According to the OLS estimates, an additional industrial worker of voting age population would lead to an additional 0.37 votes for the Bolsheviks. As such, the point estimate implies that the majority of the proletariat did not vote for the Bolsheviks (either because of not voting or voting for different lists). We, however, cannot reject the null hypothesis that the coefficient is 0.5. For the IV estimates, the magnitude of the coefficient jumps to 2.53, and the OLS estimate is well outside of the confidence interval that is robust to weak instruments as the 95% confidence

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[16] To make our analysis more credible, we also use a second instrument based on the uniqueness of Russian historical geography, namely on the prevalence of industrial serfs per capita in 1793. Industrial serfs were a special class of peasants created in the early 18th century when Peter the Great initiated the construction of large factories. Due to the shortage of labor caused by the restrictions on labor mobility under serfdom, the government reassigned state peasants to newly established factories and changed their status to industrial serfs. In 1721, these factories got the right to buy serfs. The gentry lobbied for removing this right to defend their previously exclusive privilege of owning serfs. In 1762, the gentry managed to introduce a ban on buying new serfs but factories could continue to possess those whom they previously had as well as their descendants. The ban was removed in 1798 due to associated inefficiencies in the labor market (Kahan 1985). We use figures on industrial peasants from 1793 tax census (Beskrovnii et al. 1972), i.e. from the census conducted at the very end of the ban period. The relevance of this instrument comes from path dependence in industrial production as well as the heavy regulation of labor mobility in the Russian Empire. We argue that the exclusion restriction is satisfied primarily because the assignment of peasants to factories by the imperial authorities in the eighteenth century, coupled with the thirty years ban on buying serfs, produced variation in the spatial distribution of industrial serfs that was largely orthogonal to political preferences in the early twentieth century once we account for constituencies fixed effects and our other control variables. To make the exclusion restriction more plausible, we control for the total number of serfs per capita, measured in 1858, the last available measure before emancipation of serfs.

[17] Alternatively, we also implement two-step-weak-iv test developed by Sun (2018) and based on the theoretical approach suggested by Andrews (2018). The distortion cutoff level obtained by this test is seven percent that leaves the possibility of the weak instrument problem. Accordingly, we report LC_2sls confidence interval for the IV coefficient obtained by this test that is robust to weak instruments.

interval runs from 0.77 to 5.74.[18] The effect of industrial workers on Bolshevik support could have been higher in those areas where the share of industrial workers is more sensitive to the presence of Carboniferous strata. Indeed, Lenin underlined the role of metal workers as the leading group of the proletariat (Lenin 1969a first published in 1913).[19] Interestingly, the IV point estimate is consistent with another particular nuance in Lenin's (1969f/1920) hypothesis. He expected that industrial workers would have had an externality on peasants' voting, leading to a greater than one to one relationship between workers' votes and votes in the aggregate. However, we cannot reject the hypothesis that the coefficient is equal to one.[20]

In terms of controls, the share of Eastern Slavic speakers in a district is positive but statistically significant only in the OLS specification. Similar, the coefficient on total crop area per capita in 1913 is negatively and statistically significantly associated with voting for the Bolsheviks only in the OLS specification. The signs of the coefficients are not surprising. Non-Slavic ethnic minorities tended to vote for their national parties and there might have been language barriers to the Bolshevik agitation.[21] Agrarian districts with larger cropped area per capita were less likely to support the Bolsheviks' radical policies. The coefficient on urban share is always negative but statistically significant only in the IV specification; during this time period, urban share should be viewed as a measure of the development of the local economy.[22]

Table 2 is somewhere here

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[18] If, in addition to the Carboniferous strata dummy, we use the number of industrial serfs per capita in 1793 as the second instrument (controlling for the total number of serfs per capita before the emancipation), we obtain an estimate of 1.59 as a coefficient on the share of industrial workers (column 2 of table B4 of the on-line appendix; column 1 of the same table reports the first stage of this exercise). Hansen J statistic equals 1.799 and we cannot reject that overidentification restrictions are valid.

[19] The difference between OLS and IV estimates might appear also because of measurement problem. We know the number of industrial workers in districts from the 1897 population census, which happened twenty years before the revolution. Central Statistical Committee (1914) reports number of proletarians in 1910 but in cities only. In column (3) of table B4 of the online appendix, we adjust specification reported in column (1) of table 2 in the main text (we replace urbanization control with the size of the city taken in logs and omit total crop area per capita in 1913) and estimate this specification at the city level. The coefficient on the share of proletarians is positive and statistically significant at ten percent level. Its magnitude is smaller than in the OLS regression estimated at district level. This might speak about the measurement issue but on the opposite direction.

[20] A voting externality is still possible when the coefficient is less than one if the propensity to vote for the Bolsheviks among workers is less than one. We use the null value of one in our test because Lenin had in mind that each worker would count for more than one vote.

[21] The results do not change if we replace the share of Eastern Slavic speakers with the share of Russians (columns 4 and 5 of table B4 in the on-line appendix).

[22] We also check that the results from the first column of table 2 are robust to inclusion additional controls, namely, grain surplus per capita in 1913, change in area under grain crops between 1913 and 1916, gender ration and rural density in 1913, population growth between 1897 and 1913, literacy in 1897, railway density before the revolution and additional geoclimatic controls such as river density, soil quality, deviation of temperature in 1917 and deviation of precipitation in 1917 (see table B5 of the online appendix).

In the remaining part of table 2, we examine heterogeneity in the proletariat's support by its industrial composition. This exercise is important to determine whether industrial workers had *ipso facto* a tendency to vote for the Bolsheviks. The alternative hypothesis is that the some specific characteristics of the Russian Empire's industrialization conditioned the preferences of industrial workers. First, the industrial workforce suffered from a high level of gender bias. Since the Bolsheviks promoted gender equality, we check whether industrial workers' support varied by gender (column 4). We find that the coefficient on the share of male proletariat is positive, statistically significant and larger in magnitude than the coefficient on the share of all proletariat from column (1). In contrast, the coefficient on the share of female industrial workers is negative and significant at ten percent level. In reality, there were about four times more male industrial workers than female ones in an average district. Since female and male proletarians comove, we conclude that the presence of female industrial workers was associated with less pronounced support for the Bolsheviks, rather than the female industrial workers were against Lenin's party. In column (5), we show that the coefficient on female industrial workers is positive and statistically significant when we do not control for the share of male industrial workers.

Second, in column (6), we address the skill composition of the proletariat. We distinguish industrial workers by belonging to a particular branch of industry, which we group into two categories – those, which required a substantial level of qualification, and those, which did not (as described in the data section). Unfortunately, we do not have a better measure of skills than this sub-industry one. The coefficient on the share of skilled industrial workers is larger than the coefficient on the share of unskilled industrial workers but imprecisely estimated. One cannot reject the hypothesis that the two coefficients are equal to each other.

Third, factories in Russia in the beginning of the twentieth century tended to be quite large. The historical literature argues that the size of Russian factories helped the Bolsheviks to mobilize support of industrial workers (e.g. Sokolov 1999). We find that the coefficient on the interaction between the share of proletariat in a district and the size of an average factory in a province in 1900 is not statistically different from zero (column 7).

Finally, we do not find evidence for another argument in the historical literature, that the spread of the defense industry, where workers enjoyed relatively high wages during the war, hindered Bolshevik success among the proletarians. The number of defense factories in a province did not generate any heterogeneity in terms of the support of industrial workers

(column 8). These results indicate that, first, the proletariat's support for the Bolsheviks was not an artifact of the peculiarities of Russian industrialization and, second, that the changes in industrialization ushered in by the Bolshevik development strategy, apart from the growth of the working class, would have been unlikely to dramatically alter the support of the proletariat.

We now turn to the voting preferences of the masses to better understand how the Bolsheviks' vision would have fared under democracy. Since the median voter in 1917 was the peasant, we start with how Bolshevik support responded to the land reform. Peasants dreamed about the transfer of the private land that remained in the gentry's hands after the abolition of serfdom (the average share of cropped area on private land in 1913 in a district was about 23.5%). In particular, Finkel et al. (2017) show that soil quality and the historical prevalence of serfdom (both were correlated with the prevalence of private land owned by former serf-owners) drove the variation in peasant unrest movement in 1917. Clearly, redistributing land to peasants fit poorly with the Bolshevik vision of the future, as the later policy of Stalin's big push forward demonstrated. Socialist industrialization and an expansion of the proletariat as a social stratum entailed the collectivization and destruction of individual peasant farms. We find that the share of cropped area under private land tenure in 1913 is positively related to the Bolshevik vote share (column 1).[23] We interpret this positive association to mean that, in places where peasants benefited more from the land reform, they were more likely to reward the Bolsheviks.

In the next column of table 3, we check whether the political return is higher in places with good soil. We construct a dummy variable to indicate a district with no soil of types considered to be high quality and interact this variable with the land reform variable.[24] For districts with at least some good soil, the effect of the land reform is positive and statistically significant. In contrast, although the interaction term is not precisely estimated, the sign and magnitude of the coefficient indicate that there is no political return on the land reform in districts without any quality soil. In addition, districts without good soil are less likely to support the Bolsheviks. We

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[23] In column (1) of table B6, we demonstrate that these results are robust if we control for the land quality, measured with grain yield per area unit in 1913, or the level of development of agriculture in a district, measured with the number of agricultural machines per capita. We also show that other measures of inequality, namely Gini index estimated on local distributions of private lands in 1905 or similar index estimated on local distributions of commune lands in 1905 are not related with voting for the Bolsheviks in 1917 column (2).

[24] We use soils data from the Harmonized World Soil Database v 1.2 Our definition of high quality soil includes: Chernozems (FAO 90 Symbols: CHh, CHk, Chl ,CHw), Greyzems (FAO 90 Symbols: GRh), Histosoils (FAO 90 Symbols: HSf, HSi, HSl, HSs), Kastanozems (FAO 90 Symbols: KSh, KSk, KSl), Phaeozems (FAO 90 Symbols: PHc, PHg, PHh, PHl).

conclude that if these associations represent peasants' true preferences, then democratic institutions would likely not select policies that furthered the Bolsheviks' plans for industrialization and collectivization.

Table 3 is somewhere here

We next investigate the voting preferences of the masses with respect to different aspects of the local redistribution experience before 1917. We start with peasants' experience with autocratic redistribution in the post-emancipation Russia. In 1883, the tsarist government decreased land redemption payments, which peasants were supposed to pay after the emancipation in 1861. The reduction consisted of two components, regular and special ones. The regular reduction followed general rules and affected all districts. In contrast, the government granted special reductions arbitrarily following local reports on relative economic decline of particular areas (Kornilov 1905). Similar to the Bolsheviks' land reform policy, this type of redistribution to peasants deviated from the status quo. We find that the coefficient on special reductions in redemption payments is positive and statistically significant at the ten percent level (column 3 of table 3).

Despite being an autocracy, citizens of the Russian Empire experienced a limited form of democracy through zemstvo. We can, therefore, test directly whether greater experience with democracy would favor the Bolsheviks. By 1917, zemstvos existed in forty-three out of ninety-seven provinces of the Russian Empire and more than eighty percent of districts in our dataset had zemstvo. Peasants' interests were represented by holding seats in the third curia (the first being reserved for the gentry and the second for urban residents) and this representation translated into real power as Nafziger (2011) shows – districts with a greater share of seats in the third curia obtained a larger amount of public goods. We find that Bolshevik vote share is negatively associated with the share of seats belonging to the third curia (column 4 of table 3). In column 5, we confirm that, within districts with zemstvo, zemstvo expenditures on schools per peasant in 1880 (one of the main mandates of this local governance institution) is negatively correlated with Bolshevik vote share. We note that in both columns the coefficient on the share of private land remains statistically significant and positive.[25] Thus, we can conclude that there were likely separate effects of the land reform policy and the masses' experiences with

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[25] The share of private land and peasant representation in zemstvo are, in fact, negatively correlated because of the rule determining how many seats peasants received in the third curia depended on the land distribution after the Emancipation reform in 1861.

democracy. Democratic policy making would not have favored the Bolsheviks' vision, supporting the second condition of dynamic inconsistency.

Table 4 is somewhere here

In table 4, we return to proletariat support to better understand how this support would have changed once the Bolsheviks would have implemented their development strategy, transformed society and instituted democracy. Building on the previous findings, we examine heterogeneity in the relationship between the Bolshevik vote share and industrial workers per capita according to local democratic experience with zemstvo. According to Lenin's dynamic inconsistency explanation, the proletariat that had an experience with democracy should have supported the Bolsheviks and their willingness to temporarily suspend democracy because they would have known policy choices in a democracy reflect the extent of representation and, consequently, democracy in 1917 would have undermined the Bolsheviks' vision for the new nation. In column 1, we find the opposite, the positive association between Bolshevik vote share and the share of the proletariat was much less pronounced in the districts with zemstvos, suggesting that the commitment of the Bolsheviks to temporarily suspend democracy to implement development policies is not a driver of support.

Next, in column 2 of table 4, we split Russia into grain surplus and grain deficit regions (based on the division in Wheatcroft and Davies 1994) and interact a grain deficit region dummy with the share of the proletariat in a district. If non-market grain redistribution was the primary factor explaining Bolshevik support, then we would expect to see the proletariat in grain deficit regions to exhibit stronger support. We find the opposite. The sign of the coefficient on the interaction term is negative and nearly offsets the magnitude of the positive coefficient on the share of proletariat in grain surplus regions. The negative coefficient is consistent with industrial worker-peasants rewarding the Bolsheviks more for land redistribution in areas with higher value of agricultural land.

In column (3), we turn to this explanation directly. The preferences of the peasantry in 1917, whose support the Bolsheviks tried to mobilize by initializing the land reform, is particularly important. Indeed, even though Russia was one of the largest economies in the world and rapidly industrializing, it was still a primarily agrarian society. Due to its rural roots, the proletariat could have rewarded the Bolsheviks for their strategic adoption of the land reform policy. For private land redistribution, as before, we use the share of private land in a district (demeaned) and

interact this variable with the share of industrial workers. The coefficient on the interaction term is positive and statistically significant at the one percent level. Industrial workers were more likely to support the Bolsheviks in districts with a greater share of historically private land. Importantly, a basis of support of the proletariat rooted in the land redistribution presents a serious conflict with the Bolsheviks' development strategy.

If the Russian proletariat wanted to return to the land and peasantify instead of modernizing into an industrial working class, then we would expect to see differences within the proletariat according to gender and according to how much human capital, possibly occupation-specific, had been accumulated by industrial workers. The 1917 Bolshevik agrarian reform transferred the private lands to peasant communes rather than to individual peasants. Within the commune, access to land differed by gender. Repartition communes often allocated commune land between households on the basis of the number of male household members rather than total number of household members (Popov et al. 2013). This should create different incentives for male and female industrial workers with rural roots in terms of returns from land redistribution. Similarly, the groups of skilled and unskilled industrial workers should face different incentives with respect to land. Skilled workers, having invested in human capital, were likely entrenched in urban living and far removed from their rural roots. In contrast, unskilled workers mostly arrived in cities nearby to their villages to work because the opportunity cost of rural wage work or subsistence farming was low. Many historians (e.g. Burds 1998) underlined the strong ties of Russian unskilled industrial workers with their villages of origin, where they often retained their formal rights to commune land. As such, unskilled workers should have mobilized more around the land redistribution reform.

In column (4), we first present the regression from column (3) with the proletariat split into females and males. In line with the hypothesis, the correlation between the voting for the Bolsheviks and the share of males but not female industrial workers was more pronounced in districts with higher share of private lands. Similarly, the results in column (5) suggest that the unskilled workers likely drove the working class' support of the Bolsheviks in districts with substantial amount of private land. The coefficient on the interaction term between the share of private land and the share of unskilled proletariat is positive and statistically significant at the one percent level suggesting that unskilled industrial workers were beneficiaries of this policy that targeted peasants. In contrast, the coefficient on the interaction with skilled workers is not

statistically different from zero, as expected if skilled workers were not beneficiaries of this policy.[26] These results confirm rural ties of the Russian proletariat and do not support the first condition of the dynamic inconsistency explanation.

Table 5 is somewhere here

We now discuss the consequences of WWI experience in table 5. In contrast to the dominant view in historical literature, we do not find that the level of war burden, measured as the change in gender balance between 1913 and 1916 (which was about 7% of the population in the average district and is considered the best proxy for the scale of mobilization according to the historical literature, Golovin 2001), is correlated with the share of votes for the Bolsheviks (column 1).[27] Instead, we see the impact of the war through more votes for the Bolsheviks in the districts that hosted garrisons and hospitals (column 2). We interpret these results as evidence that the war changed preferences of those whom it affected directly (disaggregated data on pro-Bolsheviks voting in garrisons from Protasov et al. (2014) also favor such interpretation). The alternative (not mutually exclusive) interpretation is that the anti-war sentiments and support for the Bolsheviks as the major anti-war party were more widespread in the districts where the presence of garrisons and hospitals made the war consequences more visible. The magnitude of the obtained coefficients supports the latter interpretation. The presence of the garrison in a district added four percentage points on average to the Bolsheviks' share, a shift most likely larger than the (unknown) share of soldiers in a district. Similar, one additional hospital per thousand eligible voters brought 0.24 percentage points to Lenin's party, also a figure presumably larger than the number of votes that injured soldiers in hospitals could bring.

How did these factors affect the support of the proletariat? Lenin expected that the proletariat should be ready to fight or at least support revolutionary war across the globe. Hence, we should find that the proletariat's support for the Bolsheviks to be less sensitive to the costs of war. In both columns (3) and (4), we find no evidence that their support was less sensitive. If

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[26] In column (3) of table B6 in the online appendix, we present evidence that soldiers in the rear garrisons who were often drafted from nearby villages were also potential beneficiaries of land redistribution policy. Our results also suggest that the presence of hospitals full of injured soldiers, who usually got their medical treatment in their home districts and whose physical abilities to cultivate land were limited, weakened the effect of the share of private lands in a district on the level of support for the Bolsheviks.

[27] In columns (4) to (8) of table B6 of the online appendix, we show that mobilization of males into the army did not have any heterogeneous effect and did not differ in terms of distance to the front, pre-war regional income per capita, experience with local democracy under the tsars (measured with the presence of zemstvo in a district), the share of Eastern Slavic speakers or pre-war state capacity on the ground, measured as the per capita number of land-captains who were heads of local administration on the ground.

anything, we find more support for the Bolsheviks in districts where the costs of war were more salient.

Thus, the strategic policy choices of the Bolsheviks, the land reform and peace negotiations, appear to drive the support of the proletariat. Given that these strategic choices were in conflict with or, at best, orthogonal to the industrialization policies required to transform society along the Marx' blueprints, we find little support of a symbiotic relationship between the Bolshevik vision of the future (which was also implemented later) and industrial workers' preferences in 1917.

5.2. Robustness checks

In this subsection, we address potential concerns with our results due to election irregularities. In column (1) of table 6, we rerun out baseline specification from column (1) of Table 2 including control variables for whether or not an election started late and the number of days that the election took to complete. There is some evidence for greater pro-Bolshevik voting in the case of later elections. However, the coefficients on the major variables of interest are quite similar, suggesting that these election irregularities were not correlated with the determinants that we consider. Another possible election irregularity is electoral fraud on behalf of the Bolsheviks. We stress that if there had been strong evidence of voter fraud, the election would have been annulled (Protasov 1997). However, more subtle forms of voter manipulation may have been missed. We proxy for the ability of the Bolsheviks to manipulate the election by when they took power in the corresponding territory. The earlier they controlled a district, the more scope for manipulation they likely had. We rerun the baseline specification in columns (2) with additional dummies that mark when the Bolsheviks took power. The coefficients of interest are quite similar, suggesting that voter manipulation was not correlated with the determinants that we consider. Finally, we control for the level of turnout (column 3). Again, while turnout was positively correlated with the voting for the Bolsheviks, our major coefficients of interest remain significant.[28]

A last note is on the limitations of our analysis. We have concentrated on the study of the variation within constituencies. We accept and recognize that between-constituencies variation in voting outcomes and the determinants was important. The majority of coefficients on FEs (not

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[28] In column (7) of table B5 of the on-line appendix, we check that our results do not depend on turnout at the elections of the 3rd State Duma (Parliament) in 1907. Statistics on results of elections of other Imperial Dumas are not available.

reported) in Tables 2 to 6 are statistically significant. Table B7 in the appendix presents some more evidence on that. The voting was the most pro-Bolshevik (with a share of 45.8 percent) in the districts located in the Central Industrial Region, Northwest, Baltic provinces and Belorussia (column 1). In the other parts of the country, the Bolsheviks managed to get substantially less; the coefficients on dummies for all these other regions are negative and statistically significant. The distance to Saint Petersburg negatively affected voting for the Bolsheviks (column 2), a pattern that fits well to the contours of the frontlines of the future Civil War. And the distance to the front was positively related with the voting for the Bolsheviks. Unfortunately, since between-variation in Bolshevik vote share could be driven by strategic and unobservable differences in regional political parties, we are unable to exploit this variation without strong assumptions.

5.3. Counterfactual calculations on the inevitability of Soviet control

We return to the historical debate in the literature on the determinants of the Russian Revolution by examining the relative magnitudes of the three causes: war, redistribution and proletariat. When we take our proxies for three major channels of interest all together (column 4 and 5 of table 6), the obtained coefficients do not change much.[29] One s.d. increase in the share of industrial workers is associated with 0.15 s.d. increase in the Bolshevik vote share (the IV estimate is larger, but as discussed above likely driven by a local average effect). One s.d. increase in private share of land is associated with 0.14 s.d. increase in the Bolshevik vote share. The presence of a garrison increased the Bolshevik share by 4 percentage points, which we could divide by two to make more comparable to the standardized change of a continuous variable (Gelman 2008), yielding an increase of 0.14 s.d. And one s. d. increase in number of hospitals brings another 0.17 s.d. increase in the Bolshevik vote share. Thus, each of these factors produce roughly comparable effects. Our interpretation of these results is that a conglomerate of quite different groups supported the Bolsheviks and a coalition building exercise between industrial workers, peasants and soldiers was important for their success in the election.

What if the Bolsheviks did not have to appeal to these broad mix of interests? The Bolsheviks needed an additional 0.36 votes per eligible voter to obtain support from the majority of voting population or +2.55 s.d. increase in an average district. Of course, they would not have

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[29] We, first, use gender disbalance measure as a proxy for war burden and do not include garrison dummy and hospitals variable in order not to lose observations due substantial number of missing values for garrison dummy and hospitals. In column 5 of table 6, we replace gender disbalance with these variables. We use coefficients from column (5) for the proletariat and redistribution effects and coefficients from column (6) for the war effect.

needed such a high level of support to win the majority of seats in the election, but Lenin himself argued that their regime was unstable without the support of the majority. Could pre-WWI factors that weren't associated with the proletariat, redistribution or the war be altered to secure a majority for Lenin's party? Two such observable factors predict the Bolshevik vote share in our previous analysis, the share of Eastern Slavic language speakers and total crop area per capita. Increasing the share of Eastern Slavic speakers to one in the average district would lead to an increase of 0.019 votes per eligible voter. Reducing total crop area per capita to zero in the average district would increase the Bolshevik's vote share by 0.013 votes per eligible voter. Taken together, even these extreme values would not have achieved a level of support that the Bolsheviks needed. From these rough (possibly stretching the limits of regression analysis) calculations, we can surmise that the strategic coalition building that the Bolsheviks undertook was necessary.

We can also ask what would Bolshevik support have been if the specific strategic policies and war environment had not contributed to their success, i.e. no private land to redistribute and no presence of garrisons or military hospitals in the rear. In the average district, shutting down land redistribution would decrease Bolshevik support by 18 percent (a decrease of 2.6=100*0.11*0.235 percentage points out of 14.2). In the average district, shutting down WWI shock would cut Bolshevik support by 21 percent (a decrease of 3=1.6 (100*0.4*0.04) + 1.4 (100*0.07*0.2) percentage points out of 14.2). Thus, if these variables lose their force, we would see a decrease in the Bolshevik vote share by thirty-nine percent, shifting the level of their popularity closer to the levels of communist parties in Germany and France during the interwar period.

6. Conclusion

Despite the modest electoral success of communist parties, the radical left in the early twentieth century manufactured enormous global political and economic change. The avenue of their political success was often revolution and dictatorship, which the Bolshevik Revolution epitomized. One explanation for why leftist movements chose the nondemocratic path rests on the instability of democracy in agrarian societies.

The necessity of a dictatorship of the proletariat to ultimately reach a socialist democracy arises from a commitment problem that Lenin argued was laden in democratic governance in Russia in 1917. Given the Bolsheviks' aim of rapid industrialization in a predominantly agrarian

economy, the dramatic changes necessary to redirect the organization of production, which required large amounts of cheap labor and food supplied to factories, would have made the necessary transfers for continued support by rural residents counterproductive to the objectives of the regime. Importantly, the Bolsheviks need not have correctly anticipated this conflict to opt for autocratic control instead of democracy. They could have felt emboldened to break the social contract of the election because of a self-enforcing promise of future democratic rule under a proletariat majority, once their development strategy had been fulfilled (Fearon 2011). Hence, knowledge of the electoral preferences of the Russian population, both for peasants (the pivotal voter in a democracy in 1917) and industrial workers (the pivotal voter of a future socialist democracy) is crucial for understanding the equilibrating properties of this political transition.

We show that dynamic inconsistency in democratic rule in 1917 is unlikely. We present evidence in favor of Lenin's assessment of the (in)effectiveness of democracy with respect to the Bolshevik vision for reform, but we also show that his promise of socialist democracy in the future was already not credible in 1917. Thus, the Bolshevik political rule put forward was not an equilibrium strategy and could not have resolved the dynamic inconsistency of democracy in Russia. Our data and empirical context do not allow us to speak to whether the social democrats political rule would have been a successful equilibrium strategy. However, we note that there are many more examples today that cast doubt on the credibility of a promise of a return to democracy after the objective of large-scale economic change has been achieved. Under a completely different ideology, reformers during the 1990s transition in Russia and other post-communist countries also pushed for policies costly to median citizens' welfare with a promise of a better, more democratic tomorrow (Guriev, forthcoming). If temporary dictatorship is indeed a fragile political strategy to achieve modernization, a commitment to democratic development may produce a more stable, inclusive economy in the long run.

Finally, our investigation of the Constituent Assembly elections provides new quantitative evidence on the relationship between popular support of the Bolsheviks in 1917 and key determinants of their success identified in the literature, the establishment of the working class, demand for redistribution and the war shock. More broadly, Acemoglu and Robinson (2006) discuss several factors that are characteristic of nineteenth century Europe (a suitable comparison for early twentieth century Russia) that would have strengthened the threat of revolution: the rise of factory workers, increasing inequality, and urbanization. WWI only further instigated political

mobilization of these interests. In this view, workers, the poor, urban dwellers as well as soldiers could provide a powerful political base for the Bolsheviks. We find that Bolshevik support was driven by at least the first two of these factors and to some extent by the war shock. The Bolsheviks seized the moment to mobilize popular support from an amalgamation of different groups with conflicting interests – industrial workers, peasants and soldiers. These results underscore the importance of the theoretical work on coalition formation in non-democracies (Acemoglu et al. 2008, 2015) and suggest a fruitful area of future research to analyze the tradeoff between mass mobilization for political opposition or civil war under different coalitions.

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Figure 1: Bolshevik election fingerprint of the 1917 Constituent Assembly elections
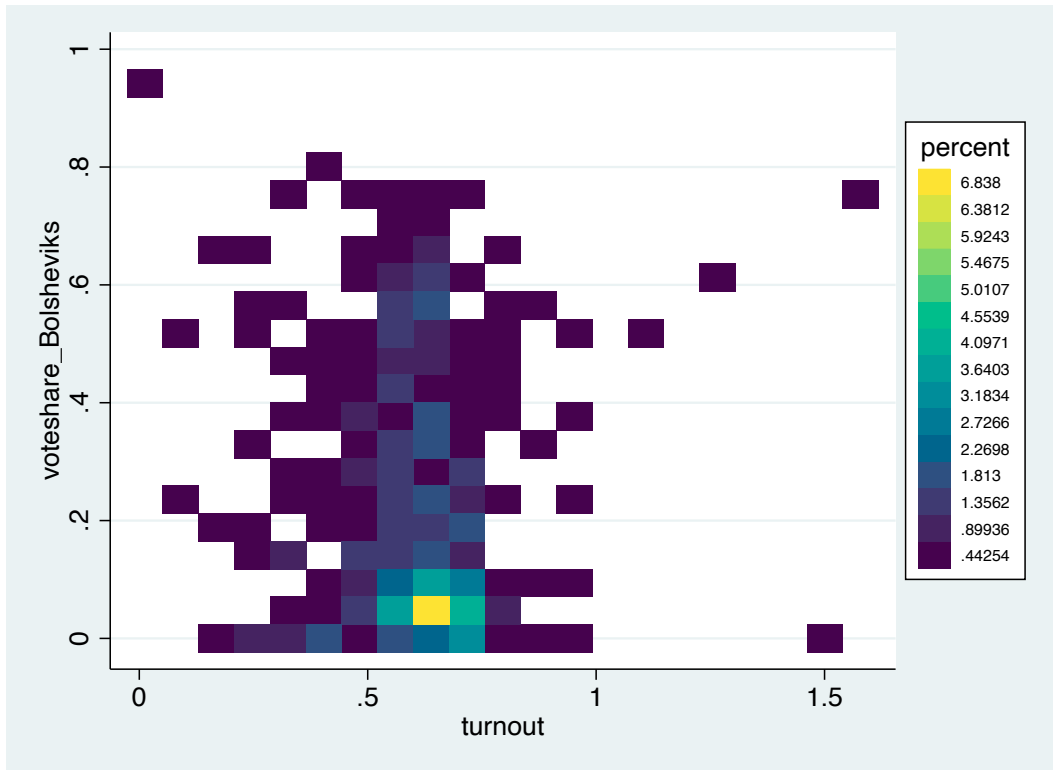
Notes: The y-axis is the votes that the Bolsheviks took as a share of total votes cast and the x-axis is the share of the voting-age population that cast votes. The color key indicates the frequency that each coordinate is observed in district elections as a percentage of the total number of district elections.

Figure 2. Share of votes for the Bolsheviks at 1917 Constituent Assembly elections
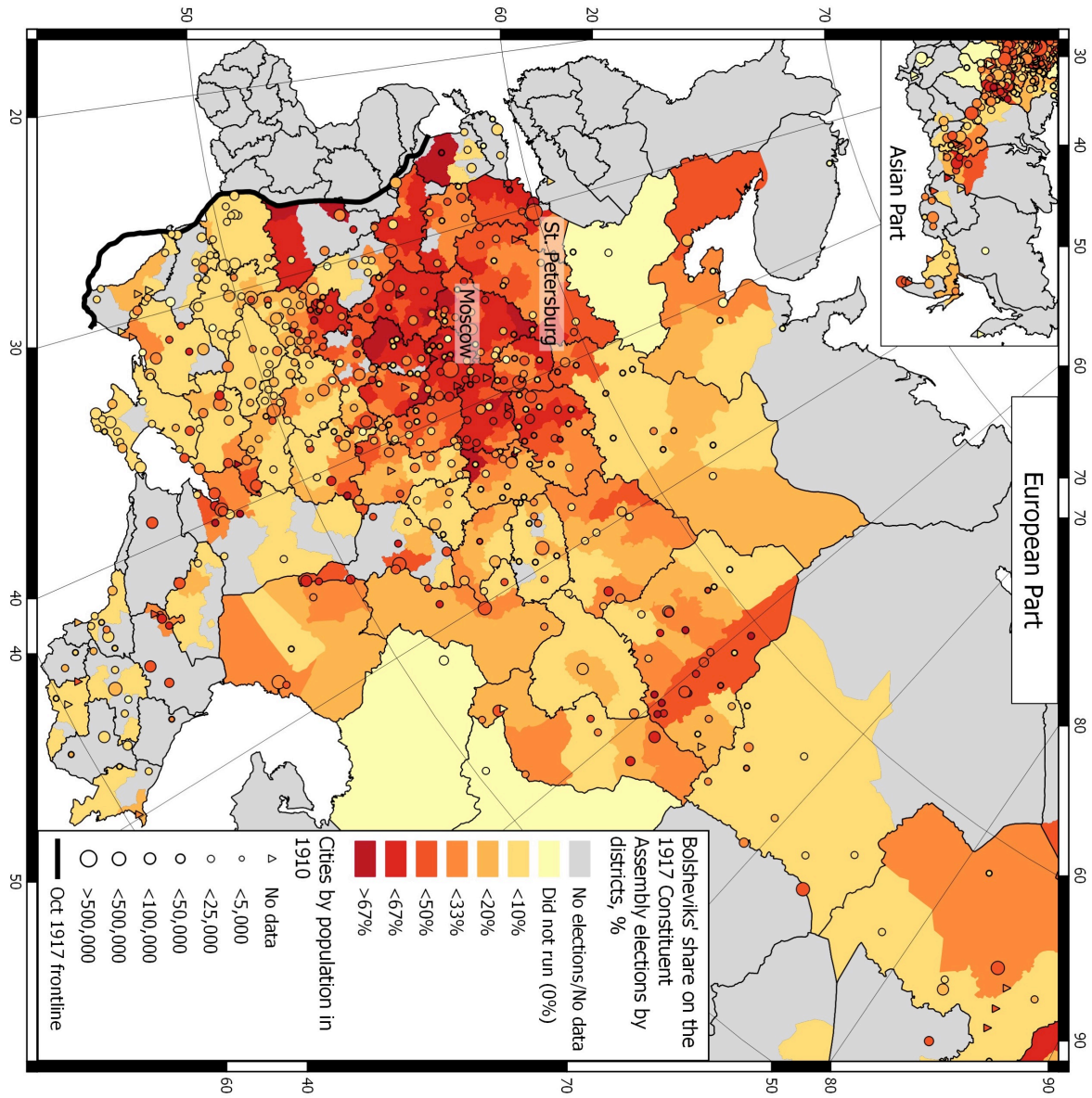
Notes: Europe Lambert Conformal Conic projection is used. Thin black lines stand for province boundaries; shading represents within province administrative division, i.e. districts.

Table 1. Descriptive Statistics of district-level results of the 1917 elections and district characteristics

Variable	Obs	Mean	Std. Dev.	Min	Max
Votes	467	72101.21	43156.06	2029	299828
Votes for the Bolsheviks	467	15279.41	15249.01	0	112176
Share of votes for the Bolsheviks among those who voted	467	0.241	0.218	0	0.942
Turnout (those who voted relative to the estimated voting-age population)	467	0.592	0.159	0.013	1.579
Share of votes for the Bolsheviks among the estimated voting-age population	467	0.142	0.141	0	1.155
Proletarians per voting age population (share of employees occupied in industrial sectors in 1897 among citizens in voting age)	467	0.055	0.057	0.0005	0.593
Share of grain crops on private land in 1913	465	0.235	0.181	0	0.955
Changes in gender balance in rural areas between 1913 and 1916 (percentage points)	456	0.071	0.031	-0.245	0.165
Garrison dummy	353	0.402	0.491	0	1
Number of military hospitals in a district in 1915	384	7.599	12.706	0	162
Male proletarians per voting age population (share of male employees occupied in industrial sectors in 1897 among citizens in voting age)	467	0.044	0.039	0.0004	0.325
Female proletarians per voting age population (share of female employees occupied in industrial sectors in 1897 among citizens in voting age)	467	0.011	0.021	0	0.268
Unskilled proletarians per voting age population (share of employees occupied in unskilled industrial sectors in 1897 among citizens in voting age)	467	0.047	0.051	0.0004	0.575
Skilled proletarians per voting age populations (share of employees occupied in skilled industrial sectors in 1897 among citizens in voting age)	467	0.008	0.011	.00009	0.099
Number of workers per factory in 1900	421	96.015	70.906	11.562	337.226
Number of defence factories in a province (accroding to 1918 retrospective census)	279	133.785	156.616	15	752
Zemstvo dummy	467	0.859	0.349	0	1
Share of thrid (peasant) curia seats in district zemstvo in 1864	467	0.303	0.191	0	0.690
Share of redemption obligations reduced in a regular order in 1883	467	0.117	0.075	0	0.533
Share of redemption obligations reduced in a special order in 1883	467	0.086	0.122	0	0.785
Election started late dummy	455	0.303	0.460	0	1
Duration of election (days)	455	5.409	9.317	2	50
Bolsheviks first controlled local soviets before December 3rd, 1917	399	0.459	0.499	0	1
Bolsheviks first controlled local soviets between December 4th 1917 and January 31st, 1918	399	0.343	0.475	0	1
Bolsheviks first controlled local soviets after February 1st, 1918	399	0.078	0.268	0	1
Urban share in1913	467	0.010	0.116	0	0.873
Total crop area per rural citizen in 1913 (in hectares per thousand citizens)	467	505.698	334.42	0	2804.17
Share of speakers of Eastern Slavic languages in 1897	466	0.811	0.289	0.001	0.9997
District population in 1913 (thousands)	467	242.603	150.683	37.3	1790.5

Notes: The summary statistics are reported for the sample used in the regression analysis in this paper. The unit of observation is a district.

Table 2. The Effect of the Proletariat on Bolshevik Support

VARIABLES	(1) OLS	(2) First stage	(3) IV	(4) Reduced-form	(5)	(6)	(7) OLS	(8)	(9)
Proletariat per voting age population	0.37**		2.53**					0.28	0.65**
	[0.148]		[1.045]					[0.220]	[0.261]
LC_2sls confidence interval			[0.77, 5.74]						
Coal dummy		0.03***		0.07**					
		[0.008]		[0.029]					
Female proletariat per voting age population					-0.65*	0.39*			
					[0.364]	[0.230]			
Male proletariat per voting age population					0.92***				
					[0.289]				
Unskilled proletariat per voting age population							0.30**		
							[0.131]		
Skilled proletariat per voting age population							0.91		
							[0.657]		
Number of defence factories*Proletariat per voting age								-0.001	
								[0.000]	
Number of workers per factory in 1900*Proletariat per									-0.41
									[0.297]
Share Eastern Slavic language speakers in 1897	0.10***	0.03**	0.02	0.10***	0.09**	0.11***	0.10***	0.14***	0.10**
	[0.034]	[0.014]	[0.060]	[0.036]	[0.036]	[0.033]	[0.035]	[0.041]	[0.039]
Share urban population in 1913	-0.10	0.12***	-0.33***	-0.04	-0.15	-0.06	-0.11	-0.24**	-0.14
	[0.101]	[0.036]	[0.113]	[0.097]	[0.120]	[0.112]	[0.107]	[0.114]	[0.111]
Total crop area per rural citizen in 1913	-0.00**	-0.00*	0.00	-0.00***	-0.00**	-0.00**	-0.00**	-0.00*	-0.00***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	-0.02	0.03		0.04	-0.02	-0.02	-0.02	0.03	0.02
	[0.031]	[0.018]		[0.040]	[0.033]	[0.031]	[0.032]	[0.035]	[0.035]
Observations	466	447	446	446	466	466	466	279	421
R-squared	0.604	0.638	-0.843	0.606	0.613	0.595	0.606	0.549	0.598

Notes: An administrative district is the unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians (of the corresponding gender or skills) is defined as all occupied in industry and mining (of these gender or skill group) divided by eligible voters. Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. LC_2sls 95 percent confidence interval is computed using the Stata command twostepweakiv. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table 3. Redistributive Policies, Democratic Experience and Support for the Bolsheviks

VARIABLES	(1)	(2)	(3)	(4)	(5)
			OLS		
Proletariat per voting age population	0.38***	0.36**	0.33**	0.31**	0.33**
	[0.137]	[0.151]	[0.139]	[0.148]	[0.150]
Share of grain crops on private land in 1913	0.11**	0.11***	0.11***	0.08*	0.14***
	[0.044]	[0.042]	[0.042]	[0.043]	[0.043]
No high quality soil dummy		-0.05*			
		[0.028]			
Share of grain crops on private land in 1913* No high quality soil dummy		-0.12			
		[0.109]			
Share of redemption obligations reduced by regular procedures in 1883			-0.07		
			[0.098]		
Share of redemption obligations reduced by special procedures in 1883			0.16*		
			[0.083]		
Share of third curia seats in zemstvo in 1864				-0.15*	
				[0.084]	
Share of second curia seats in zemstvo in 1864				0.15	
				[0.118]	
Zemstvo expenditures on education per peasant					-0.001***
					[0.000]
Share of Eastern Slavic language speakers in 1897	0.10***	0.10***	0.11***	0.10***	0.08**
	[0.033]	[0.033]	[0.033]	[0.031]	[0.038]
Share of urban population in 1913	-0.11	-0.11	-0.10	-0.13	-0.19*
	[0.099]	[0.092]	[0.094]	[0.093]	[0.106]
Total crop area per rural citizen in 1913	-0.00**	-0.00**	-0.00**	-0.00*	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	-0.02	-0.02	-0.02	-0.03	-0.00
	[0.031]	[0.030]	[0.033]	[0.029]	[0.025]
Observations	464	464	464	464	341
R-squared	0.611	0.612	0.618	0.623	0.573

Notes: An administrative district is the unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians (of the corresponding gender or skills) is defined as all occupied in industry and mining (of these gender or skill group) divided by eligible voters. Private lands refer to lands with private (non-communal) tenure, and Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table 4. Heterogeneous Proletariat Support for the Bolsheviks

VARIABLES	(1)	(2)	(3)	(4)	(5)
			OLS		
Proletariat per voting age population	1.33***	0.76**	0.75***		
	[0.404]	[0.331]	[0.153]		
Zemstvo*Proletariat per voting age population	-0.99**				
	[0.460]				
Share of grain crops on private land in 1913	0.10***	0.10**	-0.07	-0.06	-0.09
	[0.037]	[0.045]	[0.057]	[0.057]	[0.057]
Deficit Region*Proletariat per voting age population		-0.65*			
		[0.371]			
Share of grain crops on private land in 1913*Proletariat per voting age population			3.03***		
			[1.026]		
Share of grain crops on private land in 1913*Male proletariat per voting age population				3.17**	
				[1.358]	
Share of grain crops on private land in 1913*Female proletariat per voting age population				0.36	
				[4.927]	
Female proletariat per voting age population				-0.14	
				[0.995]	
Male proletariat per voting age population				1.00***	
				[0.234]	
Share of grain crops on private land in 1913*Unskilled proletariat per voting age population					4.18***
					[1.181]
Share of grain crops on private land in 1913*Skilled proletariat per voting age population					-1.44
					[4.187]
Unskilled proletariat per voting age population					0.91***
					[0.223]
Skilled proletariat per voting age population					0.58
					[0.751]
Share of Eastern Slavic language speakers in 1897	0.10***	0.09**	0.11***	0.10***	0.10***
	[0.033]	[0.036]	[0.035]	[0.036]	[0.036]
Share of urban population in 1913	-0.13	-0.13	-0.16*	-0.18*	-0.18*
	[0.101]	[0.108]	[0.097]	[0.105]	[0.098]
Total crop area per rural citizen in 1913	-0.00***	-0.00***	-0.00***	-0.00***	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	-0.01	-0.01	-0.04	-0.03	-0.04
	[0.030]	[0.035]	[0.031]	[0.031]	[0.032]
Observations	464	464	464	464	464
R-squared	0.616	0.621	0.634	0.636	0.637

Notes: An administrative district is the unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Private lands refer to lands with private (non-communal) tenure, and Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table 5. War and Support for the Bolsheviks

VARIABLES	(1)	(2)	(3)	(4)
		OLS		
Proletariat per voting age population	0.36**	0.30*	0.30	0.19
	[0.148]	[0.147]	[0.214]	[0.194]
Change in rural gender balance between 1913 and 1916	-0.10		-0.13	
	[0.161]		[0.163]	
Garrison dummy		0.04**		0.03
		[0.016]		[0.022]
Hospitals per voting age population in 1915		0.22**		0.20
		[0.099]		[0.132]
Change in rural gender balance between 1913 and 1916*Proletariat per voting age population			5.75*	
			[3.404]	
Hospitals per voting age population in 1915*Proletariat per voting age population				0.51
				[0.882]
Garrison dummy*Proletariat per voting age population				0.19
				[0.252]
Share of Eastern Slavic language speakers in 1897	0.10***	0.06	0.10***	0.06
	[0.033]	[0.035]	[0.031]	[0.038]
Total crop area per rural citizen in 1913	-0.00**	-0.00**	-0.00**	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]
Share of urban population in 1913	-0.12	-0.17*	-0.07	-0.17
	[0.108]	[0.093]	[0.083]	[0.111]
Constant	-0.01	0.06	-0.02	0.07
	[0.038]	[0.036]	[0.031]	[0.044]
Observations	455	299	455	299
R-squared	0.601	0.614	0.607	0.615

Notes: An administrative district is the unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table 6. Election Irregularities, Regime Change, Turnout and Determinants of Voting for the Bolsheviks

VARIABLES	(1)	(2)	(3)	(4)	(5)
			OLS		
Proletarians per voting age population in 1897	0.30**	0.27**	0.26**	0.37***	0.32**
	[0.133]	[0.121]	[0.123]	[0.138]	[0.140]
Duration of election (days)	0.00	0.02***	0.01*		
	[0.008]	[0.004]	[0.004]		
Election started late	0.04	0.02	0.02		
	[0.030]	[0.019]	[0.033]		
Bolsheviks first controlled soviets before December 3rd, 1917		-0.00	-0.02		
		[0.018]	[0.012]		
Bolsheviks first controlled soviets between December 4th 1917 and January 31st, 1918		0.01	-0.01		
		[0.019]	[0.012]		
Bolsheviks first controlled soviets after February 1st, 1918		-0.04	-0.06***		
		[0.041]	[0.021]		
Turnout			0.35***		
			[0.107]		
Share of Eastern Slavic language speakers in 1897	0.10***	0.11***	0.10***	0.10***	0.06
	[0.033]	[0.037]	[0.031]	[0.033]	[0.035]
Urban share in 1913	-0.09	-0.10	0.01	-0.13	-0.19**
	[0.109]	[0.120]	[0.066]	[0.104]	[0.090]
Total crop area per rural citizen in 1913	-0.00**	-0.00*	-0.00	-0.00**	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Share of grain crops on private land in 1913				0.11**	0.12***
				[0.045]	[0.037]
Change in rural gender balance between 1913 and 1916				-0.07	
				[0.153]	
Hospitals in 1915 per voting age population					0.20*
					[0.098]
Garrison dummy					0.04**
					[0.016]
Constant	-0.03	-0.07**	-0.32***	-0.01	0.03
	[0.039]	[0.033]	[0.081]	[0.036]	[0.036]
Observations	454	386	386	454	299
R-squared	0.607	0.583	0.714	0.608	0.623

Notes: An administrative district is the unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Private lands refer to lands with private (non-communal) tenure, and Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Appendix

A1. An evolution of the Soviet Political Regime, according to Soviet Constitutions (1918, 1924, 1936 and 1977)

The First Soviet Constitution (1918) declared an introduction of the dictatorship of the proletariat as the primary tool to crush bourgeoisie, to destroy exploitation of humans and to develop socialism during the transition period (article 9). Article 23 and 64 explicitly disenfranchised representatives of former exploitative classes (capitalists, gentry, clergy etc.) with voting rights. And Article 25 established unequal representation quotas for urban and rural areas under indirect ballot. Urban dwellers got about five times more seats per citizen with voting rights than rural citizens.

These legal norms appeared in the Constitution of the Soviet Union (1924) with one exception. The union constitution had no explicit article on disenfranchisement rules since constitutions of union republics regulated this procedure.

The 1936 constitution, adopted under Stalin rule, confirmed the dictatorship of the proletariat as one of the core stone of the Soviet political regime (article 2). However, in contrast to 1918 and 1925 Soviet constitutions, it granted universal voting rights to all Soviet citizens above 18 years old and established direct secret balloting, at least on paper. I.e. formal discrimination in favor of industrial workers from urban areas was abandoned.

Finally, 1977 Soviet constitutions declared in its preamble that the dictatorship of proletariat had reached its goals, and the Soviet Union became an all-people state where all citizens had equal rights, i.e. popular democracy on paper.

The following table summarizes a legal evolution of Soviet political regime:

Year	1918	1924	1936	1977
Dictatorship of the Proletariat	Yes	Yes	Yes	No
Indirect and unequal balloting (1 urban voter ≈ 0.17 rural voter)	Yes	Yes	No	No
Disenfranchisement of citizens belonging to 'former' classes (capitalists, gentry, clergy etc.)	Yes	No *	No	No

*The constitution of the Soviet Union has no such articles, but constitutions of the union republics had them.

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Table B1. Data sources and time span of the data

Variable:	Years:	Source:
Share for the Bolsheviks	1917	Protasov et al. (2014)
Population	1897, 1913	Trojnitskij N.A. (1900-1910), Central Statistical Committee (1914a)
Urban share	1913	Central Statistical Committee (1914a)
Total crop area	1913, 1916	Central Statistical Committee (1913b) Special Food Committee of Russian Empire (1916)
Grain crops on private lands	1916	Special Food Committee of Russian Empire (1916)
Grain yield	1913-1914	Central Statistical Committee (1913b, 1914b)
Changes in gender balance	1913 to 1916	Castaneda Dower and Markevich (2018)
Garrison dummy	1917	Protasov et al. (2014)
Occupations by sector and gender (including industrial workers i.e. the proletariat)	1897	Trojnitskij N.A. (1900-1910)
Population by gender and ethnicity	1897	Trojnitskij N.A. (1900-1910)
Literacy	1897	Trojnitskij N.A. (1900-1910)
Land inequality Gini index	1905	Central Statistical Committee (1905-1907)
Lands with repartition tenure	1905	Central Statistical Committee (1905-1907)
Regional income per capita	1897	Markevich (2019)
Share of the 3rd curia seats in local zemstvos in 1864	1864	Castaneda Dower et al. (2017)
Reduction in redemption payments in 1883	1883	Castaneda Dower et al. (2017)
Carboniferous strata dummy*	Modern	Asch, K. (2005)
Industrial serfs	1793	Beskrovnii et al. (1972)
Private serfs	1858	Trojnitskij A.G. (1861)

Defense factories	1918	Central Statistical Agency (1925)
Average factory size	1900	Gregg (2020)
High quality soil**	Modern	Harmonized World Soil Database v 1.2 publicly available at http://www.fao.org/soils-portal/soil-survey/soil-maps-and-databases/harmonized-world-soil-database-v12/en/
Land captains	1913	Central Statistical Committee (1914a)
Turnout at the 3rd Duma elections	1907	Nazrullaeva (2020)

* The dummy equales to one if the district has geological stratus from the following list: 'Carboniferous', 'Early Carboniferous',   'Late Carboniferous', 'Carboniferous - Permian', 'Carboniferous - Middle Permian', 'Late Carboniferous - Middle Permian', 'Devonian - Carboniferous', 'Devonian - Early Carboniferous', 'Middle Devonian - Carboniferous', 'Middle Devonian - Early Carboniferous', 'Late Devonian - Carboniferous', 'Late Devonian - Early Carboniferous', 'Late Devonian - Late Carboniferous',   'Cambrian - Carboniferous' , 'Ordovician - Carboniferous' , 'Ordovician - Early Carboniferous' , 'Proterozoic - Carboniferous'.

** Our definition of high quality soil includes: Chernozems (FAO 90 Symbols: CHh, CHk, Chl ,CHw), Greyzems (FAO 90 Symbols: GRh), Histosoils (FAO 90 Symbols: HSf, HSi, HSl, HSs), Kastanozems (FAO 90 Symbols: KSh, KSk, KSl), Phaeozems (FAO 90 Symbols: PHc, PHg, PHh, PHl).

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Table B2. Selection on observables

Variable	Districts with election data			Districts without election data			Difference in means		Difference in deviations from constituency means	
	Obs	Mean	Std. Err.	Obs	Mean	Std. Err.	Difference	p-value	Difference	p-value
Share of proletariat (share of employees occupied in industrial sectors among all with source of income in 1897)	471	0.13	0.1	286	0.11	0.08	0.022	0.002	0.0003	0.952
Share of female proletariat (share of female employees occupied in industrial sectors among all with source of income in 1897)	471	0.02	0.04	286	0.02	0.02	0.006	0.012	0.00001	0.994
Share of male proletariat (share of male employees occupied in industrial sectors among all with source of income in 1897)	471	0.11	0.07	286	0.09	0.06	0.016	0.003	0.0003	0.942
Share of unskilled proletarians (share of female employees occupied in relatively unskilled sectors among citizens with sources of income in 1897)	471	0.116	0.09	286	0.098	0.07	0.018	0.004	0.0003	0.949
Share of skilled proletarians (share of male employees occupied in relatively skilled sectors among citizens with sources of income in 1897)	471	0.018	0.02	286	0.014	0.012	0.004	0.01	0.00002	0.988
Share of grain crops on private lands in 1913	469	0.235	0.18	270	0.28	0.21	-0.048	0.001	0.0001	0.99
Changes in gender balance between 1913 and 1916 (percentage points)	460	0.07	0.03	118	0.06	0.04	0.011	0.001	0.0005	0.865
Garrison dummy	355	0.4	0.49	82	0.22	0.42	0.183	0.002	0.008	0.888
Number of military hospitals in a district in 1915	385	7.59	12.69	69	3.39	5.8	4.2	0.01	-0.0000001	0.999
Share of speakers of Eastern Slavic languages in 1897	470	0.81	0.29	286	0.29	0.35	0.521	0.00001	0.0013	0.941
Urban share in 1913	471	0.1	0.12	258	0.14	0.15	-0.039	0.0001	-0.00004	0.996
Total crop area per rural citizen in 1913 (in hectares per thousand citizens)	471	515.04	353.15	272	401.33	340.43	113.71	0.00001	0.658	0.975
District population in 1913 (thousands)	471	242.32	150.17	277	202.32	196.33	39.99	0.002	0.24	0.983
Share of population that is voting age in 1897	470	0.51	0.04	286	0.52	0.049	-0.01	0.001	-0.0001	0.976

Note: To test for differences across districts, variables are demeaned with constituency-specific averages to reflect our empirical strategy. The difference is then driven by districts within constituencies that have or do not have voting data.

Table B3. The Effect of the Proletariat on Bolshevik Support. Subsample of districts without those districts where the Bolsheviks did not run or run in coalitions with other parties

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				OLS				
Proletariat per voting age population	0.36**	2.50**					0.27	0.64**
	[0.149]	[1.020]					[0.215]	[0.263]
LC_2sls confidence interval		[0.58, 5.43]						
Coal dummy			0.07**					
			[0.031]					
Female proletariat per voting age population				-0.67*	0.37			
				[0.364]	[0.229]			
Male proletariat per voting age population				0.91***				
				[0.292]				
Unskilled proletariat per voting age population						0.29**		
						[0.130]		
Skilled proletariat per voting age population						0.93		
						[0.661]		
Number of defence factories*Proletariat per voting age population							-0.001	
							[0.000]	
Number of workers per factory in 1900*Proletariat per voting age population								-0.41
								[0.297]
Share Eastern Slavic language speakers in 1897	0.10***	0.03	0.09**	0.09**	0.11***	0.10**	0.15***	0.10**
	[0.038]	[0.065]	[0.040]	[0.041]	[0.036]	[0.039]	[0.047]	[0.044]
Share urban population in 1913	-0.10	-0.32***	-0.04	-0.16	-0.07	-0.12	-0.23*	-0.14
	[0.104]	[0.109]	[0.098]	[0.124]	[0.115]	[0.110]	[0.115]	[0.112]
Total crop area per rural citizen in 1913	-0.00**	0.00	-0.00**	-0.00**	-0.00**	-0.00**	-0.00*	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	-0.02		0.05	-0.01	-0.01	-0.02	0.02	0.01
	[0.036]		[0.046]	[0.039]	[0.037]	[0.037]	[0.036]	[0.038]
Observations	431	417	417	431	431	431	262	402
R-squared	0.593	-0.828	0.601	0.602	0.584	0.595	0.546	0.598

Notes: An administrative district is a unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. LC_2sls 95 percent confidence interval is computed using the Stata command twostepweakiv. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table B4. The Effect of the Proletariat on Bolshevik Support. An extension

VARIABLES	(1) First stage	(2) IV	(3) OLS	(4)	(5) IV
	Two instruments		City-level	Russians	
Proletarians per voting age population in 1897		1.59**		0.34**	2.40**
		[0.727]		[0.145]	[1.057]
LC_2sls confidence interval		[0.33, 4.17]			[0.77, 5.74]
Proletarians per voting age population in 1910			0.14*		
			[0.079]		
Carboniferous strata dummy	0.02***				
	[0.007]				
Industrial serfs per capita in 1793	0.31***				
	[0.102]				
Serfs per capita in 1858	0.03*	0.001			
	[0.018]	[0.047]			
Share of Eastern Slavic language speakers in 1897	0.02	0.10**	-0.02		
	[0.021]	[0.050]	[0.048]		
Urban share in 1913	0.07	-0.31***		-0.13	-0.33***
	[0.053]	[0.069]		[0.094]	[0.106]
Total crop area per rural citizen in 1913	-0.00***	0.00		-0.00**	0.00
	[0.000]	[0.000]		[0.000]	[0.000]
Share of Russians in 1897				0.14***	0.08
				[0.046]	[0.050]
City population in 1910 (log)			0.02***		
			[0.006]		
Constant	0.02		-0.06	-0.05	
	[0.017]		[0.074]	[0.031]	
Observations	344	344	480	466	446
R-squared	0.690	-0.207	0.555	0.621	-0.717

Notes: An administrative district is a unit of observation in columns (1) to (2) and (4) to (5), and a city is unit is observation in column (3). Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. LC_2sls 95 percent confidence interval is computed using the Stata command twostepweakiv. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table B5. The Effect of the Proletariat. Additional Robustness test

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				OLS			
Proletarians per voting age population in 1897	0.36**	0.40**	0.37**	0.33**	0.34*	0.36**	0.33*
	[0.160]	[0.151]	[0.159]	[0.150]	[0.173]	[0.161]	[0.165]
Grain surplus per capita in 1913	0.02						
	[0.047]						
Change in hectars under grain crops per citizen between 1913 and 1916	0.04						
	[0.028]						
Gender ration in 1897		0.14					
		[0.173]					
Population growth between 1897 and 1913			0.01				
			[0.041]				
Rural density in 1913			-0.00				
			[0.000]				
Literacy in 1897				0.11			
				[0.143]			
Railways density					-0.45		
					[0.330]		
Rivers density						-1.13	
						[1.082]	
Soil quality						-0.02	
						[0.035]	
Deviation of temperature in 1917						-0.01	
						[0.015]	
Deviation of precipitation in 1917						0.01	
						[0.012]	
Turnout at subdistrict peasant meetings in 1907							0.00
							[0.001]
Preliminary meetings turnout in 1907							-0.00
							[0.000]
Landowners turnout in 1907							0.00
							[0.000]
Turnout of the first group of city dwellers in 1907							0.00
							[0.000]
Turnout of the second group of city dwellers in 1907							0.00
							[0.001]
Industrial workers turnout in 1907							-0.00
							[0.000]
Share of Eastern Slavic language speakers in 1897	0.10***	0.08**	0.11***	0.11***	0.10***	0.10***	0.09**
	[0.034]	[0.036]	[0.032]	[0.034]	[0.033]	[0.035]	[0.034]
Urban share in 1913	-0.13	-0.07	-0.09	-0.14	-0.07	-0.12	-0.13
	[0.109]	[0.068]	[0.083]	[0.128]	[0.066]	[0.108]	[0.095]
Total crop area per rural citizen in 1913	-0.00**	-0.00**	-0.00***	-0.00**	-0.00**	-0.00**	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	0.05	-0.11	0.03	-0.03	0.03	0.04	0.03
	[0.047]	[0.158]	[0.045]	[0.029]	[0.033]	[0.042]	[0.059]
Observations	421	415	464	466	414	414	398
R-squared	0.601	0.588	0.613	0.605	0.591	0.588	0.603

Notes: A district is a unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Private lands refer to lands with private (non-communal) tenure, and Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table B6. The Proletariat, Redistribution, War and Support for the Bolsheviks. An Extension

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				OLS				
Proletarians per voting age population in 1897	0.38***	0.41***	0.28**	0.37**	0.35**	0.36**	0.36**	0.40**
	[0.140]	[0.152]	[0.133]	[0.143]	[0.174]	[0.144]	[0.147]	[0.154]
Share of grain crops on private land in 1913	0.12**	0.15***	0.04					
	[0.045]	[0.044]	[0.045]					
Private land gini		-0.04						
		[0.047]						
Commune land gini		-0.06						
		[0.073]						
Grain yield per area unit in 1913	-0.05	-0.06						
	[0.048]	[0.055]						
Agricultural machines per capita	-0.06	-0.02						
	[0.415]	[0.456]						
Share of grain crops on private land in 1913*Garrison dummy			0.13**					
			[0.062]					
Garrison dummy			0.03**					
			[0.015]					
Share of grain crops on private land in 1913*Hospitals in 1915 per voting age population			-1.03***					
			[0.377]					
Hospitals in 1915 per voting age population			0.10					
			[0.060]					
Change in rural gender balance between 1913 and 1916				0.00	-0.28	0.18	-0.06	-0.17
				[0.181]	[0.657]	[0.453]	[0.454]	[0.153]
Change in rural gender balance between 1913 and 1916*Distance to the front				-0.01				
				[0.011]				
Distance to the front				-0.00				
				[0.003]				
Change in rural gender balance between 1913 and 1916*Provincial real income per capita					0.00			
					[0.009]			
Change in rural gender balance between 1913 and 1916*Zemstvo dummy						-0.30		
						[0.464]		
Change in rural gender balance between 1913 and 1916*Share of Eastern Slavic language speakers in							-0.05	
							[0.643]	
Change in rural gender balance between 1913 and 1916*Number of land captains per capita								0.79
								[0.610]
Number of land captains per capita								1.59
								[1.623]
Share of Eastern Slavic language speakers in 1897	0.10***	0.09***	0.08**	0.09***	0.10***	0.10***	0.10	0.10***
	[0.034]	[0.033]	[0.030]	[0.031]	[0.033]	[0.033]	[0.066]	[0.033]
Urban share in 1913	-0.11	-0.14	-0.16*	-0.12	-0.11	-0.12	-0.12	-0.09
	[0.095]	[0.092]	[0.083]	[0.108]	[0.094]	[0.110]	[0.108]	[0.086]
Total crop area per rural citizen in 1913	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	0.02	0.08	0.06	0.18	-0.00	-0.03	-0.01	-0.02
	[0.057]	[0.075]	[0.035]	[0.203]	[0.040]	[0.053]	[0.056]	[0.057]
Observations	463	415	299	454	455	455	455	419
R-squared	0.613	0.598	0.635	0.602	0.601	0.601	0.601	0.602

Notes: A district is a unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Share of proletarians is defined as all occupied in industry and mining divided by eligible voters. Private lands refer to lands with private (non-communal) tenure, and Eastern Slavic languages refer to Russian, Ukrainian and Byelorussian. Urban share refers to legally defined urban settlements only. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.

Table B7. Geographical Determinants of Bolsheviks support at the 1917 Constituent Assembly elections

VARIABLES	(1)	(2)
	OLS	
North	-0.26***	
	[0.073]	
Northwest	0.04	
	[0.082]	
Baltics	0.04	
	[0.247]	
Bellorussia	0.07	
	[0.113]	
BlackEarth	-0.17**	
	[0.079]	
Volga	-0.27***	
	[0.068]	
Urals	-0.25***	
	[0.071]	
South	-0.26***	
	[0.070]	
West Ukraine	-0.37***	
	[0.063]	
East Ukraine	-0.27***	
	[0.076]	
South Ukraine	-0.33***	
	[0.066]	
Caucase	-0.38***	
	[0.063]	
Siberia	-0.30***	
	[0.076]	
CentralAsia	-0.41***	
	[0.063]	
Distance to Moscow		0.01
		[0.005]
Distance to Saint Petersburg		-0.03***
		[0.006]
War front province dummy		0.15
		[0.109]
Distance to the war front		0.02***
		[0.004]
Constant	0.42***	0.34***
	[0.063]	[0.036]
Observations	467	466
R-squared	0.469	0.341

Notes: A district is a unit of observation. Units are weighted by population. Standard errors are clustered by constituencies. Central Industrial Region is the reference region. Robust standard errors in brackets. *** indicates p-value <0.01, ** p-value <0.05, * p-value<0.1.