The Anatomy of the Great Terror: A Quantitative Analysis of the 1937-38 Purges in the Red Army*

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Abstract

Elite purges are an instrument of power control in authoritarian regimes. The purges in the Soviet Red Army during the 1937-38 Great Terror were one of the most intensive on record. Within two years, almost two thirds of the 1,863 officers holding general-grade military ranks in 1936 were arrested; almost a half were executed. To analyze the patterns of repression among the Soviet high command, we compile a biographical data set from a large number of open and archival sources. Some of our findings should be familiar to historians: probability of being repressed was higher for certain ethnic minorities, higher ranks, and those with prior foreign contacts. Overall, our findings confirm that Stalin was not reacting to any imminent conspiracy threat but rather sought to preemptively minimize the risk of a possible coup. We show that Stalin specifically targeted the most competent officers: controlling for other characteristics, including the military rank and party history, the probability of repression was much higher for younger cadres. Combined with the results that military promotions in 1941 were, other things equal, inversely related to age, this is the first systematic evidence that the Great Terror directly impacted the disastrous Red Army performance in the first year of the German invasion.

Keywords: nondemocratic politics, repression, Stalin.

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Introduction

Purges are one of the main instruments used by authoritarian rulers to keep both masses and elites, including the military and security forces, in check. Purges allow dictators to consolidate power by deterring possible coup attempts (Svolik, 2009), preventing elites from coordinating on a policy undesirable to the leader (Landa and Tyson, 2017; Tyson, 2018), or screening agents to induce a higher level of effort (Montagnes and Wolton, 2019). Naturally, purges reduce the costs of elite cooptation and leave more resources for the ruler's personal consumption (Bove, Platteau and Sekeris, 2017; Rozenas and Zhukov, 2019). Purges of military elites are commonly used by autocratic rulers to reduce threats to their rule. Sudduth (2017) observed military purges in 10% of all country years over 1969-2003 in 111 countries.[1]

The Stalin's purge of the Soviet military during the Great Terror (1937-1938) is one of the most sweeping, famous, and well-studied episodes of elite repression in history. In less than two years, over one-half of 1,844 Soviet army officers who held general-grade military ranks by the end of 1936 were repressed, and at least 780 were executed, including 3 of the country's 5 highest-ranked officers. The episode is significant not only because of its scale and speed, but also because of its potential impact on the preparedness and capacity of the Soviet army. Historians of the era have considered the 1937-38 purge as one of the main reasons for the massive Soviet losses of life and territory in the first year of the war that followed Hitler's invasion of the USSR in June 1941.

In this paper, we focus on who and why was purged in 1937-38. We compile a dataset from a large number of open and sources on the background of Soviet generals, as well as on their positions within the military hierarchy and history of service. We are also able to measure current and prior connections between individuals in our dataset and analyze their effect on the probability of being repressed and the timing of individual arrests.

We find that several broad categories of officers were targeted in the purge. First, these were the more competent officers. Conditional on other characteristics such as rank, age, or ethnicity, officers who obtained a high rank in the Russian Empire's army had a higher probability of being repressed compared to those who did not serve or served as ordinary soldiers. A younger age significantly increased the risk of repression. Both of these findings point out in the same direction: with merit-based promotions within the armed forces, a younger officer among the two officers of a given rank would be more competent. The purge was focused on the most competent officers.

[1] There are other strategies authoritarian regimes use to contain the military, such as counterbalancing (Albrecht and Eibl, 2018) or participation in international disputes (Arbatli and Arbatli, 2016); the choice of actual coup-proofing strategies may depend on the type of dictatorship (Escribà-Folch, Böhmelt and Pilster, 2020) or the amount of resources available to the dictator (Christensen and Gibilisco, 2024).

The interpretation of age as a proxy for competence gets an additional meaning when we look at the history of promotions in the first year of the war with Germany, 1941-42. Here, the relationship between age and the probability of being promoted is again significant, but the sign is reversed. Age is a significant determinant of a promotion, and younger officers were promoted more frequently. Although admittedly correlational, this is the first systematic evidence that the military purge of 1937-1938 did affect the military capacity of the Soviet Army and might have been a cause of major defeats of the first year of the war.

Some of our findings should be familiar to historians of the Stalin era. Mikhail Tukhachevsky, one of the top military commanders executed in the purge, confessed, under torture, to be a German agent. From the first in-depth studies of Stalin's purges, foreign contacts were considered an important determinant of the likelihood of being purged (Conquest, 2008). Our systematic analysis confirms that generals officers who had foreign contacts (e.g., having previously visited Germany on official visits) faced a significantly higher probability of being repressed. Finally, the ethnicity of the generals played a role. Ethnic Russians were less likely to be repressed than non-Russians, while ethnic Latvians were especially viciously targeted.

There is no general consensus among historians whether Stalin was reacting to a threat that he thought was genuine. Some, notably the historian Robert Conquest (Conquest, 2008), believe that Tukhachevsky may have been framed by German intelligence who leaked documents to Stalin. Many other historians argue that Stalin was simply acting to preemptively eliminate potential rivals (Montefiore, 2010; Kotkin, 2017). We develop a simple theoretical model showing that purges that react to known threats should follow a different pattern compared to the preemptive eliminations of potential rivals. Our empirical analysis suggests that the purges were preventive in nature: Many of the former subordinates of Tukhachevsky and other top figures were spared, and the correlation between the probability of being purged and having your superior or subordinate purged was low.

Theoretically, an autocrat faces multiple considerations while organizing a purge. First, the dictator must deal with the threat of collective action from the military or security force and act to prevent it. Second, launching a purge is risky; on numerous occasions, the initiation of a purge provoked a coup that removed the dictator from office (such as in Uganda in 1971 or in Pakistan in 1999). Third, large-scale repression is costly, in part because it exposes the militarily depleted state to foreign threats. Fourth, the dictator may not be fully informed about the loyalty of individual members of the military or security force and must use cues, such as demographic covariates (Gregory, Schröder and Sonin, 2011; Tyson, 2018; Rozenas, 2020).

In practice, purges vary in scope and scale, from being directed against specific individuals

that pose an immediate threat to the regime to being selective at the level of population groups but not individuals to indiscriminate mass killings (Kocher, Pepinsky and Kalyvas, 2011; Finkel, 2015; Montagnes and Wolton, 2019; Sun, 2020; Van der Maat, 2020). Various factors might affect the choice of repressive strategies employed by the regimes and their outcomes, such as the level of the threat involved (Valentino, Huth and Balch-Lindsay, 2004), the state's ability to selectively apply rewards and punishment (Zhukov, 2015; Lyall and Wilson, 2009), resources available to the regime and institutional constraints regarding rent sharing (Esteban, Morelli and Rohner, 2015), stage of the conflict (Kalyvas, 2004), or quality of information about the identities of the regime enemies (Gregory, 2009; Gregory, Schröder and Sonin, 2011).[2] In some cases, purges can be initiated in response to or in anticipation of events that offer an opportunity to mobilize opposition, such as sudden natural disasters, periodic focal events, or anticipated increases in oil revenue (Ritter and Conrad, 2016; Sullivan, 2016; Wood and Wright, 2016; Dragu and Przeworski, 2019; Truex, 2019; Bell, Ritter and Wolford, 2020).

The question of which specific groups are targeted during purges (or face a higher-than-average risk of being purged) has received less attention, partly due to the empirical difficulty. According to a theoretical argument, these could be the groups for which repression is more effective in preventing collective action, such as groups that are demographically, economically, or socially more concentrated (Tyson, 2018). A different logic is exploited by Rozenas (2020): If repression is costless and citizens trade off higher loyalty vs. higher probability of regime-toppling collective action, groups that derive fewer benefits from loyalty will be repressed more heavily. Our work is the first large-N study of a purge in an armed or security force in an autocracy, looking into an episode of political violence that was concentrated over a relatively short time period, and where the possibility of collective action by the repressed was likely a significant concern for the dictator.

Several studies employed a methodology similar to ours — treating repression against individual members of subnational elites as an outcome variable — in other settings. Markevich (2016) looked at the Soviet Great Terror, but focused on a purge within a single civilian ministry with $N = 399$ employees. Similarly, the author found that ethnic minorities and those with a higher position in the Soviet hierarchy were more likely to have been repressed. However, the author did find any age effects and did not have a way to analyze the impact of past connections on the dynamics of repression. Senior officials were also more likely to be purged following the 1952 Free Officers coup in Egypt (Ketchley and Wenig, 2023).

[2] A related strand of literature focused on the decision to initiate a purge, arguing that purges are more likely following coups, when the elites are weakened and their ability to oust the dictator is lower (Sudduth, 2017), following power transitions between competing strong factions (Zhu and Zhang, 2017), in the presence of foreign threats (Di Lonardo, Sun and Tyson, 2020), or when the dictator enjoys foreign support (Boutton, 2019).

Lorentzen and Lu (2018) looked into China's 2012-2015 campaign against provincial leaders, finding that the campaign indeed targeted officials who were more likely to have been promoted through illicit means, but some factional ties reduced the risk of being repressed. Personal connections also mattered in the purge of French Vichy parliamentarians following the Second World War (Aidt, Lacroix and Méon, 2022). Buckley et al. (2020) analyzed a dataset of Russian mayors and found that having popular support and winning the election by a large margin makes it less likely that the mayor is arrested, whereas opposition mayors are more likely to face arrest. However, unlike in our paper, the authors considered a long time period, from 2002 to 2018, political repression was not the only reason why Russian mayors could be arrested (genuine corruption charges and business competition are some of the other reasons), and the effects of neither age nor previous contacts or loyalties were analyzed. Another study (Goldring and Matthews, 2021) analyzed purges at the elite group level, using a dataset of 572 elites in 16 purge episodes. The authors found that first-generation elites are more likely to be purged, arguing that they are more dangerous to the dictator compared with subsequent elites, who rely on dictators for their positions and power.

Our results also contribute to the recent political science literature on the Great Terror and Soviet-era political violence in general. Previous works focused on their effect on future political participation (Zhukov and Talibova, 2018), political preferences (Rozenas, Schutte and Zhukov, 2017; Bautista et al., 2023), ethnic identity (Lupu and Peisakhin, 2017), trust (Nikolova, Popova and Otrachshenko, 2019), distribution of human capital (Toews and Vézina, 2020), or responses to future threats of repression (Rozenas and Zhukov, 2019).

The rest of this paper is organized as follows. In Section 2, we provide an overview of the historical background leading up to the Great Purges in the Soviet army. Section 4 outlines our research hypotheses. In Section 5 we provide the description of our data and results. Section 7 concludes.

2 Historical background

We start with a brief historical overview of the 1937-38 repressions, the context in which they took place, and the factors that may have contributed to one's risk of being repressed.

2.1 The Red Army on the eve of repressions

By late 1930s, the military forces of the Soviet Union were one of the world's largest, and, by experts' estimates, one of the most advanced. With Stalin's growing grip on the government, propa-

ganda praised the military as the backbone of the country and the only protection in the hostile world. However, from its inception in 1917, the Bolshevik regime relied heavily on secret police to deal with real and perceived security threats within the army. In the early days, the most significant source of concern was the presence of military professionals from the old Russian Imperial Army in positions of authority. Their loyalty to the new regime was constantly questioned; officers who previously served in the headquarters and, to a lesser extent, naval officers were viewed with particular suspicion (Zdanovich, 2008, p. 50). However, merit-based promotions were necessary since the regime was fighting a civil war in 1917-1922, and a sufficient number of officers prepared under the new regime was lacking.[3] The loyalty of the rank and file was sometimes also questioned, since they were generally drawn from the countryside and perceived to be less pro-regime than the urbanized proletariat (Zdanovich, 2008, p.160). This threat began to be perceived as more severe starting in the late 1920s, especially in Ukraine, as the government stepped up grain requisitions and eventually collected private landholdings (Zdanovich, 2008).

Another source of fear was that the military would take sides in the intra-regime power struggle. Soviet politics following Vladimir Lenin's death in 1924 has been characterized by a struggle between shifting coalitions, resulting in Joseph Stalin's consolidation of supreme power by the early 1930s (Getty and Naumov, 1999; Kotkin, 2014, 2017). The central figure in the early opposition to Stalin was one of the architects of the power seizure October 1917, the former Foreign Affairs and former Defense Commissar Leon Trotsky. Sympathies for Trotsky in the armed forces were a major source of (unjustified) concern for Stalin, in particular (see Whitewood, 2015*b*, for a discussion of regime's perceptions of threats within the army). In addition to internal political threats, Soviet armed forces, like other militaries, were also exposed to espionage operations from foreign countries.

Control over the armed forces was carried out through the so-called *Special Departments* attached to the army units. These departments had a separate chain of command, accountable to the national secret police leadership; their primary task was to combat "counter-revolutionary activities" and counter-espionage (Khaustov and Plotnikova, 2003). The departments maintained networks of informants and had the power to suggest arrest or dismissal from the army. A suspicion of disloyalty — such as having compromised relatives — could have been a sufficient reason for dismissal, especially for the rank-and-file personnel, while being openly critical of the country's leadership could result in arrest on counterrevolutionary or propaganda charges. (see

[3] In 1918, some 75% of all commanding positions in the Red Army were staffed by former officers of the old army (Kavtaradze, 1988); that percentage decreased markedly in the later years as the army expanded and new cadres were trained. To minimize the risk of insubordination, the regime also implemented a dual command structure: each unit had a commander and a commissar or political officer who was selected based on loyalty and revolutionary background, had the same authority as the commander and could issue countermanding orders.

Larkin, 2016, p.24-25, for examples).

Although repressions were endemic to the Red Army, the intensity of political violence up to and including 1936 was much lower than in the following two years. The largest purge of high-ranking officers prior to 1937 took place in 1931 and targeted former high-ranking officers of the old Russian Imperial Army, resulting in some 3000 arrests (Suvenirov, 1998). In that episode, only a minority of arrests resulted in executions, and some of those imprisoned were later released or even returned to service. Both the number of arrests and especially the number of death penalties were much lower than during the 1937-38 purge; For example, in the Ukrainian military district that was most affected by these purges, some 305 officers were arrested, resulting in 27 executions (*Z Arhhiviv Vuchk, GPU, NKVD, KGB [From the archives of VChk, GPU, NKVD, KGB (in Ukrainian)]*, 2002) — far lower numbers than for the 1937-38 purge.

In 1933 there was a marked increase in the number of people dismissed from the army for political reasons (from 3,889 in 1932 to 22,308, Suvenirov, 1998), most likely as a reaction to the increased levels of dissent following the 1932-33 Soviet famine. However, unlike during the Great Terror, this purge was largely directed against conscripts and the lower ranks, with commanding officers accounting only for 1125 of the firings. Only a small minority of the dismissed personnel were arrested (Suvenirov, 1998), with some 2390 servicemen tried for "counter-revolutionary crimes" in 1933. The number of officers who were arrested and tried was even smaller; moreover, unlike during the Great Terror purges, these repressions were primarily directed against the lower ranks, with 1558 enlisted men and only 310 commanding officers tried in 1933 (Mozokhin, 2006).

Espionage charges against military servicemen prior to the Great Terror were relatively rare — in 1932 and 1933 there were 113 and 224 such cases, respectively, and it is currently not possible to tell how many of these charges were genuine (Suvenirov, 1998)[4]. At the same time, fear of a foreign-inspired military coup among the Soviet leadership was genuine (Whitewood, 2015*a*), and, according to the anthropologists Aleksandr Arkhipova and Anna Kirzuk, the fear of spies ran deep in the Soviet society and in the interwar period reached extraordinary proportions (Arkhipova and Kirzuk, 2020).

2.2 The Great Terror purges of 1937-38

The Great Terror of 1937-1938 was the most intense episode of political violence in the Soviet history. The total number of victims, including deaths in detention, may have been as high as

[4]For example, a 1933 secret police report to Stalin mentions that a total of 43 people were arrested in connection with French and Polish espionage operations

950,000-1.2 million (Ellman, 2002).[5] The army purges during that period were also much larger than anything that preceded it, both in terms of scale and the level of violence, and focused predominantly on the office corps and, especially, the high command. According to one figure, a total of 24,000 officers of all ranks were discharged and never reinstated in 1937-1938 (Cherushev, 2003), and nearly 10,000 were arrested. In the Transcaucasian military district alone, a total of 1,183 officers (ranked second lieutenant or above) were dismissed for political reasons, resulting in 795 arrests and 612 executions or deaths in custody. In each of the 7 divisions of the district, between 14% and 26. 5% all officers were purged (Larkin, 2016); similar figures were reported for other military districts (see, for example, Chernavskii and Milbakh, 2013).

The army high command, the object of our study, was especially heavily targeted. In 1935, the Red Army re-established the personal military rank system present in most of the world's armed forces, awarding 1864 officers general-grade ranks of *ombrig* (brigade commander) or higher, equivalent naval ranks, and ranks for administrative, judicial, political, and technical staff.[6] By the end of 1939, at least 780 or 41.8% were executed, while 28 or 1.2% died while awaiting trial (often because of suicide or torture), and 2 or 0.1% committed suicide during the arrest.

Up to 161 or 8. 6% were convicted, received prison sentences and were sent to the GULAG camps. Most of them did not return to normal life. According to our count, at least 68 died due to the harsh conditions of the labor camps, and at least another 34 were exiled to remote parts of the country after 1948.

At least 117 or 6.3% suffered arrest but were later released without conviction (most spent less than two years in custody and were released in 1939-1940). The fate of these people was markedly better than for those who were convicted and sent to prison camps; at least 95 of them eventually returned to armed service (often to positions they held prior to the arrest) and took part in the Second World War. Some 20 officers or 1. 1% died from natural or unrelated causes prior to the purges, while we do not have data on the fates of 127 or 6.8% officers.

The first high-profile arrests took place in 1936, but the intensity of the purges increased dramatically following the Communist Party's Central Committee plenum in February-March 1937. Stalin's speech on May 3 set the ideology supporting the future purges, giving an account of a conspiracy facing the country and conflating the threats from hostile foreign powers and domestic political opposition or "Trotskyists", and was followed by calls to investigate the military

[5] The elites and some ethnic minorities were disproportionally targeted, although the bulk of the victims were ethnic Russians and from broad social groups (Ilic, 2013; Gregory, 2009). Several explanations of the causes of the Great Terror were provided (on the causes of the Great Terror, see Getty, 2002). Whitewood (2015*a*) believes that the Great Terror itself was modeled on the military purges and was sanctioned only after Stalin became convinced of a large-scale conspiracy in the armed forces.

[6] Following the 1917 Revolution, the rank system was abolished in favor of a positional system one where the rank depended on the serviceman's current position.

(Whitewood, 2015*a*).

Figure 1 shows the number of arrests among general-grade Soviet officers each month of the 1936-1939 period. There were 11 arrests in 1936, 13 in January-March 1937, 15 in April 1937, and 66 in May 1937. The arrests peaked in June 1937 - January 1938 and were mostly ended by the end of 1938. Arrests made during 1938 were also much more likely to result in prison than in a death sentence. The Great Terror came to an end in 1938 as well, following a political decision by Stalin to replace (and repress) Nikolai Yezhov.

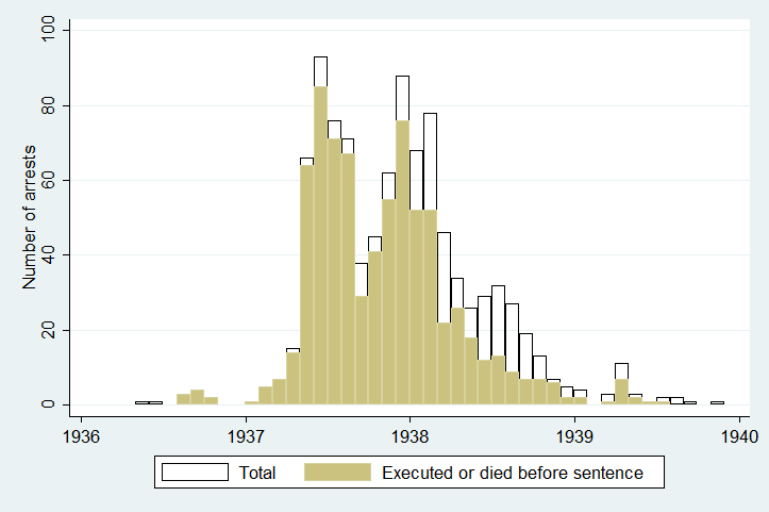


Figure 1: Timeline of arrests among the Soviet high command (date is available for a total of 990 arrests).

The choice of people to target was largely at the discretion of Stalin and the NKVD. Many documents from that period remain classified, so we do not know which army commanders were repressed specifically at Stalin's bidding. At the same time, several scholars (Khlevnyuk, 1995; Khaustov and Samuelson, 2009) argue that Stalin was deeply involved in the purges. Stalin exercised close personal control over some cases, reviewing interrogation transcripts and reading NKVD reports. Records show that Stalin frequently met with the NKVD chief Nikolai Yezhov during the purges, especially following the arrest in May 1937 of Mikhail Tukhachevskiy, the vice defense commissar and probably the highest-profile figure to be repressed (Jansen and Petrov, 2002).

While Stalin personally chose the most high-profile figures, we do not know how far down his discretion extended. What is certain is that Stalin directed repressions by choosing which broad categories of people should be repressed. During the purges, both within the army and across the country, different ethnic groups were targeted, as well as people with specific histories, such as members of defunct political parties or those who had contacts with Germany. Thus,

the probability of being repressed depended on an individual engaging in potentially hostile acts and, importantly, belonging to a group deemed dangerous; this reflected the early Soviet judicial philosophy (Gregory, 2009).

At the same time, Stalin was conscious about obtaining justification for targeting groups and individuals, often instructing subordinates to search for evidence. In one letter, Stalin asked to interrogate several individuals to obtain evidence against any army officers who formerly belonged to an opposition party; in another, he ordered the torture of a victim (presumably a former secret police vice chief, an ethnic Pole) to obtain information on the "agents of Poland" in several regions of the Soviet Union (Khaustov and Plotnikova, 2004, p.463 and 352). It is thus highly likely that Stalin personally selected many of the targets among the high-ranking military figures, with the proportion being larger for the highest ranks. In contrast, most of the remaining targets were selected at the discretion of the NKVD based on the criteria outlined by Stalin.

The NKVD faced few institutional constraints while selecting, arresting, interrogating, and convicting its victims. The Special Departments maintained records with potentially incriminating evidence that could be used to justify an arrest, such as making political statements in the past. Victims already arrested were often forced to make statements against other people; these would be used to sanction further arrests formally. Torture was widely used to extract confessions: As much as 28 of the 1085 arrested officers in our dataset died while in custody before conviction, most likely due to extremely harsh treatment. Vasily Blyukher, one of the five original Soviet Marshals, was known to have died under torture (Getty and Naumov, 1999, p. 521). Another source of discretion for NKVD was the possibility to interpret any operational error as a deliberate act of sabotage (Milbach, 2014*a*), giving it an extra degree of freedom in the choice of repression targets.

In theory, procuracies or military justice organs were supposed to exercise oversight over how the investigations were conducted. An arrest needed a sanction from the head of the district military procuracy, and military procurators had the power to stop ongoing investigations. In practice, the procuracies were unwilling or unable to do anything. Arrest sanctions were sometimes obtained retroactively, and the procurators were often pressured into giving those sanctions. Those who refused risked retribution, meaning that they could be repressed and likely executed in the case of non-compliance with the NKVD.[7] Crucially, both the head military procurator Naum Rozovsky and his superior, the USSR head procurator Andrei Vyshinskii, sided with

[7] As were, for example, the head procurators of Leningrad and Siberian military districts; see (Milbach, 2014*b*, p.91) and (Chernavskii and Milbakh, 2013, p.149). Arrests needed another sanction from the military district commander or the army headquarters, but that requirement quickly began to be ignored as well (Chernavskii and Milbakh, 2013, p. 84).

NKVD and did not intervene on behalf of their subordinates.[8] Securing a conviction was a formality as well. For colonels and higher ranks, most of the cases were heard by a three-member panel, the Military Collegium of the Supreme Court, in a quasi-legal procedure where defendants had no right to a lawyer, the proceedings usually took 10-15 minutes and invariably resulted in a conviction; death sentences were usually carried out the same day (Suvenirov, 1995; Jansen and Petrov, 2006).

Other players, such as the Communist party or the commanding officers, also contributed to the selection of victims, but their input was likely to have been relatively minor compared to that of NKVD.

3 Theoretical Framework

Some of our hypotheses about mechanisms of elite repression do not require formal modeling. For example, we naturally assume that Stalin considered generals with shared ethnicity to be more likely participants of the same conspiracy. This leads to the hypothesis, well-supported by anecdotal evidence, that ethnicity was a significant determinant of purges. Similarly, those generals that Stalin considered to be more capable individually were another natural target. However, some of the hypotheses we test rely on a more complex logic. To illustrate the *informed vs. preventive* purges trade-off, we construct a basic networking model that generates patterns that we observe in our empirical exercise.

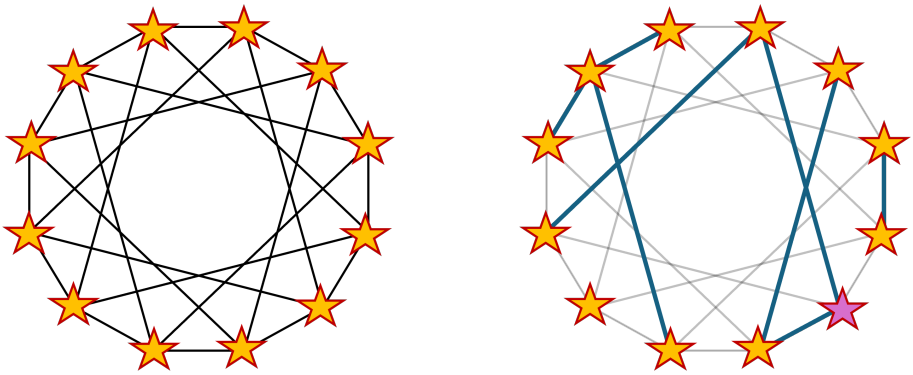
3.1 Setup

We present a stylized model that allows to highlight trade-offs of a dictator that contemplates a purge of generals connected by a network. There is a group of N generals connected in a network. To model a network, we use the Erdos-Renyi random graph model (Jackson, 2008). Every general is a represented by a node, which is connected by a link to k other nodes, $k < N$. Further, we assume that the network is symmetric. Figure 2 (a) is an example of such network with $N = 12$ and $k = 4$. (Note that this is not the only symmetric network characterized by these N and k; still, our analysis applies to any such network.)

The dictator moves first, choosing which generals to purge. We want to compare two cases: in the first case, purges are *preventive*. They happen with the dictator having no prior information which generals are more likely to participate in a coup than others. In the second case, the

[8] See Suvenirov (1998). The widespread disregard of legal constraints and procedures was characteristic of the Great Terror period (see Solomon, 1996, Chapter 7).

Figure 2: Networks and Coups



(a) A network of $N = 12$ generals with $k = 4$ connections each.

(b) A random realization of links results in a coup with 5 participants.

dictator knows the identity of one coup participant. These are *informed* purges.

To keep things tractable, we assume that the dictator has the capacity to purge P generals, $P < N$. Furthermore, we assume that P is an integer fraction of N; that is, N/P is an integer number.

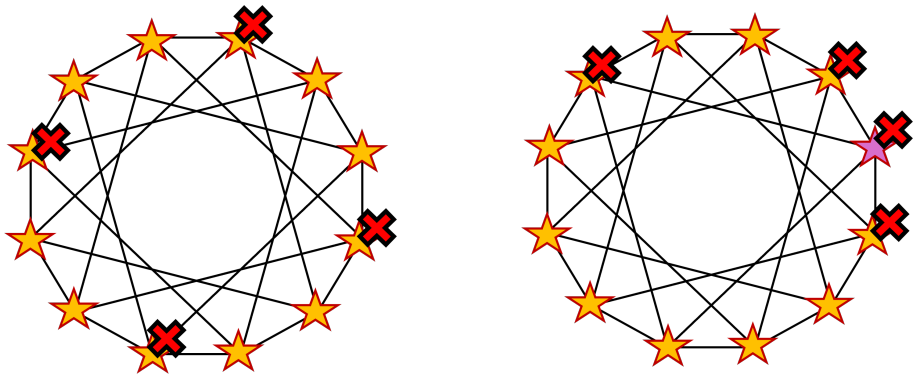
The coup is modeled as follows. Each of N generals can be a leader of a coup with equal probability. The probability that a link connecting a coup participant to another general is active is p, $0 \leq p \leq 1$. A general with an active connection to a coup participant becomes a participant himself. Naturally, connections do not go through the purged generals. Similarly, if the coup leader was purged beforehand, the coup fails.

Thus, after purges, the random network realizes, and the coup leader becomes a member of a connected sub-network. If the size of this smaller network – the connected component of the coup leader, in network theory terminology – is larger than C, then the coup succeeds. Otherwise, it fails. Figure 2 (b) illustrates active links connecting four generals, some directly and some indirectly, to the coup organizer.

In brief, the dictator takes out some nodes in a purge. After that, the random network realizes with each link becoming active, independently, with probability: p. If the coup leader is connected, directly or indirectly, via active links, to at least $C - 1$ generals, the coup succeeds. The dictator's goal is to organize a purge to maximize the probability of survival.

Summing up, the key parameters of our model are as follows. N is the total size of the network of generals, P is the dictator's purge capacity (how many elite members can be arrested) and C is the military's coup capacity (how many generals are needed for a successful coup). Finally, p is the likelihood that a connection between two generals becomes active. These parameters are

Figure 3: Preventive vs. Informed Purges



(a) Optimal preventive purge with $P = 4$ ("uniform purges").

(b) Optimal informed purge with $P = 4$ and one known coup participant.

the bare minimum that is needed to demonstrate the logic of preventive vs. informed purges. In games-on-network analysis, the complexity of the model increases exponentially with every additional player; still, our basic logic extends to a model with a larger number of top commanders and generals with heterogeneous characteristics.

3.2 Analysis

The dictator faces a choice of who to target in the purges. Let us start with the case where purges are preventive. In such a situation, the dictator does not have any prior knowledge about the general's participation in the actual plot. Thus, the choice of who to purge focuses on minimizing the probability that a group of generals of at least C size is connected via active links.

In absence of any specific information, the dictator has to spread the purges "uniformly" throughout the network. With each general being equally likely to participate in a coup, such purges minimize the expected probability of a successful coup. Proposition 1 states the result formally; all proofs are relegated to the Appendix.

Proposition 1 *In an optimal preventive purge, the dictator targets P generals uniformly: along the base circle, each $(N/P)^{th}$ general is purged.*

Figure 3 (a) illustrates the preventive purge with $N = 12$ and $P = 4$. Choosing who to repress, the dictator minimizes the probability that a group of generals of size C is connected through active links. If $C = 4$, a coup is successful with a positive probability even after the optimal preventive purge. If $C = 5$, the purge prevents a coup with probability 1.

Even in this very simple example, one can see the basic comparative statics at work. For a

fixed number of generals N and the repression capacity P, if the minimum number of generals participating in a coup C, increases, the purges are more effective. Vice versa, for a fixed N and C, an increase in the repression capacity prevents a coup with a higher probability. An increase in k, the number of links connecting each general to others, makes purges less effective. Naturally, disrupting more dense networks requires a higher repressive capacity.

In preventive purges, the difference in probabilities of being arrested conditional on your neighbors being arrested is small: in this example, each purged general has 0 purged connections and 4 non-purged; each general that survived purges has 1 network neighbor purged and 3 not purged. This is drastically different from the case of the informed purges that we analyze below. As we will see in the empirical section, the patterns of Stalin's purge in 1937-38 exhibits the same characteristics as a preventive purge: there is little, if any, correlation between probability of being purged and having your superior or subordinate purged.

Proposition 2 *Suppose that the dictator knows the identity of a participant in a plot. The optimal purges are then clustered around this participant.*

Figure 3 (b) illustrates the informed purge with $N = 12$ and $P = 4$. The optimal purge is clustered around the known participant. Note that even with an optimal choice of generals to be purged, there is still a possibility of a successful coup as the dictator capacity P is not sufficient to block all possible connected components of size at least $C + 1$ that include the known coup participant. (With one participant purged for sure, the minimum number of other generals connected by active links to the known participant should be at least C.)

Informed purges resulted in cluster arrests. In Figure 3 (b), there is a higher correlation between the probability of being purged and the probability of having a purged connection. In fact, every purged general has at least 1 purged network neighbor.

3.3 Robustness

Most network models in economics and political science assume a large, possibly infinite number of nodes with agents not knowing the composition of the entire network (Jackson, 2008; Galeotti et al., 2010; Jackson, Malladi and McAdams, 2019). This allows us to employ a convenient continuous approximation, which dramatically reduces the complexity of analysis. Unfortunately, this would not work for modeling of elite purges: assuming that the dictator or narrow elite members themselves do not know who they are connected with would be unrealistic. In the case of Stalin's military purges in 1937-38, the purge organizers were well aware of top generals connections and career ladders.

Still, the logic of our basic model extends naturally to models with a more complex network structure and generals with heterogeneous characteristics. For example, suppose that each general has an idiosyncratic probability of being a plot leader. Then, the dictator's optimal strategy would depend on the distribution of these probabilities. The purges would focus on those parts of the network that have a high concentration of generals with high probabilities. The more equal the distribution of probabilities across the network, the more uniformly the purges would spread. Similar logic applies to other characteristics that make some generals more dangerous for the dictator than others.

Again, at a significant increase in the complexity of the network that use in the model, some of the qualitative implications that the model would produce might turn trivial. For example, the network that we analyze has all nodes being equally critical ex ante. Naturally, if there were nodes with a high level of network centrality, then this should have been a primary target of a dictator trying to minimize the probability of emergence of a connected component. (There are several influential approaches to measure centrality of a node in a network: for our purposes, the eigenvector centrality, which measure the relative influence of a node in a connected network, is perhaps the most appropriate.) In our empirical analysis, though, the network centrality does not show up as a significant determinant of the probability to be purged. As a result, we do not need a more complex network in our theoretical framework.

4 Hypotheses

Here, we review existing anecdotal and/or statistical evidence about which individual characteristics were linked to a higher (or lower) probability of being purged.

4.1 Connections to high-level repressed military leaders

One of the earliest and the most high-profile episodes involved the arrests and trial of several key military figures: August Kork (the head of the Soviet Military Academy), Mikhail Tukhachevsky (one of the five Marshals of the Soviet Union and the Vice-Commissar of Defense), Ieronim Uborevich (commander of Belarus military district), Iona Yakir (commander of the Kiev military district), and four other army commanders. They were charged with heading a "Military-Fascist plot", sentenced on June 11 in a closed trial, and executed the following day. NKVD chief Nikolai Yezhov subsequently justified the repressions in the Red Army as a fight against the "military-fascist conspiracy" that was purportedly led by Mikhail Tukhachevsky.

Our theory predicts that informed purges follow the connections of known coup participants,

while preventive purges are spread out across the network in order to minimize the probability that enough generals form coalition. Hence, had Stalin been reacting (or thought he was reacting) to an imminent threat of a conspiracy centered on Mikhail Tukhachevsky, we should expect generals to have a higher risk of being repressed if they had a **present or past affiliation with Tukhachevsky and other senior officers**, in particular having served under their command.

Present or past contacts in the Soviet Army may also have mattered because of factional struggle or influence. In other contexts, belonging to a faction or having personal ties have been shown to increase or reduce the risk of being purged or promoted (Lorentzen and Lu, 2018; Bai and Zhou, 2019), or the risk of facing transitional justice (Aidt, Lacroix and Méon, 2022). Several factions or groups existed within the Red Army (see Lazarev, 2020), each such faction consisting mainly of veterans of an army unit that existed during the Civil War and was characterized by a sense of group identity and loyalty to its commander.

Perhaps the most influential faction were the **veterans of the Civil War's 1st Cavalry army**; according to some accounts, members of the Budennyi's faction and units descended from the 1st Cavalry army enjoyed relative safety during the Great Terror (Lazarev, 2020). The key figure within the group was Semyon Budennyi, the army's commander and one of five Soviet Marshals at the time of the purges. Budennyi was personally loyal to Stalin (Montefiore, 2010). Another member of the faction was Kliment Voroshilov, the Defense Commissar. He belonged to Stalin's inner circle and was a member of a five-person standing committee that replaced the Politburo as the main organ of power in the country (the others were Molotov, Kaganovich, Yezhov, and Stalin himself, see Jansen and Petrov, 2006). More importantly, he had the power to sanction high-level arrests in the military. Voroshilov was loyal to Stalin and a fervent supporter of the repressions, but sometimes used his power to save the people he knew personally from dismissal or arrest (Suvenirov, 1995). Therefore, we should expect veterans of this unit to face a lower risk of repression.

4.2 Age

We expect **younger officers** to be targeted during the purge. There are two lines of reasoning to support this.

First, extensive evidence links young age to civic unrest, rebellion, and other forms of risky political behavior. Countries that experience a youth boom or have large cohorts of youth are more likely to experience political violence (Urdal, 2006), instability as a response to corruption (Farzanegan and Witthuhn, 2017), civil wars (Yair and Miodownik, 2016; Weber, 2013), democratic instability (Weber, 2019), or widespread nonviolent protests (Romanov and Korotayev,

2019). In many anti-regime uprisings, from revolutions in England and France to the Arab Spring, young people played prominent, if not decisive, roles (Moller, 1968; Hoffman and Jamal, 2012).

Younger males may be more likely to participate in risky political behavior due to behavioral differences — risk aversion across different domains increases with age (Dohmen et al., 2017; Schildberg-Hörisch, 2018). However, no causal mechanism can be identified (König, 2020). Another possible explanation is that younger men have lower opportunity costs of engaging in violent and/or risky behavior or are culturally detached and susceptible to extremist ideologies (Weber, 2019).

There is evidence that countries experiencing youth bulges are also more likely to have higher levels of state repression, applying it in anticipation of dissent or conflict (Nordås and Davenport, 2013; Hill Jr and Jones, 2014). However, this result may be conditional on the ability to target repression to specific demographic groups (Shadmehr and Haschke, 2016).

Second, younger officers may be targeted because they are more competent: if promotion to higher ranks is based both on competence and on the number of years served, then we should see, within each rank, a negative correlation between competence and age. Theoretical models predict that autocracies may not favor competent officials because they know better when to betray (Egorov and Sonin, 2011) or are more valuable to a potential successor (Zakharov, 2016). There is also empirical evidence in favor of anticompetence promotions both in civilian (Bai and Zhou, 2019) and in military/security organs (Scharpf and Gläßel, 2020), as well theoretical (Paine, 2019) and empirical (Böhmelt, Escribà-Folch and Pilster, 2019) evidence of a greater risk of coup associated with professional militaries[9].

4.3 Rank

Individuals with higher positions in the power hierarchy and having access to more resources pose larger threats to the ruler. In a recent study of 23,000 cabinet members in 115 autocracies (Bokobza et al., 2022), high-ranking ministers were found to be more likely to be purged after failed coup attempts. The risk of being repressed during the Great Terror also increased with one's position in society (Ilic, 2013; Markevich, 2016). The same is true for our dataset: the share of the repressed is greater among officers of **more senior rank** — see Table 1 below:

A total of 566 officers who held a rank of *combrig* (or "brigade commander", equivalent to between colonel and major general in the modern army) or equivalent higher in spring 1937

[9] A related notion is popularity — popular officials can be targeted as they pose a greater threat to the leader but are also more costly to remove so that popularity can serve as a protection Gueorguiev and Schuler (2016); Buckley et al. (2020)

Rank	Total in 1936	Repressed	Not repressed	No data
Marshal	5	3	2	0
Army commander 1st rank	8	7	1	0
Army commander 2st rank	27	24	2	1
Corps commander	113	97	15	1
Division commander	455	274	166	15
Brigade commander	1236	566	560	110

Table 1: Repressions in army high command

were executed, sentenced to GULAG, or died before sentencing (presumably indicating that they faced extremely dire conditions). This number is equal to 50.2% of those whose fate is established. The corresponding percentage is 62.3% for *comdiv*s (or "division commanders") and up to 86. 6% for *comcor*s ("corps commanders") or higher ranks. As we noted earlier, the repressed figures do not include those arrested or later released, temporarily purged from the military, or demoted to less sensitive positions. A similar pattern is also observed among lower-ranking officers: According to a count by Milbach (2013), in the Soviet Pacific Fleet, 29 out of 34 officers who ranked Captain 1st rank or above were arrested, 60 out of 98 Captains 2nd rank, 70 out of 306 Captains 3rd rank (equivalent to Major in the ground forces), and 99 out of 879, or only 11.3% of Captain-Lieutenants (the next lower rank).

4.4 Ethnic, social, and professional background

The Great Terror included several campaigns against specific nationalities within the Soviet Union. The largest of them was the "Polish operation", which resulted in a total of 111,091 executions according to an estimate (Petrov and Roginskii, 2020); most but not all of the victims were ethnic Poles (Ilic, 2013). Other campaigns were modeled on the Polish operation and targeted ethnic Germans, Greeks, Koreans, Romanians, and other nationalities (Musial, 2013).

The operation against ethnic Latvians is particularly relevant in our context. Before the Great Terror, ethnic Latvians were well-integrated into the Soviet elites. Their position was especially prominent in the military, in part because of the role that divisions of Latvian riflemen played in the Russian Revolution and the establishment of Bolshevik power. Of the 1,856 people who received general-grade ranks in 1935-1936, 99 or 5.4% were Latvians, while this ethnic group comprised only 0.1% of the general Soviet population at the time (Demoscope, N.d.).

The country-wide order to start a "Latvian operation" was issued on November 30, 1937, by Yezhov, targeting political immigrants, Latvian nationals, members of ethnic clubs, and other groups. According to a figure, 21,300 people were convicted throughout the country, resulting in

16,575 executions. Most of the repressed in this operation were ethnic Latvians (Gerberg, 2019), which means that more 15% of all adult Latvians residing in the Soviet Union (and an even higher percentage of ethnic Latvian males) may have been repressed and most of them executed.

Latvians, Poles, and people of other nationalities were also targeted during the army purges. On 5 December 1937, the Army chief personnel officer issued a secret order to provide dossiers to all officers of "Latvian, Polish, Estonian, German, Korean, Japanese, Chinese, Finnish, Lithuanian, Bulgarian, Romanian, French and English" ethnicity (cited in Larkin, 2016, p.40; the order of ethnicities is preserved). This order was sent soon after the start of the nationwide "Latvian operation" which, in turn, coincided with a wave of Latvian arrests in the military. Sixteen officers were arrested between November 23 and December 2, including 2nd rank Army Commanders Yakov Alksnis and Ioakim Vatsetis, out of 88 senior officers of Latvian descent who were repressed during the 1937-1938 period. Another army-wide order calling for the dismissal of various deemed disloyal nationalities (including Latvian, Poles, Germans, and others) was issued on June 24, 1938 (Cherushev, 2003).

Other ethnic groups may also have been targeted. There is strong statistical evidence that bias against ethnic Ukrainians explained a large majority of deaths on Ukrainian territory during the 1932-1933 famine (Markevich, Naumenko and Qian, 2021). However, we are not aware of documented evidence of campaigns against ethnic Ukrainians during the Great Purges, within or outside of the armed forces.

Repressions could also be driven by one's **social class** background. According to the Soviet ideological canon, peasants and the working class were the benefactors of the Soviet order. Other social classes — particularly the nobility — were viewed with suspicion or hostility. This was reflected in official policies on the hiring, promotion and distribution of various benefits; the class background was even a factor that affected judicial decisions (e.g. Depretto, 2000). At the same time, peasants were generally regarded less loyal to the regime than the urbanized proletariat. Therefore, we expect those coming from *peasant* and especially *worker* families to face a lower risk of repression.

One group known to have suffered particularly heavily during the Great Terror was the veterans of the Russian revolutionary movement, known colloquially as the **Old Bolsheviks** (Gregory, 2009). However, we do not know whether this was due to these people's high positions within the Soviet elite or because they were targeted as a group.

Many of the senior officers in the Red Army **served in the army under the previous regime**. Such cadres were initially viewed with suspicion by the Bolshevik government, and their relationship with commanders who had a revolutionary past (or occupied low-level positions in

the Russian Imperial Army) was sometimes hostile (Lazarev, 2020). At the beginning of 1937, as many as 108 out of 1844 Red Army officers with general-grade ranks were ranked lieutenant colonel or higher in the RIA, and another 182 were ranked one or two below lieutenant colonel. Such officers were targeted in an earlier purge in 1931, and Suvenirov (1995) reports that several officers may have been singled out because of their part RIA affiliation. Former RIA officers, or those with a higher rank, may also have been targeted purely because of higher competence. **Education** and **awards** are also associated with competence and professionalism, and we expect them to positively impact the risk of repression.

4.5 Foreign contacts

The Soviet regime, especially in the early days, was highly suspicious of people who had any kind of contacts with foreign countries. We examine two important categories of contacts that may have been targeted in the army purges. First, these were contacts with foreign military and civilian elites. An important source of cross-border elite contacts was Soviet military cooperation with Germany. In the 1920s and early 1930s, there were extensive contacts between German and Soviet militaries, and, starting with 1926, high-ranking Soviet officers attended courses in Germany and German army maneuvers (see Appendix A2 for details). During the Great Terror, these Soviet generals who visited Germany were at a greater peril; all nine high commanders sentenced in the 1937 Tukhachevsky case previously visited Germany and were charged with Nazi espionage — however, they also belonged to other high-risk groups such as being of high rank. Therefore, we expect those who **visited Germany** during the exchange program to be at a higher risk of repression.

Second, people with personal connections may have been targeted during the purges. The NKVD was instructed in singling out people who had traveled abroad, had relatives abroad, had contacts with foreigners, or were born near the border zone;[10] relatives abroad had to be reported to the authorities, and failing to report could have resulted in the person being repressed. Residents of border districts were repeatedly repressed in the early Soviet period; for example, in 1934-1936, residents of borderline regions in Poland and Ukraine, especially those of German and Polish descent, faced deportation (Khaustov and Samuelson, 2009, p.50). An NKVD order listing suspicious groups of people includes those born in the border zone (Khaustov and Samuelson, 2009, p.282). Although we are unaware of any such order specifically for the armed forces, this characteristic may have contributed to one's chances of being repressed. Hence, we expect that the servicemen **born outside of 1937 borders** of the Soviet Union may have faced a

[10] See the NKVD directive cited in Khaustov and Samuelson (2009).

higher risk of repression due to the increased attention from the Special Departments.

5 Data and results

A total of 1864 people were awarded general-grade ranks in the Soviet armed forces during 1935-1936, and 1844 of them were alive when the repression began in May 1937; they were the focus of our study. The arrests of several generals in the summer of 1936 are treated as a part of the same repression episode. Several people who died of natural and unrelated causes before May 1937 are not included in the dataset.

Using many open biographical sources and extensive archival research, a team of research assistants compiled biographic data on these people.[11] The following data was recorded:

1. Demographic data: The year of birth, ethnicity, parental class background, and place of birth;
2. Maximum rank attained by the end of 1936, and whether one was an administrative, engineering, judicial, medical, or political staff;
3. From personal service records, we coded whether one served under the command of Mikhail Tukhachevsky or other people accused in the Tukhachevsky Case, and whether one served in the First Cavalry Army;
4. From several archive documents we compiled a list of those who visited Germany on an official visit in 1926-1933. We only used sources dated before 1937 to avoid the data availability bias;
5. Whether the officer was a Communist party member and the year he joined the party;
6. Whether one served in the old Russian Imperial Army, and the highest rank attained there;
7. Whether one was awarded an order of the Red Banner by 1926 and had professional military education by 1923.[12]

[11] Much of the data was sourced from published collections of biographies of senior Soviet military figures, containing biographical data and the service record (see Figure A-1 for an example). For those without published biographies (or whose with biographies not containing the service record) we used data archival data. In particular, the Russian State Archive of Socio-Political History (formerly, the Communist Party archive) contained records for several hundred individuals in our dataset, primarily detailed questionnaires that Communist Party members filled out in 1935-1936 (see Figure A-2). To a lesser extent, we supplemented our data with records from the Russian State Archive and the Russian State Military Archive (see Appendix A3 for a more detailed description of archival sources).

[12] The Order of the Red Banner was the only military award in the Soviet Union until 1930; a handbook published in 1926 contains the list of all recipients of this award. A similar handbook published in 1923 provides biographic data on all Soviet army officers who had professional military education.

In addition, we recorded whether the person was repressed or not. In our primary specification, we considered repressed those who were sentenced and either executed or received prison terms, as well as those who were arrested and died before sentencing. Those who were arrested and later released were counted as not being repressed. We adopted this coding because convictions were based on self-incriminations, often extracted under extreme duress. Those arrested but eventually released likely did not face the same duress. Our summary statistics are shown in Table A-1.

5.1 The risk of repression and survival time analysis

In Table 2, we report OLS regressions where the dependent variable is whether the individual was repressed.

Column 1 includes age, rank, and staff category as regressors; in Columns 2 and 3, we include other covariates. We did not find that former or current subordinates of Tukhachevsky trial participants were at a higher risk of repression. We interpret this as evidence in favor of the purge being preventive in nature, instead of one targeting known high-level conspirators and their contacts. At the same time, veterans of the First Cavalry Army did enjoy some degree of safety during the purges; for them, the probability of being repressed was 11.6% lower. This supports our conjecture that personal connections did still matter in the purge and could be used for protection.

Conditional on rank, increasing one's age by 10 years decreases the probability of being repressed by between 13.7% and 16.5% by as much as 13.6%. The probability of repression for a 40-year-old (calculated with other variables at their means) was 65.8%, but only 38.1% for a 60-year-old, with the difference being highly significant.

Higher ranks faced significantly higher risks: The risk for an officer with *comdiv* (division commander) or equivalent rank was between 9.5% and 12.7% higher than for a *combrig* (brigade commander) or equivalent. For officers ranked *comcor* (corps commander) or higher, the difference was up to 27.7-36.8%. We also find that the probability of repression was lower for the judicial and medical personnel, compared to the commanding officers, while for administrative and political personnel, the probability was higher. We offer several interpretations of these findings. First, medical and judicial personnel may have been considered to have a relatively lower threat, since they were never put in positions where they could give orders to men wielding weapons. Second, judicial personnel had a special role in relation to the repression episodes; they could, theoretically, exercise oversight over NKVD and may have had bargaining power that offered some protection from purges.

Ethnicity was very strongly associated with the probability of being repressed. For ethnic

	(1)		(2)		(3)	
Age	-0.0137***	(0.00203)	-0.0165***	(0.00286)	-0.0139***	(0.00302)
Rank: Division	0.127***	(0.0266)	0.121***	(0.0286)	0.0931***	(0.0307)
Rank: Corps or higher	0.369***	(0.0305)	0.293***	(0.0365)	0.271***	(0.0371)
Category: Political	0.0302	(0.0284)	0.0783**	(0.0388)	0.115***	(0.0408)
Category: Administrative	0.0951*	(0.0533)	0.112*	(0.0606)	0.122*	(0.0637)
Category: Engineering	-0.0488	(0.0460)	0.0333	(0.0545)	0.0448	(0.0591)
Category: Medical	-0.140**	(0.0549)	-0.245***	(0.0841)	-0.265***	(0.0898)
Category: Judicial	-0.230***	(0.0475)	-0.199***	(0.0571)	-0.149**	(0.0631)
Ethnicity: Jewish			0.178***	(0.0424)	0.148***	(0.0453)
Ethnicity: Ukrainian			0.142***	(0.0516)	0.147***	(0.0539)
Ethnicity: Latvian			0.378***	(0.0569)	0.356***	(0.0591)
Ethnicity: Belarusian			0.196***	(0.0618)	0.193***	(0.0638)
Ethnicity: Other			0.196***	(0.0474)	0.206***	(0.0484)
Visited Germany			0.134***	(0.0457)	0.135***	(0.0454)
Born within 1937 borders			0.0253	(0.0400)	0.0231	(0.0422)
Party member before 1917			-0.0186	(0.0500)	0.000765	(0.0509)
Order of Red Banner by 1926			-0.0428	(0.0342)	-0.0387	(0.0352)
Higher education by 1923			0.0868*	(0.0507)	0.0794	(0.0524)
Parents: Worker			0.0630*	(0.0361)	0.0738*	(0.0379)
Parents: Nobility			0.0759	(0.0584)	0.0682	(0.0612)
Parents: Other			0.0950***	(0.0329)	0.108***	(0.0341)
Old army: Private			0.0403	(0.0437)	0.0317	(0.0461)
Old army: Unter-ofizer			0.0122	(0.0448)	0.0205	(0.0479)
Old army: Ober-ofizer			0.0759*	(0.0408)	0.0769*	(0.0432)
Old army: Major+			0.140*	(0.0726)	0.121	(0.0765)
Old army: No data/unranked			0.185***	(0.0613)	0.179***	(0.0647)
First Cavalry Army					-0.117**	(0.0520)
Tukhachevsky case					0.0479	(0.0325)
Constant	1.105***	(0.0890)	1.031***	(0.128)	0.917***	(0.134)
N	1713		1327		1211	
R2	0.104		0.177		0.175	

OLS regression with robust SEs. The dependent variable is whether the individual was sentenced to death or died before trial. For rank level, the baseline category is *brigade*. For staff category, the baseline is *regular*. For ethnicity, the baseline is *Russian*. For parental occupation, the baseline is *peasant*. For RIA rank, the baseline is *did not serve*.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Determinants of repression

Latvians in particular, the repression probability was a harrowing 89.9%, compared with "only" 52.9% for ethnic Russians. This formally supports the hypothesis that Latvians were targeted because of their ethnicity and not because they had some other characteristic (such as rank or staff category). We are unable to differentiate among Poles and other nationalities that were known to have been targeted during the purge because of their small number.

We also observed significantly (and considerably) higher probabilities (compared to ethnic Russians) of repression for Ukrainians, Jews, and Belarusians — ethnicities that were not previously known to have been targeted during the purge. A possible explanation for this bias is that at least a part of purge decisions were delegated to NKVD officers, and it was easier to obtain

justification for someone's arrest if he was not ethnic Russian and, therefore, could be accused of belonging to a nationalist group (Suvenirov, 1998).

The probability of repression increased with the rank one held in the old regime army. For officers who held the rank of major or higher, the probability of repression increased by 14% in model 2 (but was not significant in model 3), while for *obero-ofizers* (warrant officer to captain) the effect was smaller but significant in both Models 2 and 3. We interpret this as part of the pattern of targeting more competent officers. In a similar vein, generals who had higher military education in 1923 were more likely to be repressed by one specification. The effect of parental social background was also significant, and the probability of repression was lower for people whose parents were peasants, compared to other categories such as workers, petty bourgeoisie, or intelligentsia. This is also consistent with repressions targeting more competent officers if those with peasant background had lower education and education signaled competence.

Generals who made visits to Germany were at considerably higher risk during the Great Purges, with the probability of repression being 13.4-13.6% higher than for the rest. At the same time, being born outside the 1937 Soviet borders was not a contributing factor, once other things such as ethnicity were taken into account (see Figure A-3 for the geolocated places of birth). This suggests that contacts with foreign elites, but not personal connections, definitely mattered for the risk of repression.[13]

In Table A-2 we report an exponential survival time analysis using the same covariates as in Model 3 of Table 2. We have data on arrest dates for a total of 1032 individuals (both those who were subsequently repressed and those that were later released). We limit ourselves to the period between January 1, 1937, and December 31, 1938, when 991 individuals were arrested. A further 552 individuals were either known to have been arrested later or were not arrested; with this data, we fit an exponential survival model.

The coefficients in the table show the effects of a change in the covariate on the logarithm of the logarithm of the survival parameter. Hence, according to Model 2, for a division-level (versus brigade-level) officer, the parameter (and the probability of being arrested on any given day) will be $\exp(0.371) = 1.45$ times higher. Survival time analysis generally corroborates our findings: Arrest risks were higher for younger individuals, all ethnicities other than Russian, political officers (and were lower for judicial officers), some family backgrounds, travelers abroad, and those with high ranks in the Old Army.

Subsequently, we explore the different stages of repression under the assumption that there

[13]We admit that being born outside the Soviet borders is a noisy measure of personal connections with people abroad; for most of the people in our dataset we do not have access to personal questionnaires disclosing relatives and other personal contacts abroad.

are different logics at play early on in the repression process and later. We reestimate Model 3 of Table A-2 while assuming that the effects are heterogeneous across quarters. The marginal coefficients for the last three quarters of 1937 and the first three quarters of 1938 are reported in Figures A-4 and A-5.[14]

Former and current subordinates of the participants in the Tukhachevsky trial were at a slightly higher risk of arrest only during the second quarter of 1937, when that case unfolded; after that, their risk of arrest, conditional on other factors, was not significantly different from the rest of the generals in our dataset.

The arrest risk for ethnic Latvians (who seem to be the most heavily repressed group) was not higher than for ethnic Russians until the fourth quarter of 1937, when it increased very sharply, which is consistent with both the country-wide operation against that ethnicity starting in late 1937 and the documented policy of targeting Latvians (as well as some other ethnic groups) in the military. This suggests that this group was not initially seen as the most potent threat to the regime but was eventually targeted as the logic of repression changed and expanded over the course of the Great Terror.

Similarly, arrests of judicial officers, who enjoyed relative safety at the beginning of the purge, became significantly more frequent in the second half of 1938, possibly indicating that a decision had been made to move against this group or that institutional constraints protecting that group were relaxed. Political officers who initially were just as likely as regular officers to be arrested were also more intensely prosecuted toward the end of the purge. A possible explanation is that the cooperation or non-interference of these groups was required early on and became unnecessary once the main threats were eliminated.

At the same time, we see that early on during the purge, higher-ranking officers were targeted. In particular, division-level officers were relatively more at risk (compared with brigade-level officers) in the second quarter of 1937 compared with the third and fourth quarters of that year. This may be because high-ranking officers were viewed as more capable of mobilizing violent resistance to the purge or presenting a political or symbolic threat.

Some other groups, such as younger people, officers of Jewish and Ukrainian ethnicity, people of non-peasant background, or those who visited Germany, were at a higher risk from the beginning of the purge, with no clear increase or decrease in repression intensity.

[14] In the first quarter of 1937 and the last quarter of 1938, the number of arrests was small, so some of the marginal coefficients were very large or very small due to collinearity.

5.2 Robustness

Our sample consists of the 1,844 officers who received Soviet army general-grade ranks before 1937 and did not die of causes unrelated to the repression. However, for 126 of them, we do not know if they were repressed or not. To correct for the possible selection bias, we re-estimate the model in Column 1 of Table 2 using the two-step Heckman correction procedure (rank and category were known for all individuals, while age was known for all but 28 individuals). The results are reported in Table A-3.

In Columns 2 and 3, we report the first and second stages of the Heckman procedure. In Column 1, we report, for comparison, the OLS linear probability model. We see that for some categories of individuals, we are more likely to know whether they were repressed: Higher-ranking commanders and regular officers, compared to other categories (political, administrative, medical, judicial, and engineering). However, age is not significant in the first stage regression, and the second stage results are not significantly different from the OLS model, which does not account for non-random selection into the sample.

Our next goal is to explore the factors associated with the severity of the repression. In Table A-4, we report the coefficients for OLS models where the dependent variable is whether the individual was executed or died before sentencing, conditional on the individual being repressed.

We find that there are only two factors associated with the severity of the repression. First, it is the individual's rank: *Comkors* or higher ranked faced a higher probability of dying; second, judicial staff were much more likely to receive a prison sentence than a death sentence.

Likewise, some of the covariates that were significant in Table 2 are significant when we look at the probability of being arrested for individuals we coded as not repressed (those who were arrested and released or not arrested). In Table A-5, we report coefficients for that dependent variable (recall that 117 arrests ended in release, and a further 680 individuals were not arrested).

We find that in both specifications, age is significantly and negatively associated with the probability of arrest, while in Column 1, the probability of arrest was higher for division-level, compared with brigade-level officers.

Next, we examine what characteristics were correlated with promotion/demotion decisions that took place during the purges. We used the list of all Army officers occupying the positions of regiment commander or higher (and equivalent staff positions) as of May 15, 1939. In total, only 123 officers in our dataset appeared on that list. In Table A-6, we look at the correlates of this outcome, limiting our observations to the individuals who were neither repressed nor arrested.

The probability of having a prestigious position after the purges was lower for younger individuals, members of some ethnicities, and individuals of non-peasant origins, while service in

the old regime army was not associated with the outcome.

5.3 Analysis of service records

We augment our analysis with data on the individual service records of the generals. For 1,404 officers in our dataset, we obtained complete service records for a total of 23,868 individual entries. We developed a hierarchy of positions in the Soviet military, and for a total of 8,674 entries we were able to locate the position in the hierarchy, which required identifying the unit where the individual served, connecting the unit to the higher-level unit, and identifying the entry as corresponding to a commanding officer, or identifying the unit and position of the immediate superior.[15] Table A-8 shows the 15 most frequent positions. The officers were frequently shuffled between positions; the median duration of a position was 0.91 years, with only 20% assignments lasting longer than 2 years (see Figure A-6).

We then proceeded to match subordinate and commanding positions in our dataset, finding 6,749 pairs consisting of an officer and his immediate superior. The most frequent type of pair was the match between the division commander and the division political officer, and the next most frequent was the division commander and the commander of one of the division's regiments; Table A-9 reports the 15 most frequent types of commander-subordinate matches. The median duration of a superior-subordinate connection was 0.83 years, with only 14% connections lasting more than two years.

In Figure A-8 we examine how much past or current connections mattered for the probability of repression. The figure reports how the binary variable that indicates whether an individual was repressed is correlated with similar variables of his former or current superiors or subordinates. We calculate this value both for the most recent contacts only (those that did not end before 1937) and for larger sets of contacts, including those that were active during 1918. In all cases, the coefficients were positive but very small, not exceeding 0.043. The correlation coefficients weighted by the duration of the superior-subordinate contacts did not exceed 0.057. This means that the purges were spread out rather than localized.

We continue our analysis estimating exponential survival models, looking how an arrest of a former or current commander or subordinate impacted one's own risk of arrest. In a targeted purge, we should observe positive coefficients. If it is discovered that a commander is a participant in a plot, his subordinates should be quickly arrested and investigated. In contrast, the commanding officer should be investigated if a subordinate is found to be dangerous.

[15] Many entries were not included in our analysis. For example, 1,400 entries corresponded to individuals studying at military academies; as many as 640 entries corresponded to officers awaiting assignments; many positions were in civilian agencies; for others, the superior position could not be established.

In Figure A-9, for each year X between 1919 and 1936 we estimate an exponential survival model similar to the one reported in Column 3 of Table A-2. In each model, we include two additional dummy variables. The first of these variables indicates whether someone who was the individual's commander subordinate in year X or later was arrested at or before the given date. Hence, for X=1936 this dummy variable indicates whether a current commander was arrested, and for X=1919 the variable indicates whether any of the former or current commanders was arrested. The second variable similarly codes whether a current or former subordinate was arrested.

We find that arrests of former or current subordinates were not associated with a higher risk of being arrested. Similarly, the arrest of a current or recent commander did not increase one's risk of being arrested. At the same time, a previous arrest of a current OR former commander was associated with a higher risk of being arrested. This effect was not very large compared to other effects reported in Table A-2. For example, for X=1919, it was equal to 0.244 ($p = 0.005$), which is several times smaller than the coefficients for some of the other variables, such as having a Latvian or Ukrainian ethnicity, having a high rank, or having made foreign visits in the past.

In Figure A-10 we estimate exponential survival models with differently coded variables, indicating whether someone who was the individual's commander (or a subordinate) at some point from 1918 to year X was arrested. So, for example, for X=1921 we are only considering people who were one's commanders and subordinates during the Russian Civil War period, while X=1936 corresponds to all past and current commanders and subordinates. Similarly, we do not find that the arrest of a current or former subordinate is associated with a higher repression risk. The arrest of one's former Civil War commander was not associated with a higher arrest risk, while the commander-subordinate relationships during the early 1930s seemed to be the source of additional risk for the subordinates during the Great Terror. In general, our findings suggest that current and former contacts played a role in the selection of targets during the purge, but that role was not decisive.

6 Promotions and Awards during the Second World War

The German invasion of the USSR on June 22, 1941 was a singularly important event in the World War II; the warfare on "Eastern Front" eventually resulted in tens of millions deaths, including millions of battlefield deaths.

Among other major factors, historians have attributed the stunning defeats of the Soviet forces in 1941-42 to the Stalin's purges of the military in 1937-38. The direct impact of the purges

Variable	*N*	Mean	Std. dev.	Min	Max
Promoted	1107	0.35	0.48	0	1
Award: Hero	935	0.06	0.24	0	1
Award: *Commander awards*	935	0.35	0.48	0	1
Award: Lenin	935	0.64	0.48	0	1
Award: Red Star	935	0.14	0.34	0	1
Award: Red Banner	935	0.72	0.45	0	1
Age in 1941	1104	45.79	5.98	29	79
Rank in 1941: Major-General	1107	0.86	0.34	0	1
Rank in 1941: Lieutenant-General	1107	0.12	0.32	0	1
Rank in 1941: Colonel-General+	1107	0.02	0.14	0	1
Position in 1941: Commander	916	0.46	0.50	0	1
Position in 1941: Academic	916	0.18	0.38	0	1
Position in 1941: Other	916	0.36	0.48	0	1
Ethnicity: Russian	783	0.81	0.39	0	1
Ethnicity: Other	783	0.19	0.39	0	1
High rank in 1935	1107	0.25	0.44	0	1

Table 3: Summary of variables, WWII generals dataset

was twofold. First, the repressed generals represented a loss of thousands of men-years of accumulated military experience. Second, their positions were filled by inexperienced commanders whose rapid promotion was due to the repression of their superiors, rather than their own achievements.

In this section, we look at the battlefield promotions and awards in the Soviet army to assess the impact of repression on the Soviet Army performance. As we shall see, the main determinants of battlefield promotion and awards in 1941-45 were the same characteristics that made it more likely that the individual was repressed in 1937-38. Theoretically, it was possible that repression improved, rather than diminished the Red Army fighting capacity – e.g., if the repressed generals were a part of some entrenched elite with obsolete skills. Instead, we confirm that the Great Terror negatively impacted the quality of the Soviet Army's commanders in the battles of the World War II.

Our data set includes 1,107 individuals who held the ranks of Major General or higher before the German invasion of the Soviet Union on June 22, 1941. We recorded whether each person was **promoted** during the period between June 22, 1941 and May 8, 1945 when the final victory over Nazi Germany was achieved. In addition, we encoded several variables that indicate whether the individual received one of the several different state awards during the same period.

Older officers may be less likely to hold administrative positions or be teaching in military academies, and for this reason less likely to be promoted or receive awards. To control for that,

	Promoted	Hero	Commander	Lenin	Red star	Red banner
Age in 1941	-0.0184***	-0.00379***	-0.0205***	0.0137***	0.000274	0.00838***
	(0.00256)	(0.00145)	(0.00281)	(0.00288)	(0.00208)	(0.00271)
Rank in 1941: Lieutenant-General	-0.0952**	0.0226	0.110**	-0.0520	-0.104***	-0.0302
	(0.0462)	(0.0254)	(0.0492)	(0.0505)	(0.0365)	(0.0475)
Rank in 1941: Colonel-General+	-0.114	-0.0303	0.329***	-0.000343	-0.147*	-0.0799
	(0.103)	(0.0597)	(0.116)	(0.119)	(0.0857)	(0.112)
N	1104	935	935	935	935	935
R2	0.0506	0.0143	0.0659	0.0287	0.0137	0.0113

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Promotions and awards during WWII

for each individual, we recorded the type of the **position in 1941**: Whether an individual was a commander or chief of staff in a division or larger unit, whether he served in a military academy, and whether he held another position such as in the General Staff of the Armed Forces. As controls, we also consider ethnicity and whether the officer was held high rank in 1935. The summary statistics for this data set are shown in Table 3.

Approximately a third of all officers who were generals by June 22, 1941 were promoted before May 8, 1945. The **Hero of the Soviet Union**, the highest level of distinction in the country, was awarded to a small minority of the officers in our data set. Approximately one third held various **commander awards** created to reward senior army personnel for their leadership.[16] The **Order of Lenin** and the **Order of the Red Banner** were given to a majority of officers in our dastaset. Finally, the less prestigious **Order of the Red Star**, typically awarded to the lower ranks, was held by a minority of the officers in our dataset.

In Table 4 we regress these dependent variables on age and rank in 1941. Younger officers were much more likely to receive a promotion in rank. The effects were both highly significant ($p < 0.0001$) and substantively very large: An increase in age by one standard deviation increased the probability of promotion by as much as 8.8%. The receipt of high-value awards was similarly associated with young age, while the less prestigious and more common Order of Lenin and Order of the Red Banner were, on the contrary, more likely to be given to older officers. In Table A-7 we report the findings. After introduction controls, the negative association with age remains for promotions and the receipt of commander awards, and the positive (and highly significant) association remains for the Order of Lenin. Conditional on other factors, people who held high ranks in 1935 were more likely to receive rank promotion, but less likely to receive the Hero of

[16] These were the Order of Suvorov, the Order of Kutuzov, the Order of Ushakov, the Order of Nakhimov, and the Order of Bogdan Khmelnitskii.

the Soviet Union Award, the highest military award at the time.

As the above evidence demonstrates, the Great Terror repressions were costly for the regime and had a strong and negative effect on the army's capability. According to a historical work (Larkin, 2016), direct consequences of repressions included understaffing of key positions that had to be filled with officers lacking adequate experience, a decrease in trust and discipline, an increased number of accidents and a drop in morale and the willingness of officers to lead. A different, large-N study (Rozenas, Talibova and Zhukov, 2022) of Soviet personnel records showed that soldiers coming from places with high levels of pre-war repressions were more obedient but showed less initiative. It is therefore a natural question whether state terror affected the efficiency and decision-making style of Soviet commanding officers and, ultimately, the human cost of war. This could have happened through the promotion of officers of higher/lower obedience or capacity or through inducing certain behaviors such as obedience. This is a question for future study that will likely require a lot of archive work and will have to address identification issues, as, for example, purge survivors may have been less likely to be assigned to lead frontline units, at least at the beginning of the war.

7 Conclusion

We perform statistical analysis of elite repression, contributing to the literature on authoritarianism and political violence. The episode we analyzed, the purge of military officers during the 1937-1938 Soviet Great Terror, was both very violent and highly intransparent. Very little is known about the logic behind these purges: Joseph Stalin, the Soviet dictator, did not leave his memoirs, the senior NKVD (secret police) leadership was almost completely eliminated in the two years following the army purges, and the archives where internal NKVD documents *may* be located remain closed to the public. Our analysis allows us to look inside this black box.

Our findings support the hypothesis that the purge was preventive in nature, but not random: Certain characteristics, both demographic and related to the officer's profile), increased the risk of being targeted; this aligns with theoretical predictions (Rozenas, 2020). In particular, the observed pattern is consistent with the removal of more competent officers because younger officers and those with more experience in the *ancient regime* army faced a significantly higher risk of repression. Previous literature argued that promotion decisions within autocracies could prioritize loyalty over competence or even treat competence as undesirable; our findings here suggest that the same logic can be present during purges when more competent regime insiders are targeted. As our other results show, this is especially costly when the war comes.

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Proofs of statements

Proof of Proposition 1

The dictator chooses which P generals to purge among the total of N generals. There is only a finite number of choices, which means that there exists a group of generals $G = \{n_1, ..., n_P\} \subset N$, purging which results in the minimal probability of a coup. Now, consider N/P groups of generals $G_m = \{n_1 + m, ..., n_P + m\}$, $m = 1, ..., N/P - 1$. (Here we use that N/P is an integer number, but the proof goes with only minor modifications for any $P \leq N$.) Notice that $\cup_{m=0}^{N/P-1} G_m = N$ and for any $m_1 \neq m_2$, $G_{m_1} \cap G_{m_2} = \varnothing$.

Consider a purge, organized as follows: first, number $m \in \{0, 1, ..., N/P - 1\}$ is selected with equal probability. Then, group G_m is purged. As everything is linear, the probability of a coup after this randomized purged is equal to the probability of a coup after purging group G. Note that each general is purged with equal probability in this purge, P/N.

Now, consider another randomized purge organized as follows. First, number $m \in \{0, 1, ..., N/P - 1\}$ is selected with equal probability. Then, group group $H_m = \{m, m + N/P, m + 2(N/P), ..., m + (P - 1)(N/P)\}$ is purged. This new randomized purge results in every general purged with probability P/N. Thus, again by linearity, purging each group H_m results in the same expected probability of a coup as purging G. That is, there is always a "uniform" purge, which is optimal for the dictator. □

Proof of Proposition 2

Consider an optimal preventive purge and an optimal purge in the network with a known participant. Consider the following sets: set A_U of all possible successful coup configurations, set C_i of all possible connected components containing node i that corresponds to the known participant of the coup and set $A_i = A_U \cap C_i$. As $A_i \subset A$, the set of optimal purges to prevent possible coups in A_i is a subset of the set of optimal purges for A, the optimal purge in A_i is more clustered around node i than an optimal preventive purge. □

A1 Supplemental tables and figures

бря 1937 г. по обвинению во вредительстве и в участии в военном заговоре приговорен к расстрелу. Приговор приведен в исполнение в тот же день. Определением Военной коллегии от 28 июля 1956 г. реабилитирован.

ЛЕПИН Эдуард Давидович. Комкор (1935). Латыш. Член ВКП(б) с мая 1920 г. С 1912 по 1918 г. состоял в Латышской социал-демократической партии.

Родился в марте 1889 г. в г. Риге в семье рабочего. С 12-летнего возраста начал работать на заводе «Феникс» сначала подручным токаря, а затем токарем. Окончил реальное училище и Петроградский коммерческий институт (в 1915 г.). За участие в революционной деятельности на три месяца высылался из Петрограда в 1913 г. В 1915 г. призван в армию рядовым. Служил в 91-м Двинском пехотном полку. Окончив ускоренный курс Александровского военного училища, офицером продолжал службу в действующей армии — в 7-м Ревельском пехотном полку Румынского фронта в должности младшего офицера роты, командира роты и батальона. Последний чин и должность в старой армии — штабс-капитан, командир батальона.

С декабря 1917 г. по февраль 1918 г. в Красной гвардии — командир отряда, действовавшего против войск украинской Центральной рады. С февраля 1918 г. — командир роты, затем батальона 1-го Московского рабочего полка. Летом 1918 г. назначен командиром этого полка. С осени того же года — командир 37-го стрелкового полка 1-й Московской рабочей дивизии. С марта 1919 г. — командир 2-й бригады той же дивизии. После вхождения частей 1-й Московской рабочей дивизии в 15-ю Инзенскую стрелковую дивизию — командир 45-й бригады этой дивизии. Участник боев на Южном фронте против войск генералов Деникина и Врангеля. В 1921–1922 гг. — слушатель Высших академических курсов (ВАК) при Военной академии РККА. С августа 1922 г. — командир и военком 26-й Златоустовской стрелковой дивизии. С сентября 1923 г. — временно исполняющий должность командира 12-го стрелкового корпуса. Затем (до ноября 1925 г.) — командир и военком 35-й стрелковой дивизии. С ноября 1925 г. по июль 1930 г. — командир и военком 13-го стрелкового корпуса. Участник боевых действий с басмачами на территории Таджикистана. В 1927 г. передислоцирует штаб и управление корпуса в Приволжский военный округ. В 1928 г. окончил КУВНАС при Военной академии имени М. В. Фрунзе. В 1930 г. был в служебной командировке в Германии. С июля 1930 г. — командир и военком 1-го стрелкового корпуса. С января 1931 г. — военный атташе при полномочном представительстве СССР в Финляндии, с февраля 1932 г. по октябрь 1933 г. — в Польше. С марта 1934 г. по октябрь 1937 г. — военный атташе при полномочном представительстве СССР в Китае.

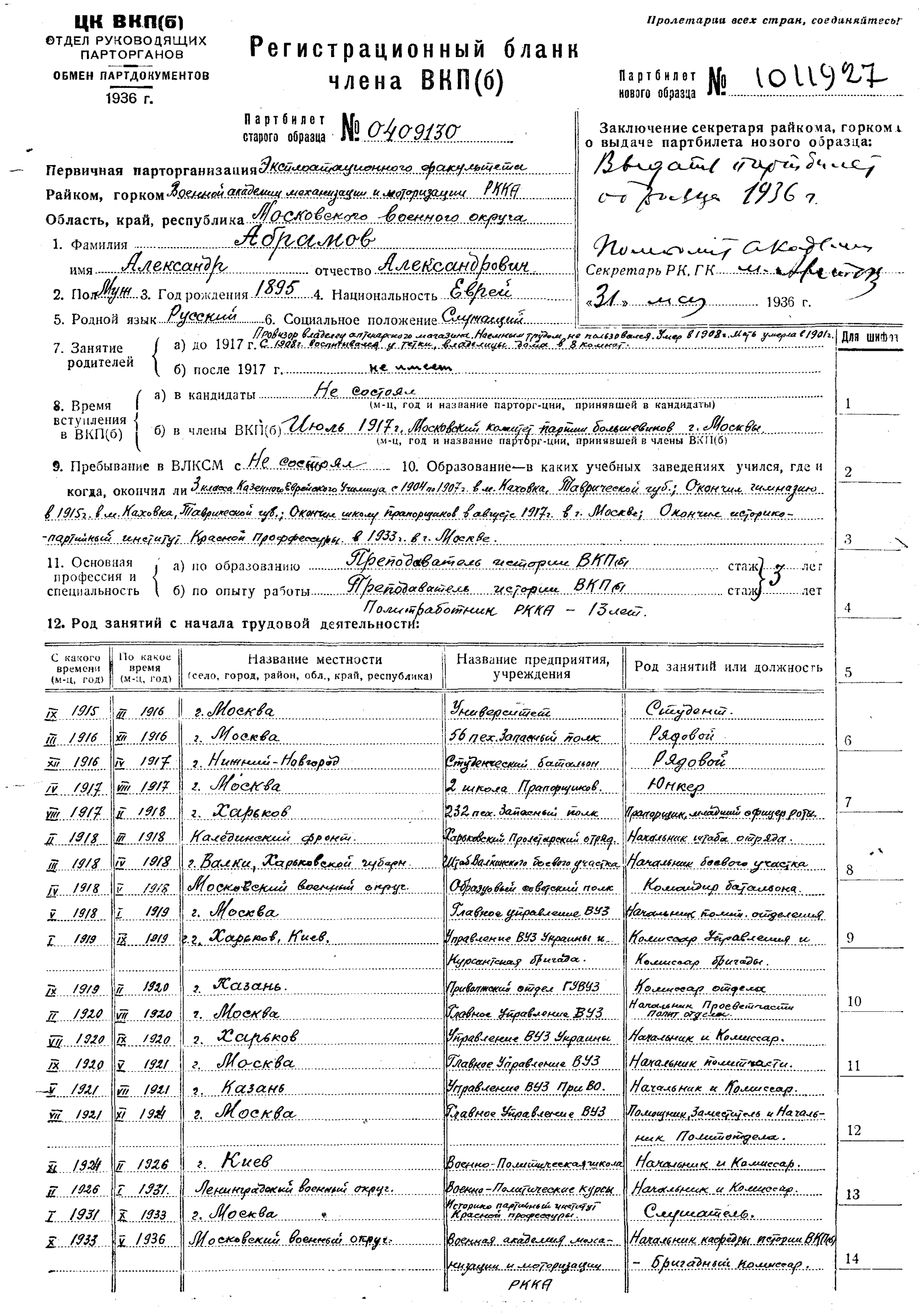
Награжден орденом Красного Знамени (1920).

Арестован 2 декабря 1937 г. Военной коллегией Верховного суда СССР 22 августа 1938 г. по обвинению в шпионаже и участии в военном заговоре приговорен к расстрелу. Приговор приведен в исполнение в тот же день. Определением Военной коллегии от 8 сентября 1956 г. реабилитирован.

ЛИСОВСКИЙ Николай Васильевич. Комкор (1935). Белорус. Член ВКП(б) с сентября 1932 г.

Родился в декабре 1885 г. в селе Адаховщина Новогрудского уезда Минской губернии в семье священника. Окончил Минское духовное училище и поступил в Минскую духовную семинарию, которую не окончил (в феврале 1905 г. исключен за

Figure A-1: Source: A collection of short biographies.



ЦК ВКП(б)
ОТДЕЛ РУКОВОДЯЩИХ ПАРТОРГАНОВ
ОБМЕН ПАРТДОКУМЕНТОВ
1936 г.

Пролетарии всех стран, соединяйтесь!

Регистрационный бланк члена ВКП(б)

Партбилет нового образца № 1011927

Партбилет старого образца № 0409130

Заключение секретаря райкома, горкома о выдаче партбилета нового образца: Выдать партбилет [illegible] 1936 г.
[illegible]
Секретарь РК, ГК [illegible]
«31» мая 1936 г.

Первичная парторганизация Эксплоатационного факультета
Райком, горком Военной академии механизации и моторизации РККА
Область, край, республика Московского военного округа
1. Фамилия Абрамов
имя Александр отчество Александрович
2. Пол Муж 3. Год рождения 1895 4. Национальность Еврей
5. Родной язык Русский 6. Социальное положение Служащий
7. Занятие родителей а) до 1917 г. Провизор владелец аптекарского магазина. Наемным трудом не пользовался. Умер в 1908 г. Мать умерла в 1901 г. С 1908 г. воспитывался у тетки, владелицы дома в 8 комнат.
б) после 1917 г. не имеет
8. Время вступления в ВКП(б) а) в кандидаты Не состоял (м-ц, год и название парторг-ции, принявшей в кандидаты) 1
б) в члены ВКП(б) Июль 1917 г. Московский комитет партии большевиков г. Москвы. (м-ц, год и название парторг-ции, принявшей в члены ВКП(б))
9. Пребывание в ВЛКСМ с Не состоял по 10. Образование—в каких учебных заведениях учился, где и когда, окончил ли 3 класса Казенного Еврейского Училища с 1904 по 1907 г. в м. Каховка, Таврической губ.; Окончил гимназию в 1915 г. в м. Каховка, Таврической губ.; Окончил школу прапорщиков в августе 1917 г. в г. Москве; Окончил историко-партийный институт Красной Профессуры в 1933 г. в г. Москве. 2 3
11. Основная профессия и специальность а) по образованию Преподаватель истории ВКП(б) стаж 3 лет
б) по опыту работы Преподаватель истории ВКП(б) стаж 3 лет
Политработник РККА – 13 лет. 4
12. Род занятий с начала трудовой деятельности:

С какого времени (м-ц, год)	По какое время (м-ц, год)	Название местности (село, город, район, обл., край, республика)	Название предприятия, учреждения	Род занятий или должность	Для шифра
					5
IX 1915	III 1916	г. Москва	Университет	Студент.	
III 1916	XII 1916	г. Москва	56 пех. Запасный полк	Рядовой	6
XII 1916	IV 1917	г. Нижний-Новгород	Студенческий батальон	Рядовой	
IV 1917	VIII 1917	г. Москва	2 школа Прапорщиков.	Юнкер	
VIII 1917	II 1918	г. Харьков	232 пех. Запасный полк	Прапорщик, младший офицер роты.	7
II 1918	III 1918	Калединский фронт.	Харьковский Пролетарский отряд.	Начальник штаба отряда.	
III 1918	IV 1918	г. Валки, Харьковской губерн.	Штаб Валкинского боевого участка	Начальник боевого участка	8
IV 1918	V 1918	Московский военный округ.	Образцовый советский полк	Командир батальона.	
V 1918	I 1919	г. Москва	Главное управление ВУЗ	Начальник полит. отделения	
I 1919	IX 1919	г.г. Харьков, Киев.	Управление ВУЗ Украины и Курсантская бригада.	Комиссар Управления и Комиссар бригады.	9
IX 1919	II 1920	г. Казань.	Приволжский отдел ГУВУЗ	Комиссар отдела	
II 1920	VII 1920	г. Москва	Главное Управление ВУЗ	Начальник Просветчасти Полит отдела.	10
VII 1920	IX 1920	г. Харьков	Управление ВУЗ Украины	Начальник и Комиссар.	
IX 1920	V 1921	г. Москва	Главное Управление ВУЗ	Начальник политчасти.	11
V 1921	VII 1921	г. Казань	Управление ВУЗ При ВО.	Начальник и Комиссар.	
VII 1921	XI 1924	г. Москва	Главное Управление ВУЗ	Помощник, Заместитель и Начальник Политотдела.	12
XI 1924	II 1926	г. Киев	Военно-Политическая школа	Начальник и Комиссар.	
II 1926	I 1931.	Ленинградский военный округ.	Военно-Политические курсы	Начальник и Комиссар.	13
I 1931	X 1933	г. Москва	Историко партийный институт Красной профессуры.	Слушатель.	
X 1933	V 1936	Московский военный округ.	Военная академия механизации и моторизации РККА	Начальник кафедры истории ВКП(б) – Бригадный комиссар.	14

Figure A-2: Source: RGASPI archive (a questionnaire to obtain new Communist party ID).

Variable	*N*	Mean	Std. dev.	Min	Max
Rank: Brigade	1844	0.67	0.47	0	1
Rank: Division	1844	0.25	0.43	0	1
Rank: Corps or higher	1844	0.08	0.28	0	1
Category: Regular	1844	0.47	0.50	0	1
Category: Political	1844	0.28	0.45	0	1
Category: Administrative	1844	0.05	0.21	0	1
Category: Engineering	1844	0.07	0.26	0	1
Category: Medical	1844	0.05	0.21	0	1
Category: Judicial	1844	0.08	0.27	0	1
Age	1815	42.96	6.15	32	79
Ethnicity: Russian	1765	0.62	0.49	0	1
Ethnicity: Jewish	1765	0.12	0.32	0	1
Ethnicity: Ukrainian	1765	0.07	0.25	0	1
Ethnicity: Latvian	1765	0.06	0.23	0	1
Ethnicity: Belarusian	1765	0.05	0.21	0	1
Ethnicity: Other	1765	0.09	0.29	0	1
Parents: Peasant	1600	0.32	0.47	0	1
Parents: Worker	1600	0.22	0.42	0	1
Parents: Nobility	1600	0.08	0.27	0	1
Parents: Other	1600	0.38	0.49	0	1
Visited Germany	1844	0.05	0.22	0	1
Party member before 1917	1671	0.06	0.25	0	1
Born within 1937 borders	1681	0.82	0.39	0	1
Old army: Private	1548	0.12	0.33	0	1
Old army: Unter-ofizer	1548	0.16	0.36	0	1
Old army: Ober-ofizer	1548	0.35	0.48	0	1
Old army: Major+	1548	0.07	0.26	0	1
Old army: Did not serve	1548	0.24	0.43	0	1
Old army: No data/unranked	1548	0.06	0.23	0	1
Higher education by 1923	1844	0.06	0.24	0	1
Order of Red Banner by 1926	1844	0.17	0.38	0	1
Tukhachevsky case	1425	0.24	0.42	0	1
First Cavalry Army	1417	0.07	0.26	0	1

Table A-1: Summary of variables

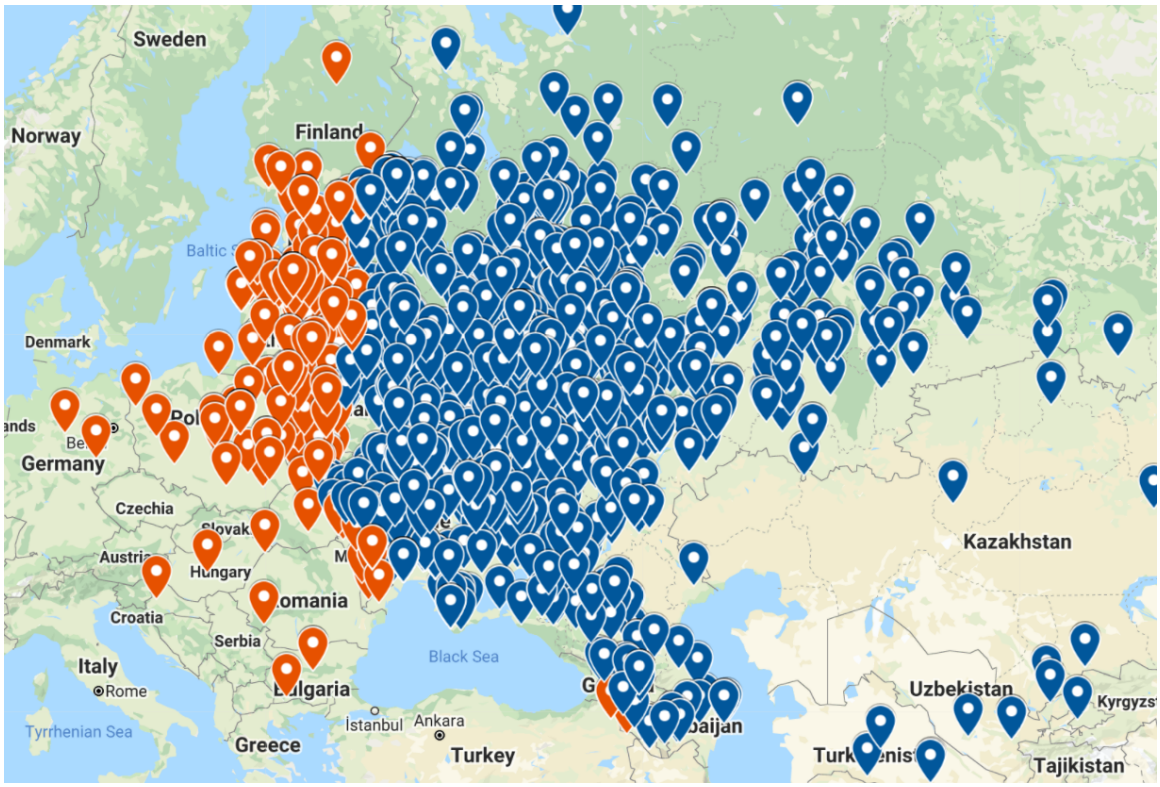


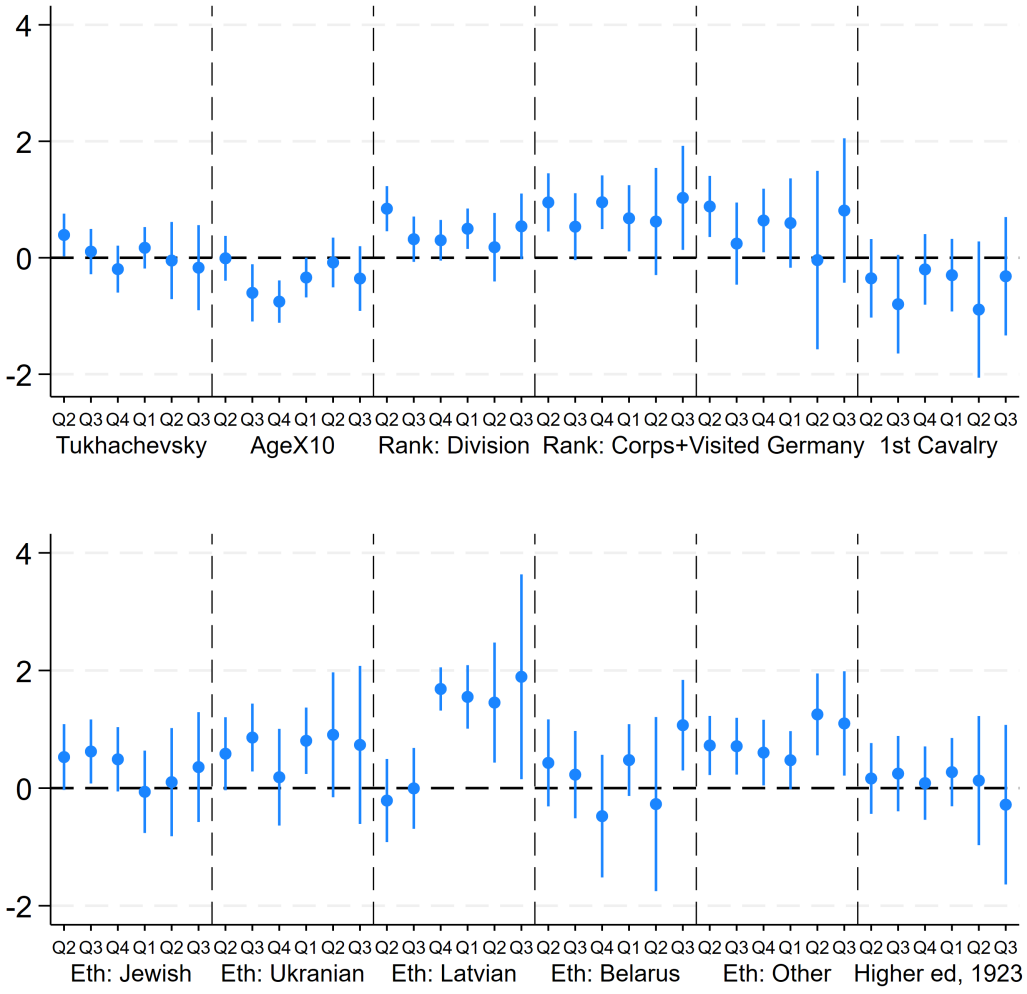
Figure A-3: Places of birth (red indicates outside 1937 Soviet borders)

	(1)		(2)		(3)	
Analysis time when record ends						
Age	-0.0435***	(0.00662)	-0.0398***	(0.00809)	-0.0340***	(0.00834)
Rank: Division	0.444***	(0.0731)	0.374***	(0.0687)	0.321***	(0.0721)
Rank: Corps or higher	0.962***	(0.101)	0.665***	(0.0898)	0.613***	(0.0891)
Category: Political	0.159**	(0.0756)	0.225**	(0.0907)	0.275***	(0.0926)
Category: Administrative	0.180	(0.143)	0.118	(0.148)	0.131	(0.151)
Category: Engineering	-0.222	(0.149)	0.00874	(0.143)	-0.0168	(0.150)
Category: Medical	-0.667***	(0.235)	-0.705**	(0.309)	-0.954**	(0.371)
Category: Judicial	-0.716***	(0.167)	-0.583***	(0.175)	-0.510***	(0.186)
Ethnicity: Jewish			0.363***	(0.110)	0.321***	(0.112)
Ethnicity: Ukrainian			0.599***	(0.121)	0.630***	(0.117)
Ethnicity: Latvian			0.770***	(0.121)	0.722***	(0.121)
Ethnicity: Belarusian			0.289*	(0.147)	0.241	(0.149)
Ethnicity: Other			0.637***	(0.108)	0.619***	(0.105)
Visited Germany			0.438***	(0.114)	0.454***	(0.113)
Born within 1937 borders			-0.0255	(0.0926)	-0.0453	(0.0912)
Party member before 1917			-0.107	(0.113)	-0.136	(0.116)
Order of Red Banner by 1926			-0.0909	(0.0831)	-0.0625	(0.0838)
Higher education by 1923			0.139	(0.116)	0.186	(0.118)
Parents: Worker			0.168**	(0.0835)	0.211**	(0.0844)
Parents: Nobility			0.0555	(0.153)	0.0475	(0.158)
Parents: Other			0.235***	(0.0792)	0.267***	(0.0811)
Old army: Private			0.0341	(0.103)	0.0512	(0.104)
Old army: Unter-ofizer			0.0922	(0.111)	0.123	(0.113)
Old army: Ober-ofizer			0.0961	(0.102)	0.0769	(0.105)
Old army: Major+			0.323*	(0.191)	0.246	(0.199)
Old army: No data/unranked			0.379**	(0.154)	0.379**	(0.164)
First Cavalry Army					-0.426***	(0.155)
Tukhachevsky case					0.0502	(0.0746)
Constant	-9.191***	(1.044)	-5.438***	(0.341)	-5.641***	(0.349)
Month FE	YES		YES		YES	
No. of subjects	1539		1219		1122	
No. of failures	989		819		762	
N	732887		563076		514346	
Log likelihood	-1506.50		-1396.66		-1282.21	

Exponential survival model with robust SEs. Failure indicates arrest between 1.1.1937 and 12.31.1938. For rank level, the baseline category is *brigade*. For staff category, the baseline is *regular*. For ethnicity, the baseline is *Russian*. For parental occupation, the baseline is *peasant*. For RIA rank, the baseline is *did not serve*.

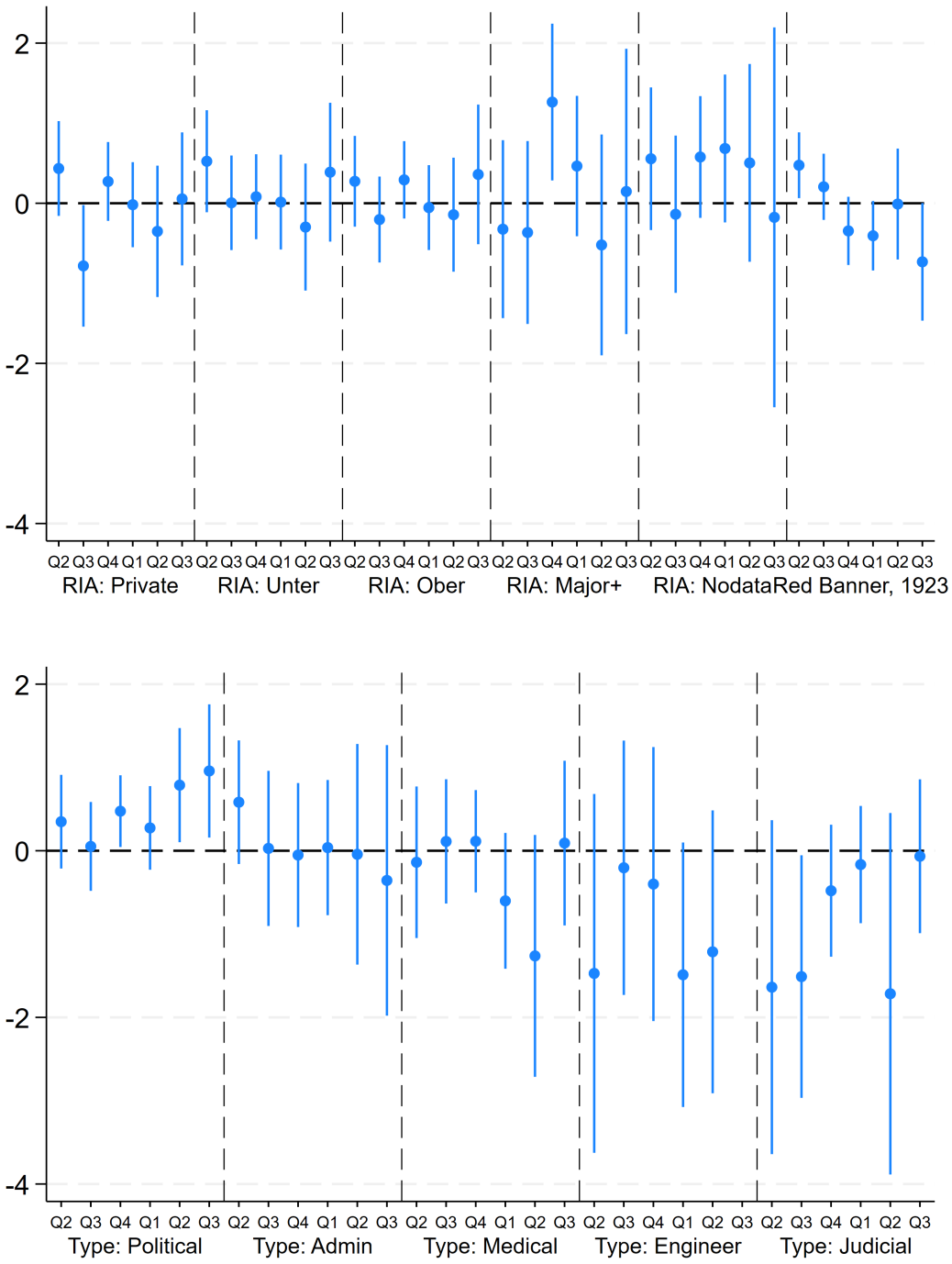
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-2: Determinants of arrest risk



Exponential survival model with robust SEs (part 1). Failure indicates arrest between 1.1.1937 and 12.31.1938. The baseline category is *brigade* for rank, *regular* for position type, and *russian* for ethnicity.

Figure A-4: The effect of personal characteristics on the risk of arrest in 1937 and 1938



Exponential survival model with robust SEs. Failure indicates arrest between 1.1.1937 and 12.31.1938. The baseline category is *brigade* for rank, *regular* for position type, and *russian* for ethnicity.

Figure A-5: The effect of personal characteristics on the risk of arrest in 1937 and 1938 (continued)

	Repressed		Fate known		Mills	
Age	-0.0142***	(0.00229)	-0.0132	(0.0100)		
Rank: Division	0.147***	(0.0419)	0.485***	(0.143)		
Rank: Corps or higher	0.395***	(0.0589)	0.799***	(0.310)		
Category: Political	-0.0176	(0.0806)	-1.071***	(0.151)		
Category: Administrative	0.0775	(0.0618)	-0.541**	(0.269)		
Category: Engineering	-0.0625	(0.0510)	-0.456**	(0.231)		
Category: Medical	-0.160**	(0.0656)	-0.563**	(0.258)		
Category: Judicial	-0.302**	(0.120)	-1.270***	(0.176)		
lambda					0.282	(0.431)
Constant	1.109***	(0.0937)	2.694***	(0.457)		
N	1816					

2-step Heckman regression. The dependent variable is whether the individual was arrested and sentenced or died before trial. For rank level, the baseline category is *brigade*. For staff category, the baseline is *regular*. For ethnicity, the baseline is *Russian*. For parental occupation, the baseline is *peasant*. For RIA rank, the baseline is *did not serve*.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-3: Determinants of repression, 2-stage Heckman correction

	(1)		(2)		(3)	
Age	-0.00100	(0.00244)	0.00171	(0.00342)	0.00119	(0.00355)
Rank: Division	0.0425	(0.0268)	0.0405	(0.0303)	0.0343	(0.0319)
Rank: Corps or higher	0.0991***	(0.0302)	0.0971**	(0.0378)	0.0823**	(0.0387)
Category: Political	-0.0425	(0.0279)	-0.0716*	(0.0398)	-0.0599	(0.0409)
Category: Administrative	0.0476	(0.0450)	0.0115	(0.0556)	0.0211	(0.0579)
Category: Engineering	-0.0602	(0.0584)	-0.0796	(0.0601)	-0.0823	(0.0644)
Category: Medical	-0.0125	(0.0763)	-0.150	(0.125)	-0.198	(0.149)
Category: Judicial	-0.327***	(0.0817)	-0.356***	(0.0959)	-0.324***	(0.0986)
Ethnicity: Jewish			0.0174	(0.0436)	0.0449	(0.0446)
Ethnicity: Ukrainian			-0.00544	(0.0516)	-0.00571	(0.0524)
Ethnicity: Latvian			0.0341	(0.0598)	0.0156	(0.0611)
Ethnicity: Belarusian			0.0460	(0.0566)	0.0363	(0.0589)
Ethnicity: Other			0.0571	(0.0425)	0.0448	(0.0435)
Visited Germany			0.0244	(0.0425)	0.0215	(0.0430)
Born within 1937 borders			0.0321	(0.0398)	0.0253	(0.0399)
Party member before 1917			-0.0608	(0.0539)	-0.0614	(0.0543)
Order of Red Banner by 1926			-0.0220	(0.0363)	-0.0206	(0.0373)
Higher education by 1923			0.0683*	(0.0382)	0.0568	(0.0398)
Parents: Worker			0.0425	(0.0379)	0.0486	(0.0389)
Parents: Nobility			-0.0273	(0.0640)	-0.0270	(0.0686)
Parents: Other			0.0167	(0.0331)	0.00595	(0.0338)
Old army: Private			-0.0645	(0.0487)	-0.0813	(0.0515)
Old army: Unter-ofizer			0.0184	(0.0469)	0.0222	(0.0483)
Old army: Ober-ofizer			-0.0308	(0.0420)	-0.0369	(0.0433)
Old army: Major+			-0.0605	(0.0759)	-0.0675	(0.0779)
Old army: No data/unranked			0.0252	(0.0681)	0.0206	(0.0745)
First Cavalry Army					-0.00656	(0.0589)
Tukhachevsky case					0.0545*	(0.0294)
Constant	0.879***	(0.105)	0.749***	(0.150)	0.772***	(0.155)
N	971		803		745	
R2	0.0432		0.0630		0.0697	

OLS regressions, robust SEs. The dependent variable is whether the individual was arrested and sentenced or died before trial. For rank level, the baseline category is *brigade*. For staff category, the baseline is *regular*. For ethnicity, the baseline is *Russian*. For parental occupation, the baseline is *peasant*. For RIA rank, the baseline is *did not serve*.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-4: Determinants of death sentence, conditional on repression

	(1)		(2)		(3)	
Age	-0.00565***	(0.00164)	-0.00694***	(0.00236)	-0.00568**	(0.00242)
Rank: Division	0.0739**	(0.0343)	0.0484	(0.0412)	0.0486	(0.0422)
Rank: Corps or higher	0.0181	(0.0798)	0.0444	(0.102)	0.0372	(0.0993)
Category: Political	0.0368	(0.0406)	0.000857	(0.0617)	-0.00477	(0.0653)
Category: Administrative	0.0485	(0.0784)	0.0225	(0.0893)	0.0508	(0.108)
Category: Engineering	-0.0961***	(0.0301)	-0.0933*	(0.0494)	-0.136***	(0.0501)
Category: Medical	-0.106***	(0.0282)	-0.144**	(0.0615)	-0.183***	(0.0624)
Category: Judicial	-0.0509	(0.0445)	-0.121**	(0.0526)	-0.137**	(0.0595)
Ethnicity: Jewish			0.0106	(0.0804)	0.0295	(0.0846)
Ethnicity: Ukrainian			0.124	(0.0873)	0.152*	(0.0921)
Ethnicity: Latvian			0.331*	(0.179)	0.323*	(0.186)
Ethnicity: Belarusian			-0.0962	(0.0623)	-0.0957	(0.0642)
Ethnicity: Other			0.272***	(0.0934)	0.257**	(0.101)
Visited Germany			0.0224	(0.135)	0.0645	(0.143)
Born within 1937 borders			-0.0814	(0.0582)	-0.111*	(0.0644)
Party member before 1917			0.133	(0.0949)	0.0319	(0.100)
Order of Red Banner by 1926			-0.0472	(0.0480)	-0.0300	(0.0491)
Higher education by 1923			-0.0781	(0.0522)	-0.0585	(0.0560)
Parents: Worker			0.0255	(0.0495)	0.0632	(0.0544)
Parents: Nobility			-0.0676	(0.0484)	-0.0567	(0.0498)
Parents: Other			0.0633	(0.0439)	0.0673	(0.0451)
Old army: Private			0.0201	(0.0639)	0.0394	(0.0673)
Old army: Unter-ofizer			-0.00477	(0.0555)	0.0125	(0.0597)
Old army: Ober-ofizer			-0.0108	(0.0537)	0.00227	(0.0566)
Old army: Major+			0.0847	(0.0797)	0.0634	(0.0808)
Old army: No data/unranked			0.0146	(0.0646)	0.0167	(0.0684)
First Cavalry Army					-0.0891*	(0.0500)
Tukhachevsky case					-0.0648	(0.0453)
Constant	0.402***	(0.0802)	0.508***	(0.132)	0.486***	(0.137)
N	742		524		466	
R2	0.0437		0.123		0.140	

OLS regression, robust SEs. The dependent variable is whether the individual was arrested, conditional on not being sentenced or dying in custody. For rank level, the baseline category is *brigade*. For staff category, the baseline is *regular*. For ethnicity, the baseline is *Russian*. For parental occupation, the baseline is *peasant*. For RIA rank, the baseline is *did not serve*.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-5: Determinants of arrest, conditional on being released or not being arrested

	(1)		(2)		(3)	
Age	0.0224*	(0.0118)	0.0214	(0.0173)	0.0142	(0.0195)
Rank: Division	0.0193	(0.109)	-0.0635	(0.136)	-0.116	(0.148)
Rank: Corps or higher	-0.203	(0.212)	-0.348*	(0.208)	-0.405*	(0.209)
Category: Political	-0.249**	(0.111)	-0.0477	(0.179)	-0.0665	(0.186)
Category: Administrative	-0.592***	(0.0917)	-0.768***	(0.164)	-0.737***	(0.177)
Ethnicity: Jewish			0.928*	(0.494)	1.090**	(0.481)
Ethnicity: Ukrainian			-0.217	(0.184)	-0.318	(0.192)
Ethnicity: Belarusian			-0.316	(0.517)	-0.274	(0.473)
Ethnicity: Other			-0.470***	(0.159)	-0.423**	(0.193)
Visited Germany			-0.183	(0.395)	-0.328	(0.367)
Born within 1937 borders			-0.297	(0.490)	-0.152	(0.474)
Party member before 1917			0.618***	(0.228)	0.794***	(0.284)
Order of Red Banner by 1926			0.113	(0.121)	0.0341	(0.131)
Higher education by 1923			-0.706***	(0.230)	-0.581**	(0.241)
Parents: Worker			-0.00362	(0.173)	-0.132	(0.188)
Parents: Nobility			-1.789***	(0.291)	-1.786***	(0.317)
Parents: Other			-0.0398	(0.141)	-0.106	(0.156)
Old army: Private			0.00401	(0.200)	-0.0793	(0.208)
Old army: Unter-ofizer			0.0732	(0.216)	0.0326	(0.210)
Old army: Ober-ofizer			0.266	(0.211)	0.282	(0.212)
Old army: Major+			1.351***	(0.437)	1.518***	(0.509)
Old army: No data/unranked			0.290	(0.524)	0.357	(0.549)
First Cavalry Army					0.296	(0.200)
Tukhachevsky case					0.141	(0.132)
Constant	-0.470	(0.500)	-0.226	(0.770)	-0.0734	(0.835)
N	113		90		88	
R2	0.100		0.298		0.329	

OLS regressions, robust SEs. The dependent variable is whether the individual appears on May 15, 1939 list of senior commanding officers. For rank level, the baseline category is *brigade*. For staff category, the baseline is *regular*. For ethnicity, the baseline is *Russian*. For parental occupation, the baseline is *peasant*. For RIA rank, the baseline is *did not serve*.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-6: Determinants of having a high-ranking position in 1939, conditional on not being repressed

	Promoted	Hero	Commander	Lenin	Red star	Red banner
Age in 1941	-0.0162***	-0.00328	-0.0184***	0.0125***	-0.00247	0.00535
	(0.00348)	(0.00212)	(0.00372)	(0.00371)	(0.00255)	(0.00351)
Rank in 1941: Lieutenant-General	-0.0829	0.0225	0.0849	-0.0604	-0.0968**	-0.0158
	(0.0533)	(0.0323)	(0.0568)	(0.0566)	(0.0389)	(0.0536)
Rank in 1941: Colonel-General+	-0.185*	-0.0308	0.209	-0.0565	-0.156*	-0.107
	(0.112)	(0.0733)	(0.129)	(0.128)	(0.0883)	(0.122)
High rank in 1935	0.0996**	-0.0466*	-0.0148	0.0108	0.00896	-0.0653
	(0.0449)	(0.0275)	(0.0483)	(0.0482)	(0.0331)	(0.0457)
Position in 1941: Academic	-0.0102	-0.0356	-0.0737	-0.0186	0.0818**	0.0883*
	(0.0526)	(0.0318)	(0.0559)	(0.0557)	(0.0383)	(0.0528)
Position in 1941: Other	0.101**	-0.0658***	-0.00502	0.0165	0.0753**	0.0283
	(0.0404)	(0.0246)	(0.0432)	(0.0431)	(0.0296)	(0.0408)
Ethnicity: Russian	0.00985	-0.00724	-0.0123	-0.0655	-0.0549*	-0.0310
	(0.0451)	(0.0275)	(0.0483)	(0.0481)	(0.0331)	(0.0456)
Constant	1.065***	0.277***	1.248***	0.136	0.256**	0.499***
	(0.155)	(0.0936)	(0.164)	(0.164)	(0.113)	(0.155)
N	724	638	638	638	638	638
R2	0.0491	0.0325	0.0657	0.0258	0.0321	0.0142

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-7: Promotions and awards during WWII, additional controls

Role	%
Division commander	10.2
Regiment commander	8.1
Division political officer	7.2
Brigade commander	7.1
Regiment political officer	4
Division chief of staff	2.9
Division deputy commander	2.8
Brigade political officer	2.8
Corps commander	2.3
Regiment deputy commander	2.2
Division deputy political officer	1.9
Okrug deputy commander	1.8
Battallion commander	1.6
Academy/school head of a kafedra	1.6
Genshtab deputy/assistant head of upravlenie	1.6
Other	41
N =8674	

Table A-8: Most frequent positions.

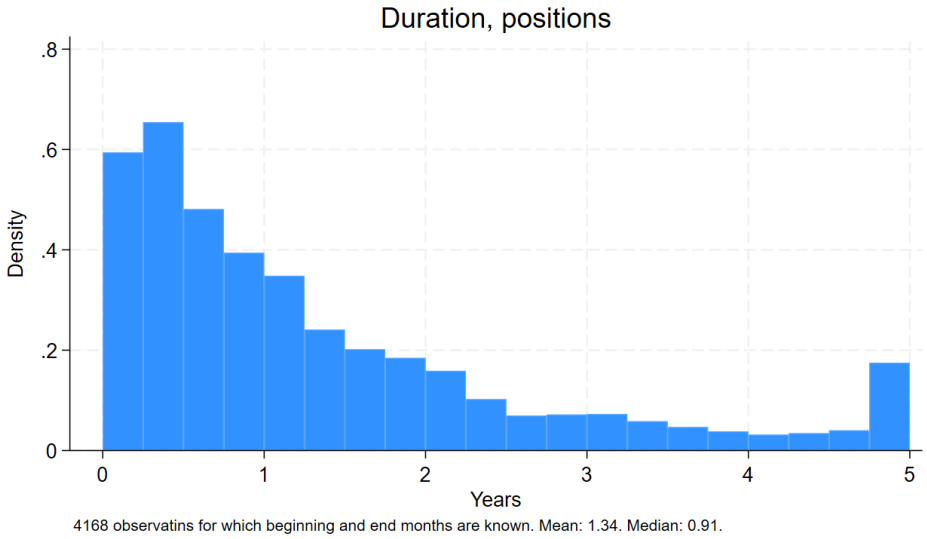


Figure A-6: Duration of positions.

Commander	Subordinate	%
Division commander	Division political officer	10.2
Division commander	Regiment commander	9.4
Okrug commander	Division commander	6.3
Division commander	Division deputy commander	4.7
Division commander	Brigade commander	4
Division commander	Division chief of staff	3.7
Army commander	Division commander	3.6
Genshtab head of upravlenie	Genshtab deputy/assistant head of upravlenie	3.3
Academy/school head	Academy/school head of a kafedra	3.3
Genshtab head of upravlenie	Genshtab head of subordinate unit in upravlenie	2.9
Division political officer	Division deputy political officer	2.3
Okrug chief of staff	Okrug deputy chief of staff	2.1
Okrug commander	Brigade commander	2
Academy/school head	Academy/school head of a facultet	2
Okrug commander	Corps commander	2
Other		37.4
N =6858		

Table A-9: Most frequent commander-subordinate connections.

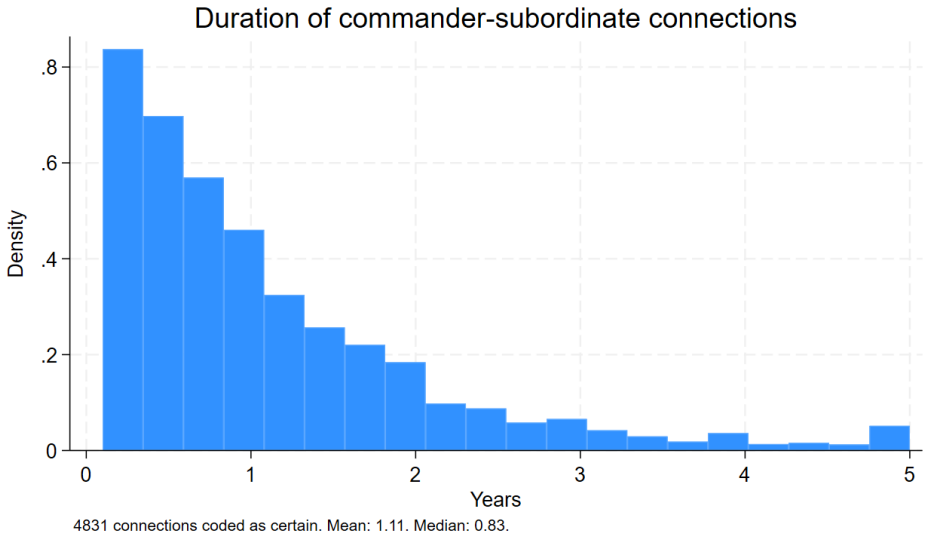


Figure A-7: Duration of commander-subordinate connections.

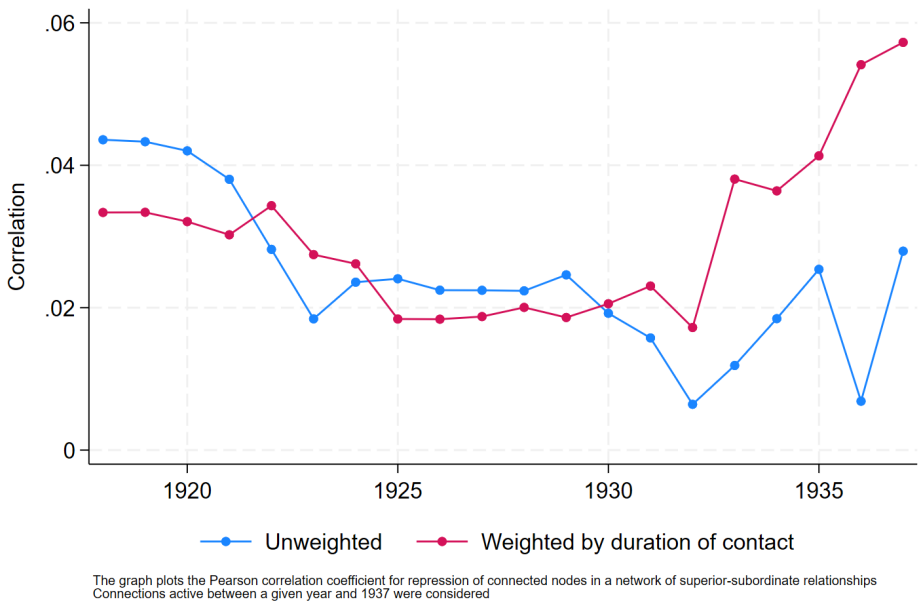


Figure A-8: Correlation between repression of commanders and their current or former subordinates.

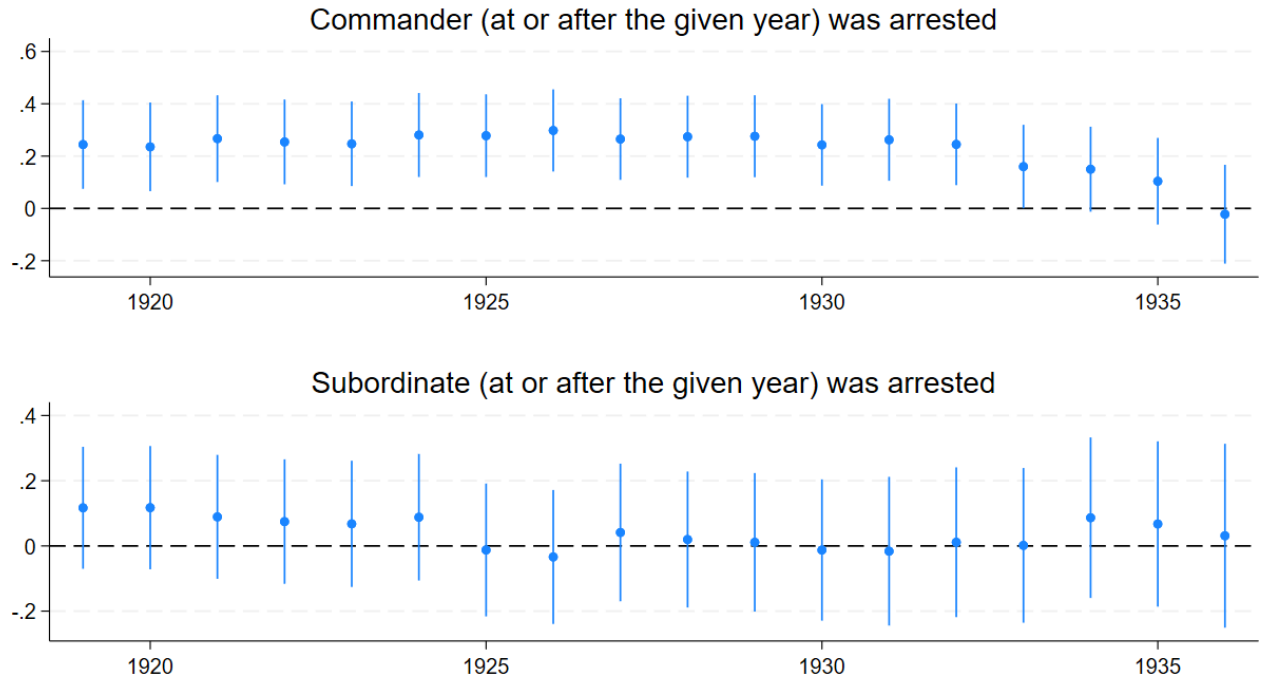


Figure A-9: How arrests of former/current commanders and subordinates impacted own arrest risk, combined models.

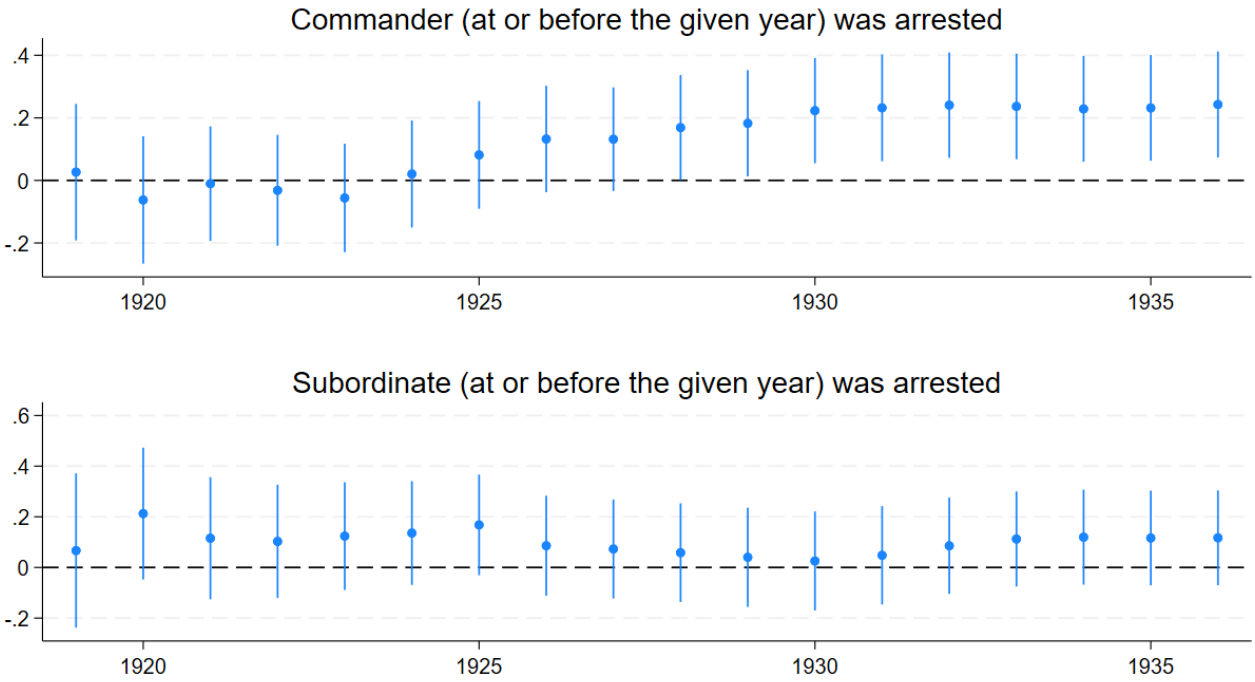


Figure A-10: How arrests of former/current commanders and subordinates impacted own arrest risk, separate models.

A2 Germano-Soviet military cooperation

In the interwar period up to 1930s, Germany was seeking to circumvent various post-WWI restrictions imposed by the Versailles treaty, while the Soviet Union wanted modern technology for arms production and was seeking to establish international legitimacy. Both sides also shared some foreign policy interests, including a hostile relationship with Poland. The cooperation took several forms. First, German officers were training at Soviet facilities. The flight center at Lipetsk was used to train air force pilots. The primary flight instruction was carried out at the ostensibly civilian facilities in Germany, while advanced tactical training was carried out in relative secrecy at the Soviet facility; from 1925 to 1933, 220 German air force pilots completed the school. From 1931 to 1933 Germany used the same facility as a testing ground for its military airplanes, employing as much as 200 German personnel at peak times Gorlov (2001). Similar joint training centers existed for tank and chemical warfare forces.

Second, Soviet officers received instruction in Germany. While Germany was prohibited from having a military academy by the Versailles treaty, advanced instruction for army officers continued under various disguises. Individual visits took on average between 2 and 5 months, but (in the case of army commander Ieronim Uborevich) could be as long as 13 months.

Visitors were organized into groups of 2-3 officers tasked with learning in a specific area (communications, tactics, etc). These contacts were the only means the Soviet Union could observe how a modern military was organized and ran. According to a 1928 report by Uborevich, "for now, [contacts with] Germans remain for us the only breathing hole through which we can study the advances in military science"Gorlov (2001).

Soviet officers also regularly attended German army maneuvers (with German officers likewise observing maneuvers in the Soviet Union). According to a German source, 143 Soviet officers ranking corps commander or higher made long-term visits to Germany.

Third, there were also efforts to locate German military production in the Soviet Union. In 1923 the Soviet government and the Junkers aircraft firm initiated a joint venture to produce whole-metal airplanes for German and Soviet militaries. The plant employed 1300 (mostly Soviet) personnel and ended up producing 170 aircraft, but was ultimately closed in 1925 over pricing disputes and other issues. Other industrial joint ventures involved chemical weapons production and testing, tanks, ammunition, and high-altitude balloons Gorlov (2001).

The Soviet-German relationships began to cool by the early 1930s. Soviet Union supported the German Communist party that was gaining popularity and controlled an increasingly larger number of seats in the German parliament. At the same time, the rising Nazi party was hostile to the Soviet Union. The military contacts between Germany and the Soviet Union effectively

ceased with Adolf Hitler's coming to power in 1933. That year, the military base in Lipetsk and the tank school in Kazan were closed and evacuated, the two sides stopped sending observers to maneuvers. The following year, General Kurt von Hammerstein-Equord, who oversaw much of the contacts between the two militaries, was forced to resign as the Commander-in-Chief of German armed forces.

In our work, we rely on several documents from the RGVA archive to compile the list of officers who visited Germany. All of the documents we use dated prior to 1937. This is important because it is more likely that an officer's visit to Germany becomes known if that officer was repressed; hence, using lists from the modern historical literature may overestimate the correspondence between visits to Germany and repression.

A3 Description of archival sources

1. Russian State Military Archive

37976/1/2 "Service records and personal files of prominent military leaders and military figures of the Red Army". This is a collection of personal files, which contain information about social background, military records, autobiographies. This collection had been compiled before the repression of the Red army higher ranks started.

37837/1/381 "Personal lists of the senior staff who were on foreign study temporary duty trips and candidates for duty trips; Correspondence with the headquarters of the Red Army and the departments of military districts about the command of senior staff abroad to get acquainted with the state of military training". The case contains a collection of documents related to the military personnel who was sent to study in Germany. The collection includes annual records of duty trips made in Germany from 1926 to 1931. In addition to that, these documents shed light on how the decision to send a military officer to Germany was made.

4/14/393 "Transcript of the meeting of the Revolutionary Military Council and reports of the group leaders on the results of trips to Germany and acquaintance with the units of the German Reichswehr/ Resolution of the Revolutionary Military Council on the use of the experience of temporary duty trips of the senior staff"

33988/3/166 "The decision of the Revolutionary Military Council on the use of the experience of duty trips of military personnel to Germany and the conclusion on the report of the State Planning Committee of the USSR on the control figures of defense measures for 1931; case 187: "Report of the Chief of Staff of the Red Army Yegorov on the trip of the Soviet delegation to Germany". In this collection, reports of military officers are given. They describe the experience of studying in Germany, impressions of the German army, and policy proposals to improve the Soviet army. Moreover, every report was presented and discussed during special sessions in the Revolutionary Military Council. The transcript of these discussions also can be found in the collection.

33987/3/295 "Military Chemical Department of the Red Army on the secondment of 3 comrades to Germany, Military Chemical Department of the Red Army - correspondence with Gerstenberg, Military Chemical Department of the Red Army on the results of the trip to Germany Rohinson, Kartsev and Blinov, Information about Tomka, Kama, Lipetsk, Report on negotiations with the Krupp firm (letter from Yakiro)". This collection includes several letters to Stalin and Voroshilov and reports on the

progress of negotiations with private german companies involved in the production of weapons. Letters contain the list of military officers who were sent to Germany under the supervision of the Military Chemical Department of the Red Army.

33987/3/375 "Record of Voroshilov's reception of General Hammerstein, and Colonel Kulental on September 5, 1929; Information about the negotiations between the Soviet and German sides regarding the work of joint ventures; Voroshilov's note to Stalin about negotiations with General Adam, Stern's note to Voroshilov; A letter from the Reichswehr Ministry to the People's Commissar with thanks for the reception, A letter from Voroshilov to Adam". This selection of notes and letters bears information about negotiations between the Soviet military command and the German generals. These negotiations were about the shipment of military equipment to Russia, the organization of Russian-German military schools, and other forms of military collaboration.

33987/3/395: "Secretariat of the Chairman of the Revolutionary Military Council of the USSR", Case 395: " Reports of the Chief and Commissar of the Military Academy of the Red Army named after M. V. Frunze on the impressions of the teachers of the Academy Krasilnikov and Svechnikov on the attitude of the leading circles of the German Reichswehr to the USSR made by them during a duty trip to Germany, Letters of K. E. Voroshilov to the Central Committee of the Central Committee of the Communist party of the Soviet Union and the Council of People's Commissars on personnel and organizational issues"

37837/18/1329 "List of leading command, political and command personnel of districts, corps, divisions and brigades of the Red Army"

2. Russian Archive of Social and Political History

17/100 "Department of Organizational and Party Work. Records Section. Personal files of senior officials on the nomenklatura of the Central Committee of the Communist Party of the Soviet Union (CPSU)."

3. Russian State Archive

Excerpts on 21 individuals were compiled by archive workers from various records in the archive