

WORLD WAR II PARTICIPATION AND CULTURAL TRANSMISSION: **A CASE STUDY OF RUSSIAN SOLDIERS**

Word count: 9486

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Master's Dissertation submitted to obtain the degree of:

Master of Science in Business Economics

Main subject: Marketing

Academic year: 2021 – 2022

ACKNOWLEDGEMENT

At the beginning of this academic year, I found it very implausible that I would be able to write a thesis on my own. It seemed like something very difficult and time-consuming. Moreover, as I was unexperienced in the subject, I started very slowly and everything was quite challenging. However, I dug deeper into the subject and into the data's potential, and more and more I could picture how I had to conduct the research. As I went along, the more I was certain that I could complete this thesis. I hope that now that my thesis is finished, it will serve as the highlight of my academic career and a lovely capstone to the four years I spent, earning my Master of Business Economics: Marketing degree.

I could never have come to this final result without the help of some people. First and foremost, I want to express my gratitude to Tom Eeckhout who supervised my thesis and put a lot of time and effort into it. His feedback was always very elaborate, hereby guiding me into the right direction. The feedback I got was encouraging, clear, and most importantly, really helpful. I also want to thank Prof. Dr. Koen Schoors for the opportunity to write my thesis about such an intriguing topic and having taken the time to brainstorm together on interesting research questions.

Finally, I'd like to express my gratitude to my friends and family for their support with my thesis and other academic accomplishments. In particular, I would like to thank my friend Nathan Staelens, who took the time to help me with my first steps into data cleaning with Python. Also, my parents and grandparents deserve a mention because they have always had faith in me. Their support has made sure that I've always persevered and can earn my degree this year.

Annelies Hoérée

Melle, August 16, 2022

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INTRODUCTION

Cultural transmission is a frequently debated phenomenon. It is the convergence of values and social customs between or within individuals as a result of living together or close to each other. For instance, migration is a subject where such transmission is frequently mentioned. There is consensus that cultural transmission occurs in two ways: (1) horizontally, for example, because of geographic exposure to a population with different values and norms; and (2) vertically, as a result of the transmission of values and norms from one generation to the next within a population.

A context wherein horizontal transmission might occur is a conflict like World War II. Countries fought each other for six years, and as a result, they also interacted. Since World War II had a significant global influence, it can be inferred that its effects are still being felt now. Post-traumatic stress disorder and other psychological effects are frequently mentioned outcomes, but changes in behavior and other effects are rarely covered in research yet. However, while cultural transmission may have occurred, shifts in soldiers' perspectives may have arisen. These divergent viewpoints can be clearly shown in their actions, such as when it comes to voting.

Voting behavior is a subject that receives a lot of attention because people want to comprehend the factors that affect it. There are some really well-liked models regarding it. The model of the Michigan voter is one such example, where voting behavior is characterized by candidate appraisal, issue position and identification, all of which have an impact on vote choice, and party identification with a further impact on the other two. Another significant approach is Fiorina's "Retrospective Voting in American National Elections", which proposes that voters evaluate candidates using straightforward performance metrics before making a decision. These models will all be used by me to formulate the hypothesis of this study.

The roots of this research—cultural transmission, World War II, and voting behavior—were covered in earlier paragraphs. These three subjects are combined in this study to examine their relationships. The Russian March Referendum of 1991 is the case to which this research shall allude and on which I will focus the research of these relationships.

First of all, it's worth looking into Russia because it's a very large nation. As (Diligensky & Chugrov, 2000) say, to more accurately forecast the course of globalization in the twenty-first century, it is crucial to take into account Russia's stance toward the West. In 1991, their way of life was significantly altered due to the collapse of the Union of Soviet Socialist Republics, also known as the USSR. Prior to this collapse, a referendum was held to determine whether or not the public thought it was "necessary the preservation of the Union of Soviet Socialist Republics as a renewed federation of equal sovereign republics in which the

rights and freedom of an individual of any ethnicity will be fully guaranteed?”. Despite the fact that the majority of voters supported keeping the Union intact, it sparked a movement that has led to its dissolution. Our variable of interest, which is determined by World War II and its effects, is the proportion of votes cast in this referendum.

In this study, I seek to comprehend how perceptions of the USSR in Russia were impacted by World War II, specifically by contact with people and subsequent exposure to Western norms and values. I'll look at if there was any cultural transmission that influenced soldiers' viewpoints and made them more critical of the system they were serving under. They may then adopt more western behaviors, spread them to their home regions, and vote more in favor of establishing a new democratic state and favoring market reforms, or "against" maintaining the USSR.

Rose, Tikhomirov and Mishler (1997) believe it to be naïve to focus entirely on recent issues, current personalities, and current politics when judging how people in Russia view parties, which raises the possibility that World War II had a significant impact.

Such research can be fascinating because it aids in determining how wars affect people and their behavior as well as when and how nations continue to prosper.

The remainder of this research is organized as follows: the following (second) section will give some historical background on the March Referendum of 1991 and the USSR in general. Then, in the third part, I will discuss some previous literature concerning the building blocks of this study, being (1) War; (2) Cultural transmission and (3) Voting behavior. The fourth part will elaborate on the hypothesis drawn in this study, and the one (fifth) following it displays the results. Hereafter, the sixth section provides a discussion of these results and the final section concludes.

HISTORICAL BACKGROUND

The Soviet Union, or the Union of Soviet Socialist Republics, was a union of 15 Soviet Socialist Republics that was established in 1922. The Communist party, led by Vladimir Lenin, held power there. Stalin took over after Lenin's passing in 1924 and turned the Soviet Union into a major military power. His five-year plans, which aimed for quick economic growth and change, resulted in a great deal of carnage and countless deaths. Resistance caused a decline in agricultural productivity, which led to the Great Famine of 1932–1933, claiming millions of lives. The USSR continued to conceal this catastrophe while keeping all loss estimates a secret. The Great Purge, often known as the height of Stalin's campaign of violence, occurred between 1936 and 1938 and involved the execution, deportation, and imprisonment of millions of Soviet residents in "gulags," or concentration camps for forced labor.

The outbreak of World War II shocked the world around September 1st, 1939. Up until 1941, the Soviet-German Non-Aggression Pact prevented Russia from being embroiled in this massive conflict (Myagkov, 2020). However, Germany violated the agreement and invaded Russia as part of operation Barbarossa (Overy, 2005) in June 1941. From this point on, Russia joined this battle with "The war on the Eastern front", often referred to as 'The Great Patriotic War' by Russians. Russia was one of the nations that suffered the most, even though it entered the battle relatively late (Gatrell & Harrison, 1993a; Myagkov, 2020), with up to 10 million military deaths.

Despite suffering heavy losses, the Red Army reached Berlin in May 1945 and continued to grow into a global force. On the decisive 9th of May 1945 (Gatrell & Harrison, 1993b), often known as The Great Victory, their Berlin offensive was successful in destroying the military capability on the eastern front. This triumph had a major influence on how Russians viewed World War II.

Overall, there were numerous consequences of this battle. There is consensus among past studies that war affects people and their behavior. Therefore, it is not surprising that Russia will experience similar effects given the number of lives lost and the intensity of the fighting. I will look at how these impacts affected their attitude toward the USSR regime in this dissertation.

Due to concerns over the rise of communism, tensions between the USSR and the United States and the United Kingdom progressively re-emerged after World War II. An alliance involving the US, Canada, and European allies, NATO was established in 1949. The Warsaw Pact, which marked the start of the Cold War, was established in 1955 when the Soviet Union consolidated strength among the nations of the Eastern Bloc. Up to the dissolution of the Soviet Union, this war will continue.

But then after Stalin passed away in 1953, Nikita Khrushchev became the new leader. The Soviet society under his control, often known as de-Stalinization, already grew less repressive. However, in 1964, he was expelled from his own political party. The Soviet populace was famished during the 1960s and 1970s while the Communist Party leadership quickly grew wealthy and powerful, which caused a gap to widen between Soviet citizens and the Communist Party, hereby the latter losing favor with younger inhabitants.

Mikhail Gorbachev entered power in 1985 and introduced the Glasnost and Perestroika programs, which were intended to modernize and advance the USSR. But starting in 1985, it got harder to maintain control over the Soviet Union, and the collapse basically began.

The most important year for the union was 1991. Gorbachov held a referendum on March 17, 1991, to determine whether or not the USSR should remain as a reconstituted federation. Of all Russians, 71% voted

in favor. However, a (failed) coup by Communist Party traditionalists in August promoted democratic principles under the direction of Boris Yeltsin. Despite the fact that this coup attempt failed, it diminished the power of the USSR and Gorbachov. As a result, the USSR fell on December 31, 1991 (*Soviet Union*, 2022).

After having discussed the role and importance of World War II in Russia, next part delves further into earlier research on the effects of conflicts and wars. I will look into three components of this paper's theory while exploring prior studies in this area: (1) Cultural transmission occurs geographically, from majority to minority groups as well as vertically, over generations; (2) Critical historical events like war can shape behaviors, such as one's opinion toward a system; (3) Attitudes and opinions shape voting behavior and are thus translated in election or referendum outcomes.

RELATED LITERATURE

Cultural transmission

Values and norms can be transmitted both inside and across groups, this process is known as cultural transmission. Cultural dissemination is a crucial transmission channel. By introducing one's own preferences, conventions, and values to a host population, one dilutes the culture of the host nation. Convergence of the cultures of the host and native countries may result from this dissemination (Rapoport et al., 2020). According to this, in my research, Russian soldiers who served in war, may be considered as those who spread their beliefs to their home regions after the war, or the "host." Due to exposure to foreign norms and values in the western front, Russian soldiers' values may in fact be different from those of their home regions. Moreover, minority-majority transmission, for instance, can be used to spread these western standards and values to them, hereby considering Russian soldiers in Berlin as a minority in comparison to the majority of German citizens and soldiers. Exposure to the Western, different way of doing can influence their ideas about markets and the political system. Being at war, of course, the main goal was not cultural assimilation (i.e., Obtaining norms and values because it is advantageous, such as to fit in a group (Rapoport et al., 2020), However, in the long run, dissidence of the existing system can pursue itself and be passed on to next generations via vertical/generational transmission (Bisin et al., s.d.). This will ultimately lead to a vote against the existing system.

Consequences of war

It goes without saying that wars and conflicts have a substantial, sometimes enduring effect on those who were exposed to them on both a mental and physical level. Less research has been done on the topic of cultural and attitude transmission as a result of war, despite the fact that many studies may focus on the psychological effects of trauma, post-traumatic stress disorders, and other issues. Nevertheless, this is relevant given that it may result in shifts in societal behavior, such as voting habits. According to (Voors et

al., 2012), many great societal and institutional transformations are the result of a social and violent conflict. A fundamental element of these institutional changes, can be the long term impact of a large shock on someone's perspective on life, i.e. someone's preferences in terms of economics (Carmil and Breznitz 1991; Punamäki, Qouta, and El Sarraj 1997; Tedeschi and Calhoun 2004) Voors et al., (2012) have conducted study on a related topic. They investigated the effects of conflict on altruism, risk-taking, and time preference and discovered that after being exposed to violence, people become more altruistic, risk-taking, and impatient. Conflict intensity was also found to indicate greater political participation, which may lead people to more actively evaluate the system they are a part of. Additionally, as conflict intensity positively influences risk-taking behavior, it may encourage people to have a more critical stance of the system they're in (Voors et al., 2012).

Voting behaviour

Numerous studies have been conducted to better understand how people decide which political party to support. However, academics disagree frequently regarding the precise factors influencing voters' final decision. (Healy & Malhotra, 2013) claim that individuals assess governmental performance before casting their ballots. This assessment is based on how effectively they have managed topics like the economy, the war, and public safety. (Gugushvili & Kabachnik, 2015) claim that because Stalin was ultimately responsible for Russia's victory in World War II, this may be why people have a favorable opinion of him and his dictatorship. Of course, propaganda plays a significant influence in this belief as well. The evaluation will be strongly affected by whether or not people thought Stalin was a good leader and whether they believed they won The Great Patriotic war because of him, and that this would be more valuable than the millions of innocent lives he cost.

So, as mentioned before, when individuals cast their ballots, they consider past performance (Ashworth (2012) and Besley (2006). They get to choose leaders who will rule competently and honestly since they control who is chosen in this way (Fearon 1999). These theoretical propositions are supported by a model of retrospective voting, in which voters make decisions about the future by reviewing information about past governmental performance. Many political economics models assume this is how voters act (e.g., Persson et al. 1997, Canes-Wrone et al. 2001). The referendum in March 1991 about the future of the Soviet Union will also have benefited greatly from a thorough assessment of the history, therefore the theories regarding this type of voting are equally relevant to my research.

One of the most well-known theories of voting behavior, the Michigan paradigm, emphasizes three key factors that affect voting behavior: personal connection with a political party, interest in issues of national government policy, and attractiveness to the presidential candidates personally (Antunes, s.d.; Chandler, 1988). As demonstrated by Kramer (1971) and Fair (1978), the retrospective voter is opposed to this

Michigan voter because changes in objective performance measures are evaluated, such as a rising unemployment rate or declining gross domestic product (GDP) growth (Healy & Malhotra, 2013). Even while the referendum was probably more based on a "past performance review" approach, personification with the party for example, will also have had a significant impact on whether people voted to keep the system in place or not.

Another significant research, *Retrospective Voting in American National Elections* (1981) by Fiorina, also refutes the Michigan School's assertion that the typical American voter lacks both political knowledge and a coherent ideological structure (Campbell et al. 1960, Converse 1964). According to him, citizens may implement effective accountability even if they lack a basic understanding of politics by focusing on clear performance indicators. Voters just need to consider statements such as, "Are you in a better place than you were four years ago?". This is obviously a very pertinent theory because the referendum question posed to the people is extremely comparable to a heuristic query of this type.

Three methods of retrospective voting are combined in (Healy & Malhotra, 2013). These can be used to explain how Russians made their decision during the 1991 referendum. The first model is the sanctioning model, the informal reasoning for retrospective voting of Key (1966), which was later elaborated by Barro (1973) and Ferejohn (1986). According to this theory, voters support good political behavior by re-electing successful candidates and ousting unsuccessful ones. The referendum is quite similar to this, as it was the choice whether or not to sustain the successful or unsuccessful system. This way, it is a kind of 'sanctioning' of the past when people vote against preservation of the USSR.

According to the second model, developed by Fearon (1999), voters chose leaders they feel would perform the best once they are in authority. Voters can therefore choose to elect a capable leader again after learning about them from their performance in service or to support an unproven rival (Persson & Tabellini, 2002; Duch & Stevenson, 2008). Thus, the referendum presented a trade-off between maintaining the current system and choosing to vote for the fall of the USSR in the hopes of better administration in the future.

Lastly, a more psychological model was then suggested. It implies that voters are using cognitive short cuts, as suggested by the Kahneman and Tversky tradition (see, for example, Kahneman et al. 1982, Kahneman 2003). These models shouldn't be viewed as black or white, of course. The majority of individuals will have used all three of them when casting their votes in the referendum. A review of the past can be done initially. Second, if they weren't happy with the past, they might have wondered whether it was worthwhile to risk switching to a whole new system rather than keeping the old one. Finally, both processes will likely have been completed using short cuts to assess the answers to those queries.

Further, retrospective voting can be thought of as a feedback loop with four stages of (Healy & Malhotra, 2013). Voter psychology is crucial in the first two steps and can therefore have an impact on the entire process. Voters take note of global events (such as wars and natural disasters), outcomes (such as test results and macroeconomic figures), and legislative and executive decisions (Step 1). They then criticize specific elected officials for these incidents, outcomes, and actions (Step 2). These attributions subsequently prompt individuals to assess the accomplishments of officeholders, which influences their voting choices (Step 3). The manner in which events, outcomes, and actions are represented in election outcome provides incentives for elected politicians, affecting the development of policy both before and after elections (Step 4). Finally, the events and results that voters see are a direct result of these policy decisions. This loop is thus very applicable to how war will have affected decision making in the referendum.

HYPOTHESIS

The main hypothesis I'm aiming to test is whether increased exposure to conflict and Western standards and values has impacted political views on the Soviet Union. I'll look into whether the war has affected how people feel about the communist regime. I shall measure this using the results of the March 1991 Referendum, in which a vote "against preservation of the USSR" was considered a vote against the system. My research may be subdivided into three subquestions: (1) the effect of war exposure on the referendum outcomes; (2) the influence of having fought in Berlin (Western territory) on political outcome; and (3) the impact of being a prisoner of war on the referendum results.

The percentage of a region's population who have fought in the war is used to calculate the exposure to conflict in that area. Due to geographical cultural transmission, individuals encountered various values and attitudes abroad that may have influenced their perspective. We anticipate that after seeing Western politics, they will begin to view their own system with more skepticism. The percentage of votes "against" the retention of the USSR would therefore be positively influenced by regions with a higher military intensity, i.e., soldiers per capita of a region. More information about how this variable was created is given in the next paragraph that explains the data.

Additionally, the critical combat in Berlin is viewed as a much more intense means of exposure. Soldiers that fought in that battle spent a significant amount of time in Berlin, a Western culture, and may have developed a different perspective on their home systems as compared to how people live in Germany as a result. The dummy Berlin (a 1 for every soldier who was not death yet, nor disposed, discharged or a collaborator and who's value for 'LastDutyStation' was a unit that was reported to have fought in Berlin; more info in next paragraph 'Data and Methodology') is counted at the regional level for this measurement. Due to what they witnessed on the Western front, Berlin soldiers are thus predicted to raise the number of votes against

maintaining the USSR, thereby stimulating market renewal. Therefore, the purpose of my research is to investigate the degree to which cultural and attitudinal transmission occurs at the front.

Additional justifications for the fighting (whether or not in Berlin) to influence election outcomes, include the possibility that a change in attitude will result from an assessment of the leaders' performance throughout the war. According to research (Healy & Malhotra, 2013), followers judge leaders according to their past accomplishments. They will then base their decision to vote on this assessment. A favorable impression of Stalin can lead to a favorable opinion of the regime. However, when people are exposed to battle frequently and feel that "strong" leaders like Stalin aren't doing enough to help them for example, they may have a bad opinion of the system and be more inclined to vote "against" preservation. This phenomenon is the case for soldiers in general, but when the soldiers of Berlin, who made it possible to win war, evaluate the leadership negatively, it will possibly be a heavier negative feeling as they evaluate 'the one who made it possible to win war', themselves being the actual ones who won war.

People who have experienced combat have also been proven to be more politically engaged and risk-takers (Voors et al., 2012). Thus, soldiers would show similar behavior. They might vote for a new system, new markets, and reflect more critically upon the communist system as a result of such critical, renewing behavior. Even though Stalin was lauded as the leader who won the war, many innocent people suffered because of him. More harsh criticism of him and the system might cause people to consider these heinous acts more seriously and vote more "against" preservation.

The military camps during times of war are the final independent factor I will consider. Along with fighting, captured soldiers have also encountered Western values in other ways. As a result, different changes in attitudes could result. They may have unpleasant memories of the war and the system they had to fight under as a result of being exposed to such negative emotions when they were captured. This may have altered their opinions on communism and increased their desire to vote against maintaining such a system. Of course, being captured in a Western prisoner camp could have risen negative feelings about this Western way of doing, too and thus in favor of their own system. However, in this study, I anticipate that more exposure to camps in a region will have a positive impact on voting opposing the preservation of the USSR, the negative feelings towards their own system thus larger than those towards the Western system.

Of course, the history of the gulags needs to be controlled for too, since it may affect how people feel about Stalin, and the regime as a whole. It has been demonstrated that areas where gulag camps formerly existed tend to vote more against the communist system as a result of negative attitudes of the system's past (Kapelko et al., n.d.). Thus, based on the memorial's maps, we take into account the number of gulag camps that were situated in a particular area. In total, 66 of our 71 regions in the regression had at least one gulag camp in the past.

DATA AND METHODOLOGY

Independent variables

I started by obtaining the information about the Red Army from the Pamyat Naroda website¹. They aim to provide everyone with access to all the facts on the heroes of The Great Patriotic war through their project "Memory Of The People." This digitalization of historical records from the Red Army's fronts, armies, and other units during World War II included 21.733.128 soldiers from the Soviet Union. It provides info about every soldier, including their home countries, the units they served in, and things like whether or not they were taken prisoner and where.

I trimmed the dataset by excluding all soldiers whose country of origin was not Russia in order to analyze Russian voting behavior. This meant a decrease of 14.193.911 soldiers. Since it was crucial to be able to count on a regional level, I additionally filtered for soldiers who had a region of origin ('RegionNow'; more info about the translations made can be found in the Appendix Table 1) given, meaning 228.436 soldiers less. Hereby, I ended up with a database of 7.310.781 soldiers.

I created regional counts using this database. The data included a total of 79 various Russian regions.

Soldiers intensity

The first variable I estimated was the number of soldiers in a certain area, which I interpreted as a measure of that area's exposure to the conflict. This revealed how many people from a particular region went to war by tallying how many soldiers from that region there were in the database. I divided this by the region's population to determine the "intensity" of that region's involvement in the war. The numbers for the population were retrieved from Population 2010 statistics from RosStat, a Statistical Agency of Russia. Together, this provided intensity scores for 77 regions, ranging from 0,062 % (in Sakhalin) to 32,75 % (in Oryol) (Descriptive statistics are available in the Appendix Table 5). Intuitively, it can be expected that regions with a higher intensity to war, will experience more of its effects.

Berlin soldiers

Second, the number of soldiers from a certain location who participated in the crucial battle of Berlin in May 1945 is a key variable in my regression. I was able to determine which soldiers belonged to a unit that participated in the Berlin Offensive by combining the data from the variable "Last Duty Station" ("Последнее место службы ") in the dataset with the list of participating units² ("Берлинская наступательная операция")

¹ https://pamyat-naroda.ru/about/?static_hash=bd485bfa981c6f86b6c4031a7e832eddv5

² <https://pamyat-naroda.ru/ops/>

that was pulled from the Pamyat Naroda website. As not every soldier had a Last Duty Station listed, I removed the 1.906.871 observations for this variable from the dataset that hadn't any Last Duty Station given.

Moreover, I looked for "Date of Death" ('Дата смерти') and "Date of Discharge" ('Дата выбытия') dates prior to April 1st, 1945, because soldiers who were already deceased or no longer in the army couldn't have participated in the Battle of Berlin, regardless of whether their last duty station did. Since the Berlin offensive was said to have begun about April 15th, I picked April 1st, 1945, as a cutoff date.

Finally, I checked the variables 'Destiny' ('Судьба ') and 'Reason of Disposal' ('Причина выбытия ') for values that also implied they didn't fight at the Russian side in Berlin. The values I eliminated were 'legionary (traitor)' ('легионер (предатель)'); 'collaborated with the enemy, died' ('сотрудничал с врагом, погиб'); 'Collaborated with the enemy, died' ('Сотрудничал с врагом, погиб'); 'defected to the side of the Wehrmacht' ('перешел на сторону Вермахта') and 'taken prisoner (collaborated with the enemy)' ('попал в плен (сотрудничал с врагом)' for 'Destiny'.

For 'Reason of Disposal', I dropped 'defected' ('дезертировал'); 'dropped out of the unit' ('отстал от части'); 'dropped out of the unit' ('выбыл из части'); 'defected to the enemy' ('перешел на сторону врага'); 'discharged due to illness' ('выбыл по болезни'); 'dropped out' ('выбыти').

I went from having 7.310.781 entries to having 199.382 entries that were in the army in 1945, of which 803 participated in a unit that was stationed in Berlin. This gave me a total of the number of soldiers from each of the 62 regions who participated in the Battle of Berlin, ranging from 1 to 60 soldiers in a certain region that were in Berlin. I added zeros for the regions where there were no soldiers in Berlin from, resulting in a total of 79 regions with a range of 0 to 60 soldiers in Berlin. (Descriptive statistics for the Berlin Dataset can be found in the Appendix Table 4).

Soldiers in World War II camps

The number of captured soldiers imprisoned in one of the prisoner of war camps per region was the last element I examined. It's important to note that I didn't differentiate between the many types of camps (Dulag, Stalag, etc.). Each soldier who has been into a camp (measured as a 'having a value for the variable 'camps') received a 1 in dummy coding. I then calculated the number of soldiers in each region who had visited a camp at least once (having value of 1 for the dummy 'camps'). This gave me numbers ranging from 1 soldier for a certain region (Kamchatka) to 14.595 soldiers for another (Voronezh).

Political outcomes

Gorbachev called a referendum on March 17, 1991, in a desperate effort to preserve the Union. "Do you consider necessary the preservation of the Union of Soviet Socialist Republics as a renewed federation of

equal sovereign republics in which the rights and freedom of an individual of any ethnicity will be fully guaranteed?" was the question posed to the people³ (Siegelbaum L., n.d.). (In Russian: Считаете ли Вы необходимым сохранение Союза Советских Социалистических Республик как обновлённой федерации равноправных суверенных республик, в которой будут в полной мере гарантироваться права и свободы человека любой национальности?) The results appeared to bolster Gorbachev's position, as about 70% of voters favored the USSR's ongoing existence as a federal Union of "sovereign socialist nations." However, six republics chose not to participate. The referendum's results are available to the general public⁴.

I used the publicly accessible statistics of the March Referendum of 1991 as my source for information. Despite the fact that the referendum had no bearing on the results of the subsequent elections, it is nonetheless a fascinating evaluation of the population because it is the opinion polling closest to that of the USSR's collapse and, consequently, to the communist era. The general populace was asked if they would vote "in favor" or "against" the continuation of the USSR. As previously stated, this indicates whether or not they wish to sustain the current system, or move towards a new system, new markets, ... In the end, there were 70% votes for preservation.

Control variables

Gulag camps

The presence of a former gulag camp in the past is the first significant control variable. During the rulement of Stalin, Russia was invaded by these forced labor camps. Intuitively, it seems obvious that areas that experienced more gulag camps will vote more against keeping the USSR and take a more progressive, critical stance towards the communist system. Given their greater negative feelings toward the way things were, they are more interested in fresh approaches. Additionally, prior study had demonstrated that the presence of a gulag camp in a particular area caused people to vote more strongly against the USSR's preservation (Kapelko et al., s.d.).

I made use of the publicly accessible maps on the Memorial.De website⁵. I did this to determine how many gulags were located in each region. I assigned a 0 to any regions that did not have gulags, making a total of 79 observations (regions) for this control variable. A total of 419 gulag camps were scattered across those regions, as shown on the maps (Appendix Map 4). The number of gulag camps in a region ranged from zero to 32 (in Moscow Oblast).

³ Source: <https://soviethistory.msu.edu/1991-2/march-referendum/>

⁴ Via <https://www.electoralgeography.com/new/ru/countries/r/russia/russia-march-referendum-1991.html>

⁵ Vie <http://www.gulag.memorial.de/index.html>

Other control variables

In order to control for population structure, regional characteristics, and the influence of economic outcomes, I have utilized a number of other control variables.

For the population structure, I started by controlling for each region's median age. Age has been shown to affect how one feels about, say, a ruler and his or her regime. Generations in Soviet Georgia were raised indoctrinated with communist ideals and exposed to glorified portrayals of Stalin throughout the first half of the 20th century (Kitaevich 2014). The youngest generations were thus least influenced by brainwashing that extolled Stalin and communist triumphs in general because they were raised during the less authoritative 1960s and 1970s as well as Mikhail Gorbachev's perestroika and glasnost years. Thus, older ages will have a favorable effect on how people feel about the USSR government.

The next control variable was higher education. People with higher levels of education are less likely to accept the strict restrictions and controls of the previous Stalinist system (Bahry 1993). As more people hold doctoral or higher degrees, higher education is therefore anticipated to have a detrimental impact on communist attitudes.

I also added the population split between rural and urban areas. Wegren (1994) asserts that in Russia in the early 1990s, there was a noticeable urban-rural gap in the distribution of political attitudes, with rural Russians typically being less supportive of political reforms and more collectivist and egalitarian than urban Russians (Reisinger, Miller, and Hesli 1995). Thus, urbanization will have a favorable impact on opinions opposing the maintenance of the USSR.

I also inserted a dummy "Republic" to indicate whether that region was a republic (=1) and the ELF index for ethnolinguistic fractionalization, which evaluates the degree of ethnic variety in a country.

Moving on to the geographic control variables, I took into account the region's size and the distance to Saint-Petersburg's center. According to studies that examine democratic satisfaction in a variety of post-socialist countries, both of them are anticipated to positively affect the number of votes "against preservation," as people have been more critical of the quality of the current democracy in large cities and national capitals than in small and medium-sized towns and rural areas (Neundorf 2010; Pop-Eleches and Tucker 2014).

I looked at GDP per capita as indicator of economic outcomes. It is anticipated to have a positive impact on attitudes "against preservation," as support for a democratic political system is strongly and positively connected with an individual's affluence (Andersen 2012) and people with lower socioeconomic position are more likely to prefer the Soviet past (Sullivan 2013). Additionally, unemployment was added as a control variable with expected effect in the opposite direction.

Finally, we have included some information about regional average values. Trust (of a person in others, the regime, and the government), civic values about, and social capital were all included.

All control variables were retrieved from RosStat, with the exception of trust, civic, and social capital. I retrieved the variables Trust, civic engagement, and social capital from the study "Does education affect trust." (*Does Education Affect Trust? Evidence from Russia*, s.d.)

A thorough description of all variables' definitions can be found in the Appendix Table 2.

Descriptive statistics

Descriptive statistics of all these variables can be found in Table 3, 4 and 5 in Appendix. Respectively, these tables show the descriptive statistics of the original dataset, the Berlin dataset and the regional dataset. Additionally, a table (Table 1) is given with translations made to the original dataset, and Table 2 describes all variables.

THE IMPACT OF WAR ON POLITICAL OPINION

March referendum 1991: Soldiers

I will compare the results of the 1991 referendum between the different regions that had various levels of fighting, soldiers in Berlin, and convicts, in order to test my hypothesis regarding the impact of cultural transmission during times of war on political attitudes. Of course, I'll take into account any other characteristics about these regions that can affect this effect as I'm doing this.

First, I'll look for a relation between a region's level of fighting intensity—that is, the proportion of its population who served during the conflict—and its stance toward the USSR in 1991. This political stance can either be favorable, as when more than half of the votes on the referendum were cast "for" the preservation of the USSR, or it can be unfavorable, as when they cast "against" the preservation of the USSR.

According to this relationship, the following model was estimated:

$$\textit{Against Preservation}_i = \alpha + \beta * \textit{SoldiersIntensity}_i + \gamma * \textit{GulagCamps}_i + \delta * \textit{Controls}_i + \varepsilon_i$$

where *Against Preservation*_{*i*} denotes the percentage of votes cast against keeping the region's USSR intact and *i* denotes the actual region. The number of former gulag camps that were located in the area is indicated by the unique control variable *GulagCamps*_{*i*}. *Controls*_{*i*} include other factors for that region, such as the

median age, level of education, and whether or not it is a republic (all control variables were discussed extensively in previous paragraph). The error term ϵ captures all omitted influences, including any deviations from linearity. The coefficient of interest is β and examines how support for the USSR may be impacted by conflict. If our research's hypothesis is true, it is predicted that β will be positive, implying that a rise in exposure to war predicts a rise in voting against the current system.

March referendum 1991: Berlin

Secondly, I'm looking at how fighting in Berlin affected the referendum result. The degree of exposure to Germany (Western ideals) is considered, i.e., how many citizens participated in the Berlin Offensive by fighting in Berlin. Once more, political stance might be either favorable or unfavorable towards the USSR, leading to the following equation:

$$\textit{Against Preservation}_i = \alpha + \theta * \textit{BerlinIntensity}_i + \gamma * \textit{GulagCamps}_i + \delta * \textit{Controls}_i + \epsilon_i$$

All other variables, such as respectively the gulag camps of a region, control variables, and an error term, are the same as in the first equation. Measuring the potential impact of fighting on Western territory on support for the USSR regime, the coefficient of interest is θ . If our hypothesis is true then this exposure to Western values should result in a rise in support for a new system, namely voting against the USSR.

I will additionally execute the same regression but controlling for 'SoldiersIntensity', as intuitively can be understood that regions with lower intensities for fighting will also show lower effects for the Berlin variable.

$$\begin{aligned} \textit{Against Preservation}_i &= \alpha + \theta * \textit{BerlinIntensity}_i + \beta * \textit{SoldiersIntensity}_i + \gamma * \textit{GulagCamps}_i + \delta * \textit{Controls}_i \\ &+ \epsilon_i \end{aligned}$$

March referendum 1991: Camps

Third, a study on the impact of imprisonment on political opinion is conducted. I'll investigate whether having spent time in a German prison camp has affected one's views of the USSR. Once more, political stance might be either favorable or unfavorable towards the USSR, leading to the following equation:

$$\textit{Against Preservation}_i = \alpha + \rho * \textit{CampsIntensity}_i + \gamma * \textit{GulagCamps}_i + \delta * \textit{Controls}_i + \varepsilon_i$$

Again, all other variables, such as respectively the gulag camps of a region, control variables, and an error term, are the same as in the first equation. Measuring the potential impact of being captured by the Germans on support for the USSR regime, the coefficient of interest is ρ . If our hypothesis is true then this having been into a prisoner camp should result in a rise in support for a new system, namely voting against the USSR.

Again, a second regression for *CampsIntensity* will be done, with 'SoldiersIntensity' as a controller.

$$\begin{aligned} \textit{Against Preservation}_i &= \alpha + \rho * \textit{CampsIntensity}_i + \beta * \textit{SoldiersIntensity}_i + \gamma * \textit{GulagCamps}_i + \delta * \textit{Controls}_i \\ &+ \varepsilon_i \end{aligned}$$

RESULTS

First off, it must be said that after a few pretests concerning the data, I decided to use the logarithms of the independent variables, as they had a rather extreme distribution. Also, for the Control variables 'gdp_pc' and 'area' I used the logarithms of these variables.

March referendum 1991: Soldiers

In Table 1, column 1 gives estimates for the first equation's effects on the referendum results, more specifically on the number of votes cast against the USSR's preservation. The most noteworthy result is that 'Log_SoldiersIntensity', our major independent variable, is significant on a 90% confidence interval. Thus, a useful indicator of how many people support a renewed system is how many soldiers fought in each area in proportion to that area's population (i.e. soldiers per capita). The impact's direction, though, is unexpected and contradicts my theory. Former soldier-originating regions tend to vote against the USSR's preservation on average 1,47 percentage points less frequently than other regions. Therefore, this negative coefficient is unexpected and contradicts my idea. The results suggest that contrary to what I had assumed, large levels of conflict exposure actually boost people's willingness to keep the status quo. In the section following, I'll look into probable explanations for this.

On a 95% confidence level, gulag camps do indeed imply an increase of 1,87% in the average number of votes against the USSR's preservation, as proven by previous research too ((Kapelko et al., n.d.)). I also took various demographic aspects into account. On a 95% and 99% confidence level, greater education and urban population both seemed to significantly affect the votes against. Although the increase for education (2,01%) is lower than the increase for urban population (3,64%), they both suggest a rise in average votes against preservation. Thus, it is anticipated that voters who are more educated and who live more urbanized areas will be less supportive of the current system.

Additionally, regions with higher levels of trust were also found to have a favorable impact on the average number of votes cast "against." Therefore, in areas with higher levels of trust, there are on average more votes against.

Finally, republics appeared to have a negative impact on votes against. Republics generally cast fewer "against preservation" ballots.

Originally, there were eight more controllers included to the regression equation: *Distance_SPB*, *Civic*, *Median_age*, *I_area*, *unemployment_09*, *I_gdp_pc*, *elf*, and *Social_cap*. However, as each of these variables was insignificant, they are not included in the table here, but can be found back in the Appendix Table 10, which shows all five regression outcomes. While it was possible to totally exclude *unemployment_09*, *I_gdp_pc*, and *social_cap* from the model, hereby increasing explained variance, *Distance_SPB*, *civic*, *elf*, *median_age*, and *I_area* remained crucial for the explained variation and should therefore not be excluded. Using a cutoff point of 0.85, all correlations were deemed acceptable after I controlled for correlations. The two variables with the strongest correlation, being republic and *elf*, were still considered sufficiently uncorrelated to be included in the model despite having a correlation of 0.80. A correlation matrix is included in the appendix (Table 7) .

March referendum 1991: Berlin

Estimates for the second equation, which deals with the fighting in Berlin, are displayed in the second column of the table. Most significantly, the regression revealed that the variable "Log_BerlinIntensity" was significant at a 95% level of confidence. The coefficient however, like for the one of the soldiers' intensity, is going in the opposite way from what I anticipated. While I had predicted that fighting in Berlin would lead to a rise in "against" votes for the Union, the coefficient showed that it actually decreased by 1,32 percentage points as a result of the soldiers per capita fighting.

Similar results to those for Soldiers intensity were reported when demographic characteristics were controlled for. Higher levels of education and urbanization both seem to raise the number of people who vote against the system, reinforcing assumptions that these two factors encourage critical thinking and risk-taking (voting) behavior. Additionally, it was discovered that gulags increased such behavior, which is consistent with other

studies (Kapelko et al., n.d.). Both trust and republic are significant regressors, similar to the first equation. Being a republic discourages voting against the union, but trust would seem to promote it. Finally, age does appear to have a considerable influence on a 90% confidence interval, in contrast to the first equation. According to the theory put forward in the section about the control variables, as people get older, they appear to vote on average 2,93% less "against" the system, indicating that they are more in favor of the current system.

Similar to how Soldiers intensity was discussed in the preceding paragraph, the regression's variables are all displayed in the appendix table. We left out *Unemployment_09*, *l_gdp_pc*, *social_cap*, *elf*, *l_area*, *civic*, and *distance_SPB* in this table for the sake of clarity because all of these factors were insignificant (a complete regression table can however be found in the Appendix Table 9). Moreover, *unemployment_09*, *l_gdp_pc*, and *social_cap* could be taken out of the regression in order to get a better adjusted R squared, hereby improving the model. The other four factors could not be excluded from the regression since doing so would result in a lower explained variance and make other variables, such median age, less significant. All correlations were acceptable at a cutoff point of 0.85 because the *elf* and *republic* again had the highest correlation (0.80) when correlations were checked (see Appendix Table8).

March referendum 1991: Camps

The estimations for the equation relating voting and prison camps are shown in the third column. Once more, a significant influence for the variable *Log_Campsintensity* is our key discovery. However, as with the first two equations, the outcome is yet again opposite of what we would have anticipated. While I had predicted the variable containing prisoner camps to increase voting against preservation of the USSR, in fact it decreases the average voting against preservation of the USSR with 1,30 %.

Gulag camps, like the other two equations, cause a 1,85% increase in anti-presidency vote, as do education, urbanization, and trust. Similarly, republics had a -2,86% lower propensity to vote against. As previously stated, table1 seeks to provide insight into all significant variables, while an extensive table with 7 more variables that can or cannot be excluded from the regression, similar to the regressions of Berlin and Soldiers, can be found in the Appendix Table 10. Again, correlations were satisfactory, and may be found in the correlation matrix (Appendix Table 9).

TABLE 1
IMPACT ON MARCH REFERENDUM 1991: MAIN RESULTS

VARIABLES	(1)	(2)	(3)
	Votes 'Against preservation USSR' on March Referendum 1991		
Constant term	27.67 (38.50)	35.18 (37.64)	32.02 (38.15)
Log_SoldiersIntensity	-24.84* (12.84)		
Log_BerlinIntensity		-120080.28** (57160.58)	
Log_CampsIntensity			-478.66* (249.77)
Log_GulagCamps	2.21** (0.99)	2.197** (0.99)	2.19** (249.77)
Edu_higher	68.28** (32.97)	68.73** (32.74)	67.87** (32.97)
Median_age	-0.73 (0.59)	-0.93* (0.55)	-0.83 (0.57)
Republic	-6.44** (2.72)	-6.29** (2.71)	-6.66** (2.73)
Trust	0.25* (0.14)	0.23* (0.14)	0.26* (0.14)
Urban_2010	0.31*** (0.08)	0.32*** (0.08)	0.31*** (0.08)
Observations	71	71	71
R-squared	0.74	0.74	0.74

*** p<0.01, ** p<0.05, * p<0.1

Notes: Ordinary least squares with robust standard errors in parentheses. The constant term is insignificant in all three regressions. Control variables are similar across all three regressions, except for Median_age, being insignificant for (1) and (3) but not for the regression with Log_BerlinIntensity, being significant here on a 90% confidence level. Observations are the number of regions I did the regression on.

Variation of the effects

The previous section demonstrated how every coefficient of interest was discovered to have the opposite direction from what we would have anticipated. We will examine some interaction effects in order to delve into potential explanations for this.

I believe that the fact that war isn't necessarily viewed as badly now as it was at the time is the most likely cause. Previous studies have shown that Russians exaggerate their military might and frequently refer to World War 2 as their "great victory." Additionally, despite the fact that some of Stalin's repressions (such as the gulags) were incredibly harsh, he is regarded as the leader under whom they were able to win the war. Since only the positive aspects of Stalin and the USSR are highlighted while the negative ones are kept hidden, it's possible that the system was perceived as being far more favorable than it actually was by the majority of the populace.

Age appears to be a key indicator in terms of communism, according to study. Elder individuals, who grew up when communism and the regime were much more indoctrinated, believed it to be normal and did not criticize it as harshly as younger people might. It is probable that age is a key driver for how evaluations are done, given our research also indicated that age was significant and caused a decline in votes "against" the USSR.

Younger people may reflect on the war and Stalin's horrors in great detail, but older people may have a far smaller effect because they were taught not to criticize the government, which negates the age-related effects of war exposure. I'll research this effect using the interaction terms:

SoldiersIntensity x Median_age

BerlinIntensity x Median_age

CampsIntensity x Median_age

Education also plays a significant role. According to many sources, young people are given a "patriotic education" that glorifies their forefathers' successful military past. It hopes to inspire kids to take up shields themselves one day by helping them feel linked to both historical and current combat heroes (Edwards, A. & Mathers, J., 2021). Such instruction might improve their perception of the past and World War II, leading people to see these events as less terrible than they actually were and removing criticism of their government that had developed as a result of the war's exposure. However, education is also found to increase criticism and may also lead up to a more thorough evaluation when voting. The interaction effect can thus go both ways. I'll test whether these impacts are genuine using the following interaction terms:

SoldiersIntensity x Edu_higher

BerlinIntensity x Edu_higher

CampsIntensity x Edu_higher

TABLE 2
SUMMARY OF INTERACTIONS

	(1)	(2)	(3)
SoldiersIntensity x median_age	+		
BerlinIntensity x median_age		-	
CampsIntensity x median_age			+
SoldiersIntensity x edu_higher	-		
BerlinIntensity x edu_higher		-	
CampsIntensity x edu_higher			-

Notes: The sign + or – is the sign of the coefficient on the corresponding term. The ± means the ambiguous effect of interaction. Asterisks denote the level of significance of the coefficient (** p<0.05, * p<0.1).

Overall, looking at the summary of results in Table 2 or the Appendix Table 11 & 12, there is little evidence that median age or education have an impact on the effect that exposure to combat (measured by soldiers' intensity) has on how people voted in the March Referendum. The interactions for BerlinIntensity and CampsIntensity follow the same pattern. I am unable to draw the conclusion that a person's age or level of education affects how the effects of the war—such as fighting and prisoner abuse—relate to the results of the referendum.

The coefficients are unexpected despite the fact that the interaction terms are not significant. Age does appear to be important and seems to increase the effect of war and camps, hereby magnifying the decrease in the number of votes against the USSR for soldiers' intensity and camp intensity, but it decreases the effect of the Berlin battle, hereby possibly increasing the number of votes against preservation for Berlin intensity. This indicates that for Berlin Intensity, the impact of conflict is smallest as people age and regions become more populated by older people; hence, the number of votes opposing the USSR's preservation is smallest. For general war exposure or imprisonment, it is the other way round. Older people seem to evaluate these heavier and show thus a larger impact of it as they age. This might be the case because those who had participated in combat or been imprisoned were more numerous in those areas with a high elderly population and displayed criticism of the system as one of their largest consequences. Hence, it appears that cultural transmission over generations is not as powerful as once believed. The effects of the Berlin conflict will be more obvious in areas with a younger population, which will result in more criticism and thus more votes against preservation.

Berlin soldiers appear to be the exact opposite. The negative coefficient highlights the fact that as individuals age and live in older locations, the influence of the Berlin army on votes cast "against preservation" appears to diminish. This might be as a result of elderly individuals being indoctrinated into Russian culture, as was previously mentioned. They are less willing to allow another nation, like Germany, influence them.

I also interacted with education (`edu_higher`) to determine how crucial it was for the impact of exposure to conflict to manifest itself. The coefficient had a negative sign even though the interaction term was not significant in any of the three regressions. This suggests that the more educated a person becomes, the more the effect of war on his or her voting behaviour diminishes, i.e. less 'in favor' of preservation possibly. First, we anticipated that a vote against would rise. Following our regressions, it became apparent that education did in fact imply more common voting against preservation. Now, we looked into how much education determines how conflict affects people. As a result, it has a negative effect, which means that the more education a person has, the less the effect of keeping on favoring their own system takes place.

DISCUSSION OF THE RESULTS

I am aware that there may have been unidentified factors about the regions that contributed to my findings during this investigation. These endogeneity issues are specifically related to the type of research under question. For instance, it's possible that propaganda and other media had a significant effect, or that regions' levels of progressivity were already quite different from the beginning. I did, however, account for a large number of control variables, and since the results of the control variables corroborated the primary findings, I believe my main findings to be reliable.

However, the study might be useful if it uses a larger dataset. By just considering Russian soldiers in this study, the soldiers from the World War II dataset were already reduced by half. Additionally, all soldiers without a region were discarded, increasing the likelihood that some regions were underrepresented compared to reality.

Additionally, there were some assumptions made, particularly for Berlin, that it would be useful to revisit when conducting comparable study in the future. First off, all date of discharged people were removed from our Berlin dataset, making it quite small and losing the data of 5.188.375 soldiers. The variables "Destiny" and "Reason of Disposal" were then omitted in certain cases (thorough description was given in the part 'Data and Methodology'), however these variables may benefit from a more thorough approach. I also didn't include whether or not someone was captured during the Berlin offensive because the data wasn't clear on that, but it could be interesting to include this as well in a research. As a result, only 803 soldiers participated in the Battle of Berlin. Therefore, repeating the regression of `BerlinIntensity` on a bigger dataset would be worthwhile.

I took the assumptions into account when running my regression in order to perform an Ordinary Least Squares regression. The results revealed that there was not a perfect linear relationship between the independent and dependent variables. I made an effort to resolve this by using the independents' logarithms. Future studies could, however, be conducted with even more precise data, better supporting the hypotheses.

Finally, it should be noted that since I used data from a publicly accessible referendum, it's possible that these are falsified. However, there is no evidence of falsification, so I decided to leave it as is.

CONCLUSION

This paper has investigated whether exposure to a conflict can shape voting behaviour. Taking the case of World War II and the March Referendum 1991 of the USSR, we investigated how cultural transmission during war, can have shaped political opinions in Russian regions. To this aim, I studied the relation between (1) War exposure, i.e. soldiers per capita in a region; (2) Western exposure, i.e. Berlin soldiers per capita in a region and (3) prisoners per capita in a region; and the votes cast 'against preservation of the USSR' in the '91 Referendum. Our expectation was that exposure to these Western norms and values, would make one more critical and more in favor of establishing a new system, hereby thus voting more 'Against' preservation.

We find evidence that all three exposures significantly influence the voting outcomes. However, the results showed opposite effects than what we would have expected based on previous research. The findings imply that the more a region got exposed to either just war, Western values or prisoner camps, the more they are likely to vote for maintaining the USSR. This suggests that cultural transmission has thus not taken place in a way that shaped behaviours significantly.

With respect to the mechanisms underlying this effect, I tested the hypotheses whether education and age played a role in this relation. Even though the interaction terms were not significant, I found that age increases the effect of exposure to war and camps, but not to Berlin. People will thus as a result of exposure to war or being imprisoned, vote more in favor of maintaining the USSR, and this effect is biggest for elder people. Concerning exposure to Berlin, the effects of this seem to diminish as people are older. Moreover, all three exposures' effects diminish as people tend to become more educated.

The question naturally emerges whether the effects of World War II on the votes in the Referendum, are due to cultural transmission. As mentioned in the Discussion of the results part, it would be of interest to conduct the same research on more data.

This paper contributed to three topics: World War II and generally, conflicts' long term consequences; cultural transmission channels during war and lastly, how voting behaviour can get shaped by previous two. We proved linkages between the different kind of exposures during war and voting behaviour 50 years later, hereby concluding that past really matters.

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APPENDIX

TABLE 1. —TRANSLATIONS OF VARIABLES

Дата выбытия	Date of discharge
Дата смерти	Date of death
Лагерь	Camp
Последнее место службы	Last duty station
Причина выбытия	Reason for disposal
Судьба	Destiny
CountryNow	CountryNow
RegionNow	RegioNow

TABLE 2.—VARIABLE DEFINITIONS

Variable name	Definition
Soldiers	Counting of the number of soldiers from a certain russian region that fought in war
Soldiersintensity	Measure (%) for the extent to which a region fought in the war, calculated by dividing the number of soldiers of a region (Soldiers) by the number of inhabitants of that region
Berlinsoldiers	Counting of the number of soldiers from a certain russian region that fought in the crucial battle in Berlin, May 1945
Berlinintensity	Measure (%) for the extent to which a region was present at the crucial battle of Berlin, May 1945, calculated by dividing the number of soldiers of a region that were in Berlin (berlinsoldiers) by the number of inhabitants of that region
Soldiersincamps	Counting of the number of soldiers from a certain russian region that have been captured at least once in a german prisoner camp
Campsintensity	Measure (%) for the extent to which a region have been into a german camp, calculated by dividing the number of soldiers of a region that have been in a camp (soldiersincamps) by the number of inhabitants of that region
Gulags	The number of Gulag camps that was located in the region during ...
Gdp_pc	Gdp per capita in rubels
Unemployment_09	Percentage share of unemployed inhabitants in the year 2009
Edu_higher	Share of the population that has a postgraduate or higher diploma
Urban_2010	Proportion of urban population in 2010
Area	Area (SIZE?) Of the region
Median_age	Median age in the region
Elf	Ethnolinguistic fractionalization index (elf) in the region, a measure for the ethnic diversity
Trust	Indication to what extent people feel that "most people can be trusted or that you need to be very careful in dealing with people?" i.e. percent of people identifying themselves as trusting
Soc_cap	Characterized by Social cohesion ("Do you think that in our country today, there tends to be more harmony and unity or disagreement and disunity among people? ") and Participation in organizations ("Do you participate in public associations and other nonprofit organizations?")
Civic	Measure of civic behaviour
Democ_91_01	Democracy Index 1991-2001
Distance_spb	Distance to Saint Petersburg, in km
Distance_msc	Distance to Moscow, in km
Republic	Dummy = 1 if region is a republic

TABLE 3. —DESCRIPTIVE STATISTICS ORIGINAL WORLD WAR 2 DATASET

VARIABLES								
	DateDischarge	DateDeath	Camp	LastDutyStation	ReasonDisposal	Destiny	CountryNow	RegionNow
count	6811971	186232	231841	5403910	7009168	252944	7310781	7310781
unique	25570	2236	2563	719895	3250	57	1	79
top	___.12.1941	___.12.1941	шталаг IV B	375 сд	пропал без вести	Погиб в плену	Russia	moscow oblast
freq	159070	2685	19822	12270	2721404	131290	7310781	317073

Note: Descriptive statistics for the main variables across Russian regions. The number of observations for some variables is smaller because of the missing values or irrelevance. These are statistics for the original World War II dataset, distracted from Pamyat Naroda and diinished by all non-Russian soldiers and all soldiers for whom there was no ‘RegionNow’ given. On this dataset, the regional countings were made.

TABLE 4. —DESCRIPTIVE STATISTICS BERLIN DATASET

VARIABLES												
	DateDischarge	DateDeath	Camp	LastDutyStation	ReasonDisposal	Destiny	CountryNow	RegionNow	DateDeath_datetime	DateDischarge_datetime		dummy_berlin
count	199382	199382	60	199382	198946	56	199382	199382	1	172904	count	199382.000000
unique	5218	3	36	54227	139	4	1	78	1	1191	mean	0.0040
top	__05.1945	nan	шталаг IV B	2 сд	убит	Погиб в плёну	Russia	voronezh	1945-12-11 00:00:00	1945-05-01 00:00:00	std	0.0633
freq	6534	199380	9	1066	74921	30	199382	8135	1	9730	min	0.00
first	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	1945-12-11 00:00:00	1945-04-02 00:00:00	25%	0.00
last	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	1945-12-11 00:00:00	1991-07-17 00:00:00	50%	0.00
											75%	0.00
											max	1.00

Note: Descriptive statistics for the main variables across Russian regions of the Berlin dataset. The number of observations for some variables is smaller because of the missing values or irrelevance. These are statistics for the Berlin dataset, i.e. the ‘original dataset’ from table 3 but adjusted so that it contains only soldiers who were present at the battle in Berlin. The variable ‘LastDutyStation’ thus only contains units that were reported present in that battle (see Table 6).

TABLE 5. —DESCRIPTIVE STATISTICS REGIONAL DATASET

VARIABLES							
	Soldiers	popul_2010_x	SoldiersIntensity	SoldiersInCamps	CampsIntensity	BerlinSoldiers	BerlinIntensity
count	71.00	7.10e+01	71.00	71.00	71.00	71.00	7.10e+01
mean	101058.82	1.91e+06	0.06	3231.09	0.00	11.10	6.67e-06
std	90397.38	1.81e+06	0.07	3645.39	0.00	13.49	1.09e-05
min	205.00	1.57e+05	0.00	1.00	0.00	0.00	0.00
25%	19389.50	8.47e+05	0.02	292.00	0.00	1.00	9.30e-07
50%	76034.00	1.30e+06	0.04	1488.00	0.00	5.00	4.00e-06
75%	163019.00	2.60e+06	0.07	5798.00	0.00	18.50	7.14e-06
max	317073.00	1.20e+07	0.33	14595.00	0.01	60.00	6.09e-05

TABLE 5. —DESCRIPTIVE STATISTICS REGIONAL DATASET

VARIABLES													
	log_GulagCamps	republic	l_gdp_pc	unemployment_09	edu_higher	urban_2010	area	median_age	elf	trust	soc_cap	civic	distance_spb
count	71.00	71.00	71.00	71.00	71.00	71.00	71.00	71.00	71.00	62.00	62.00	62.00	71.00
mean	1.51	0.24	11.99	9.10	0.15	70.46	210.18	38.14	0.29	18.27	0.38	0.07	2715.85
std	0.85	0.43	0.49	2.84	0.03	11.79	484.36	3.12	0.19	4.76	0.22	0.03	2762.67
min	0.00	0.00	11.22	2.70	0.11	43.40	1.44	27.00	0.07	10.00	0.00	0.01	0.00
25%	0.69	0.00	11.65	7.70	0.13	63.70	34.60	36.95	0.13	15.00	0.23	0.05	1100.00
50%	1.39	0.00	11.96	8.70	0.14	70.70	71.00	38.50	0.21	17.00	0.35	0.07	1800.00
75%	2.20	0.00	12.19	10.25	0.15	77.50	152.97	40.60	0.42	20.00	0.53	0.09	2750.00
max	3.50	1.00	13.65	21.50	0.30	100.00	3103.20	42.30	0.84	35.00	1.00	0.17	11100.00

TABLE 5. —DESCRIPTIVE STATISTICS REGIONAL DATASET

VARIABLES			
	log_SoldiersIntensity	log_BerlinIntensity	log_CampsIntensity
count	71.00	7.10e+01	71.000
mean	0.0577	6.6729e-06	0.0019
std	0.0593	1.0861e-05	0.0027
min	0.0006	0.00e+00	0.0000
25%	0.0175	9.2979e-07	0.0003
50%	0.0408	3.9999e-06	0.0010
75%	0.0655	7.1422e-06	0.0026
max	0.2833	6.0879e-05	0.0135

Note: Descriptive statistics for the main variables across Russian regions of the regional dataset. The number of observations for some variables is smaller because of the missing values or irrelevance. THESE variables include the variables that went into the regression, being regional countings for all of them.

TABLE 6. —UNITS IN BERLIN

Units in Berlin
1 УкрФ
1 БелФ
2 БелФ
1 гв. ТА
2 ВА
2 гв. ТА
2 Уд. А
3 гв. А
3 Уд. А
3 гв. ТА
3 А
4 гв. ТА
4 ВА
5 Уд. А
5 гв. А
6 ВА
8 гв. А
13 А
16 ВА
18 ВА
28 А
33 А
47 А
49 А
52 А
61 А
65 А
69 А
70 А

TOTAL NUMBER OF UNITS: 29

This data was retrieved from the Pamyat Naroda website. It's a list of all units that were reported present during the Berlin Offensive (Берлинская наступательная операция). I used this to check for soldiers who were in these units. In total, it is a list of 29 units.

TABLE 7. — TABLE OF CORRELATIONS: SOLDIERSINTENSITY

	log_SoldiersIntensity	log_GulagCamps	l_gdp_pc	unemployment_09	edu_higher	urban_2010	l_area	median_age	elf	trust	soc_cap	civic	distance_spb	republic
log_SoldiersIntensity	1.00													
log_GulagCamps	-0.13	1.00												
l_gdp_pc	-0.30	0.25	1.00											
unemployment_09	-0.08	-0.06	-0.51	1.00										
edu_higher	-0.17	-0.18	0.36	-0.44	1.00									
urban_2010	-0.07	0.33	0.59	-0.54	0.43	1.00								
l_area	-0.20	0.62	0.33	0.19	-0.41	0.05	1.00							
median_age	0.54	-0.07	-0.05	-0.57	0.06	0.36	-0.38	1.00						
elf	-0.37	-0.12	-0.05	0.33	0.02	-0.40	0.00	-0.66	1.00					
trust	-0.06	0.17	0.24	0.14	0.06	0.25	0.25	-0.19	-0.03	1.00				
soc_cap	-0.21	0.01	0.29	-0.18	0.15	0.22	-0.03	-0.07	0.05	0.17	1.00			
civic	-0.25	0.09	0.21	-0.09	0.31	0.25	0.00	-0.10	0.00	0.04	0.01	1.00		
distance_spb	-0.40	0.27	0.32	0.21	-0.02	0.07	0.56	-0.50	0.15	0.44	0.08	-0.04	1.00	
republic	-0.23	-0.07	-0.27	0.49	-0.08	-0.51	-0.07	-0.57	0.80	-0.06	-0.03	-0.09	0.05	1.00

TABLE 8. — TABLE OF CORRELATIONS: BERLININTENSITY

	log_BerlinIntensity	log_GulagCamps	l_gdp_pc	unemployment_09	edu_higher	urban_2010	l_area	median_age	elf	trust	soc_cap	civic	distance_spb	republic
log_BerlinIntensity	1.00													
log_GulagCamps	-0.11	1.00												
l_gdp_pc	-0.22	0.25	1.00											
unemployment_09	-0.07	-0.06	-0.51	1.00										
edu_higher	-0.06	-0.18	0.36	-0.44	1.00									
urban_2010	-0.03	0.33	0.59	-0.54	0.43	1.00								
l_area	-0.17	0.62	0.33	0.19	-0.41	0.05	1.00							
median_age	0.39	-0.07	-0.05	-0.57	0.06	0.36	-0.38	1.00						
elf	-0.32	-0.12	-0.05	0.33	0.02	-0.40	0.00	-0.66	1.00					
trust	-0.04	0.17	0.24	0.14	0.06	0.25	0.25	-0.19	-0.03	1.00				
soc_cap	-0.23	0.01	0.29	-0.18	0.15	0.22	-0.03	-0.07	0.05	0.17	1.00			
civic	-0.15	0.09	0.21	-0.09	0.31	0.25	0.00	-0.10	0.00	0.04	0.01	1.00		
distance_spb	-0.28	0.27	0.32	0.21	-0.02	0.07	0.56	-0.50	0.15	0.44	0.08	-0.04	1.00	
republic	-0.20	-0.07	-0.27	0.49	-0.08	-0.51	-0.07	-0.57	0.80	-0.06	-0.03	-0.09	0.05	1.0

TABLE 9. — TABLE OF CORRELATIONS: CAMPSINTENSITY

	log_CampsIntensity	log_GulagCamps	l_gdp_pc	edu_higher	urban_2010	l_area	median_age	elf	trust	soc_cap	civic	democ_91_01	distance_spb	republic
log_CampsIntensity	1.00													
log_GulagCamps	-0.16	1.00												
l_gdp_pc	-0.28	0.25	1.00											
edu_higher	-0.10	-0.18	0.36	1.00										
urban_2010	-0.09	0.33	0.59	0.43	1.00									
l_area	-0.19	0.62	0.33	-0.41	0.05	1.00								
median_age	0.43	-0.07	-0.05	0.06	0.36	-0.38	1.00							
elf	-0.29	-0.12	-0.05	0.02	-0.40	0.00	-0.66	1.00						
trust	0.02	0.17	0.24	0.06	0.25	0.25	-0.19	-0.03	1.00					
soc_cap	-0.22	0.01	0.29	0.15	0.22	-0.03	-0.07	0.05	0.17	1.00	0.01			
civic	-0.22	0.09	0.21	0.31	0.25	0.00	-0.10	0.00	0.04	0.01	1.00			
democ_91_01	-0.21	0.24	0.36	0.12	0.57	0.08	0.20	-0.35	0.05	0.27	0.10	1.00		
distance_spb	-0.31	0.27	0.32	-0.02	0.07	0.56	-0.50	0.15	0.44	0.08	-0.04	-0.13	1.00	
republic	-0.19	-0.07	-0.27	-0.08	-0.51	-0.07	-0.57	0.80	-0.06	-0.03	-0.09	-0.36	0.05	1.00

TABLE 10. — IMPACT ON MARCH REFERENDUM 1991

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Votes 'Against preservation USSR' on March Referendum 1991				
Constant term	27.669 (38.50)	35.18 (37.64)	32.02 (38.15)	32.37 (39.02)	29.14 (39.35)
Log_SoldiersIntensity	-24.8386* (12.836)			-7.66 (24.14)	-14.9768 (42.26)
Log_BerlinIntensity		-120080.28** (57160.58)		-91041.34 (108184.02)	
Log_CampsIntensity			-478.658* (249.7734)		-201.48 (821.82)
Log_GulagCamps	2.2098** (0.9976)	2.20** (0.99)	2.1916** (249.7734)	2.20** (1.00)	2.20** (1.00)
Civic	-28.646 (20.9166)	-24.76 (20.39)	-26.849 (20.7443)	-26.35 (21.16)	-28.11 (21.24)
Distance_spb	-0.0003 (0.0003)	-0.00 (0.00)	-0.0003 (0.0003)	-0.00 (0.0003)	-0.00 (0.00)
Elf	-4.6628 (6.1580)	-5.88 (6.14)	-4.487 (6.1648)	-5.57 (6.27)	-4.5836 (6.2289)
Edu_higher	68.2840** (32.9658)	68.73** (32.74)	67.8725** (32.9685)	69.126 ** (33.08)	68.29** (33.30)
L_area	-0.9026 (0.9147)	-1.4 (0.90)	-0.9609 (0.91)	-0.986 (0.92)	-0.9206 (0.9269)
L_gdp_pc	-0.386 (2.0259)	-0.35 (2.02)	-0.4298 (2.028)	-0.3685 (2.03)	-0.408 (2.048)
Median_age	-0.7256 (0.5917)	-0.94* (0.5529)	-0.829 (0.5739)	-0.856 (0.61)	-0.7586 (0.61)
Republic	-6.440** (2.721)	-6.2875** (2.7046)	-6.663** (2.7257)	-6.32 ** (2.73)	-6.53 ** (2.775)
Soc_cap	0.16 (2.7906)	-0.1145 (2.7890)	-0.065 (2.8129)	-0.10 (2.816)	0.0469 (2.857)
Trust	0.2457* (0.14)	0.2293* (0.1401)	0.26* (0.1437)	0.236 (0.14)	0.2528 * (0.1466)
Unemployment_09	-0.01 (0.4185)	-0.0431 (0.4139)	-0.0794 (0.4159)	-0.0289 (0.42)	-0.038 (0.436)
Urban_2010	0.31*** (0.0832)	0.3188*** (0.0820)	0.3113*** (0.0831)	0.3148 *** (0.08)	0.31*** (0.08)
Observations	71	71	71	71	71
R-squared	0.738	0.741	0.738	0.7419	0.7383

*** p<0.01, ** p<0.05, * p<0.1

Notes: Ordinary least squares with robust standard errors in parentheses. The constant term is insignificant in all three regressions. Control variables are similar across all three regressions, except for Median_age, being insignificant for (1) and (3) but not for the regression with Log_BerlinIntensity, being significant here on a 90% confidence level. Observations are the number of regions we did the regression on. Column (4) and (5) are the regressions of respectively (2) and (3) but with a control for the variable 'SoldiersIntensity'.

OUTPUT 1. — REGRESSION OUTPUT SOLDIERSINTENSITY

OLS Regression Results						
Dep. Variable:	AgainstPreservation	R-squared:	0.738			
Model:	OLS	Adj. R-squared:	0.660			
Method:	Least Squares	F-statistic:	9.454			
Date:	Thu, 11 Aug 2022	Prob (F-statistic):	2.02e-09			
Time:	12:27:08	Log-Likelihood:	-170.97			
No. Observations:	62	AIC:	371.9			
Df Residuals:	47	BIC:	403.8			
Df Model:	14					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
Intercept	27.6690	38.500	0.719	0.476	-49.783	105.121
log_SoldiersIntensity	-24.8386	12.836	-1.935	0.059	-50.661	0.984
log_GulagCamps	2.2098	0.998	2.215	0.032	0.203	4.217
l_gdp_pc	-0.3863	2.026	-0.191	0.850	-4.462	3.689
unemployment_09	-0.0120	0.418	-0.029	0.977	-0.854	0.830
edu_higher	68.2840	32.966	2.071	0.044	1.965	134.603
urban_2010	0.3092	0.083	3.716	0.001	0.142	0.477
l_area	-0.9026	0.915	-0.987	0.329	-2.743	0.938
median_age	-0.7256	0.592	-1.226	0.226	-1.916	0.465
elf	-4.6628	6.158	-0.757	0.453	-17.051	7.726
trust	0.2457	0.142	1.728	0.091	-0.040	0.532
soc_cap	0.1608	2.791	0.058	0.954	-5.453	5.775
civic	-28.6464	20.917	-1.370	0.177	-70.725	13.432
distance_spb	-0.0003	0.000	-1.133	0.263	-0.001	0.000
republic	-6.4402	2.721	-2.367	0.022	-11.915	-0.966
Omnibus:	19.036	Durbin-Watson:	1.965			
Prob(Omnibus):	0.000	Jarque-Bera (JB):	48.437			
Skew:	0.818	Prob(JB):	3.03e-11			
Kurtosis:	7.009	Cond. No.	2.74e+05			

Notes:
 [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
 [2] The condition number is large, 2.74e+05. This might indicate that there are strong multicollinearity or other numerical problems.

OUTPUT 2. — REGRESSION OUTPUT BERLININTENSITY

OLS Regression Results						
Dep. Variable:	AgainstPreservation	R-squared:	0.741			
Model:	OLS	Adj. R-squared:	0.664			
Method:	Least Squares	F-statistic:	9.623			
Date:	Thu, 11 Aug 2022	Prob (F-statistic):	1.52e-09			
Time:	13:16:22	Log-Likelihood:	-170.56			
No. Observations:	62	AIC:	371.1			
Df Residuals:	47	BIC:	403.0			
Df Model:	14					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
Intercept	35.1748	37.644	0.934	0.355	-40.555	110.905
log_BerlinIntensity	-1.201e+05	5.72e+04	-2.101	0.041	-2.35e+05	-5088.029
log_GulagCamps	2.1968	0.991	2.216	0.032	0.203	4.191
l_gdp_pc	-0.3501	2.012	-0.174	0.863	-4.398	3.697
unemployment_09	-0.0431	0.414	-0.104	0.917	-0.876	0.789
edu_higher	68.7338	32.743	2.099	0.041	2.864	134.604
urban_2010	0.3188	0.082	3.889	0.000	0.154	0.484
l_area	-1.0369	0.900	-1.152	0.255	-2.848	0.774
median_age	-0.9370	0.553	-1.695	0.097	-2.049	0.175
elf	-5.8813	6.135	-0.959	0.343	-18.224	6.461
trust	0.2293	0.140	1.637	0.108	-0.052	0.511
soc_cap	-0.1145	2.789	-0.041	0.967	-5.725	5.496
civic	-24.7951	20.390	-1.216	0.230	-65.815	16.224
distance_spb	-0.0003	0.000	-1.009	0.318	-0.001	0.000
republic	-6.2875	2.705	-2.325	0.024	-11.728	-0.847
Omnibus:	21.528	Durbin-Watson:	2.020			
Prob(Omnibus):	0.000	Jarque-Bera (JB):	64.246			
Skew:	0.879	Prob(JB):	1.12e-14			
Kurtosis:	7.667	Cond. No.	3.88e+08			

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 3.88e+08. This might indicate that there are strong multicollinearity or other numerical problems.

OUTPUT 3. — REGRESSION OUTPUT BERLININTENSITY WITH SOLDIERSINTENSITY AS CONTROL

OLS Regression Results						
Dep. Variable:	AgainstPreservation	R-squared:	0.742			
Model:	OLS	Adj. R-squared:	0.658			
Method:	Least Squares	F-statistic:	8.816			
Date:	Mon, 15 Aug 2022	Prob (F-statistic):	4.66e-09			
Time:	10:17:16	Log-Likelihood:	-170.50			
No. Observations:	62	AIC:	373.0			
Df Residuals:	46	BIC:	407.0			
Df Model:	15					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
Intercept	32.3714	39.022	0.830	0.411	-46.176	110.919
log_BerlinIntensity	-9.104e+04	1.08e+05	-0.842	0.404	-3.09e+05	1.27e+05
log_SoldiersIntensity	-7.6595	24.135	-0.317	0.752	-56.241	40.922
log_GulagCamps	2.1948	1.001	2.193	0.033	0.180	4.209
l_gdp_pc	-0.3685	2.032	-0.181	0.857	-4.459	3.722
unemployment_09	-0.0289	0.420	-0.069	0.945	-0.875	0.817
edu_higher	69.1261	33.084	2.089	0.042	2.532	135.720
urban_2010	0.3148	0.084	3.760	0.000	0.146	0.483
l_area	-0.9861	0.923	-1.068	0.291	-2.844	0.872
median_age	-0.8562	0.614	-1.396	0.170	-2.091	0.379
elf	-5.5722	6.271	-0.889	0.379	-18.195	7.051
trust	0.2362	0.143	1.651	0.106	-0.052	0.524
soc_cap	-0.1002	2.816	-0.036	0.972	-5.769	5.569
civic	-26.3451	21.159	-1.245	0.219	-68.937	16.246
distance_spb	-0.0003	0.000	-1.040	0.304	-0.001	0.000
republic	-6.3244	2.733	-2.314	0.025	-11.826	-0.823
Omnibus:	20.962	Durbin-Watson:	2.000			
Prob(Omnibus):	0.000	Jarque-Bera (JB):	60.713			
Skew:	0.862	Prob(JB):	6.55e-14			
Kurtosis:	7.531	Cond. No.	7.27e+08			
Notes:						
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.						
[2] The condition number is large, 7.27e+08. This might indicate that there are strong multicollinearity or other numerical problems.						

OUTPUT 4. — REGRESSION OUTPUT CAMPSINTENSITYT

OLS Regression Results

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=====
Dep. Variable:   AgainstPreservation   R-squared:           0.738
Model:          OLS                   Adj. R-squared:      0.659
Method:         Least Squares         F-statistic:         9.436
Date:           Thu, 11 Aug 2022      Prob (F-statistic):  2.08e-09
Time:           16:22:26              Log-Likelihood:      -171.01
No. Observations: 62                 AIC:                 372.0
Df Residuals:   47                   BIC:                 403.9
Df Model:       14
Covariance Type: nonrobust
=====

```

	coef	std err	t	P> t	[0.025	0.975]
Intercept	32.0165	38.150	0.839	0.406	-44.731	108.764
log_CampsIntensity	-478.6580	249.773	-1.916	0.061	-981.137	23.821
log_GulagCamps	2.1916	0.999	2.194	0.033	0.182	4.201
l_gdp_pc	-0.4298	2.028	-0.212	0.833	-4.510	3.651
unemployment_09	-0.0794	0.416	-0.191	0.849	-0.916	0.757
edu_higher	67.8725	32.969	2.059	0.045	1.548	134.197
urban_2010	0.3113	0.083	3.746	0.000	0.144	0.478
l_area	-0.9609	0.911	-1.054	0.297	-2.794	0.872
median_age	-0.8293	0.574	-1.445	0.155	-1.984	0.325
elf	-4.4870	6.165	-0.728	0.470	-16.889	7.915
trust	0.2601	0.144	1.810	0.077	-0.029	0.549
soc_cap	-0.0652	2.813	-0.023	0.982	-5.724	5.593
civic	-26.8491	20.744	-1.294	0.202	-68.581	14.883
distance_spb	-0.0003	0.000	-1.013	0.316	-0.001	0.000
republic	-6.6630	2.726	-2.444	0.018	-12.146	-1.180

```

=====
Omnibus:           18.809   Durbin-Watson:       1.937
Prob(Omnibus):     0.000   Jarque-Bera (JB):   49.466
Skew:              0.789   Prob(JB):            1.81e-11
Kurtosis:          7.082   Cond. No.            1.68e+06
=====

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Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 1.68e+06. This might indicate that there are strong multicollinearity or other numerical problems.

OUTPUT 5. — REGRESSION OUTPUT CAMPSINTENSITY WITH SOLDIERSINTENSITY AS CONTROL

OLS Regression Results						
Dep. Variable:	AgainstPreservation	R-squared:	0.738			
Model:	OLS	Adj. R-squared:	0.653			
Method:	Least Squares	F-statistic:	8.652			
Date:	Mon, 15 Aug 2022	Prob (F-statistic):	6.23e-09			
Time:	10:20:48	Log-Likelihood:	-170.93			
No. Observations:	62	AIC:	373.9			
Df Residuals:	46	BIC:	407.9			
Df Model:	15					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
Intercept	29.1442	39.354	0.741	0.463	-50.071	108.359
log_CampsIntensity	-201.4780	821.827	-0.245	0.807	-1855.730	1452.774
log_SoldiersIntensity	-14.9768	42.264	-0.354	0.725	-100.050	70.097
log_GulagCamps	2.2003	1.008	2.182	0.034	0.170	4.230
l_gdp_pc	-0.4081	2.048	-0.199	0.843	-4.531	3.715
unemployment_09	-0.0380	0.436	-0.087	0.931	-0.915	0.839
edu_higher	68.2907	33.300	2.051	0.046	1.260	135.321
urban_2010	0.3095	0.084	3.682	0.001	0.140	0.479
l_area	-0.9206	0.927	-0.993	0.326	-2.786	0.945
median_age	-0.7586	0.613	-1.238	0.222	-1.992	0.475
elf	-4.5836	6.229	-0.736	0.466	-17.122	7.955
trust	0.2528	0.147	1.725	0.091	-0.042	0.548
soc_cap	0.0469	2.857	0.016	0.987	-5.704	5.798
civic	-28.1119	21.241	-1.323	0.192	-70.868	14.644
distance_spb	-0.0003	0.000	-1.058	0.296	-0.001	0.000
republic	-6.5339	2.775	-2.354	0.023	-12.121	-0.947
Omnibus:	18.963	Durbin-Watson:	1.951			
Prob(Omnibus):	0.000	Jarque-Bera (JB):	49.038			
Skew:	0.806	Prob(JB):	2.25e-11			
Kurtosis:	7.048	Cond. No.	5.49e+06			
Notes:						
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.						
[2] The condition number is large, 5.49e+06. This might indicate that there are strong multicollinearity or other numerical problems.						

TABLE 11. — IMPACT ON MARCH REFERENDUM: INTERACTIONS

VARIABLES	Votes 'Against preservation USSR' on March Referendum 1991		
	1	2	3
Intercept/constant	32.06 (40.69)	23.78 (40.92)	35.76 (44.06)
Log_SoldiersIntensity	47.86 (201.72)		
Log_BerlinIntensity		2612731.4277 (2819648.57)	
Log_CampsIntensity			761.73 (10361.23)
SoldiersIntensity X Median_age	1.45 (4.94)		
BerlinIntensity X Median_age		-44167.90 (61715.64)	
CampsIntensity X Median_age			26.96 (244.69)
SoldiersIntensity X Edu_higher	-888.39 (703.4812)		
BerlinIntensity X Edu_higher		-6507971.46 (6099248.2852)	
CampsIntensity X Edu_higher			-16831.8997 (16930.1333)
Log_GulagCamps	2.5477** (1.0536)	2.4065** (1.0449)	2.3620** (1.0534)
Civic	-32.0660 (21.5367)	-26.2675 (20.5567)	-29.5575 (21.3971)
Distance_spb	-0.0004 (0.0003)	-0.0003 (0.0003)	-0.0003 (0.0003)
Edu_higher	96.6608** (41.2869)	88.8030** (40.2115)	83.9459** (37.0079)
Elf	-4.8789 (6.4727)	-6.3069 (6.2075)	-4.2776 (6.7522)
L_area	-1.0512 (0.9340)	-1.0583 (0.9065)	-0.9648 (0.9258)
L_gdp_pc	-0.5479 (2.1796)	-0.1309 (2.0868)	-0.7004 (2.1982)
Median_age	-0.8492 (0.6075)	-0.7669 (0.6135)	-0.8756 (0.6464)
Republic	-6.4905** (2.7694)	-6.2262** (2.7337)	-6.8357** (2.9337)
Soc_cap	-0.1944 (2.8866)	-0.5293 (2.8382)	-0.0209 (2.8621)
Trust	0.2658* (0.1458)	0.2453* (0.1417)	0.2820* (0.1494)
Unemployment_09	-0.0430 (0.4204)	-0.0607 (0.4178)	-0.0868 (0.4256)

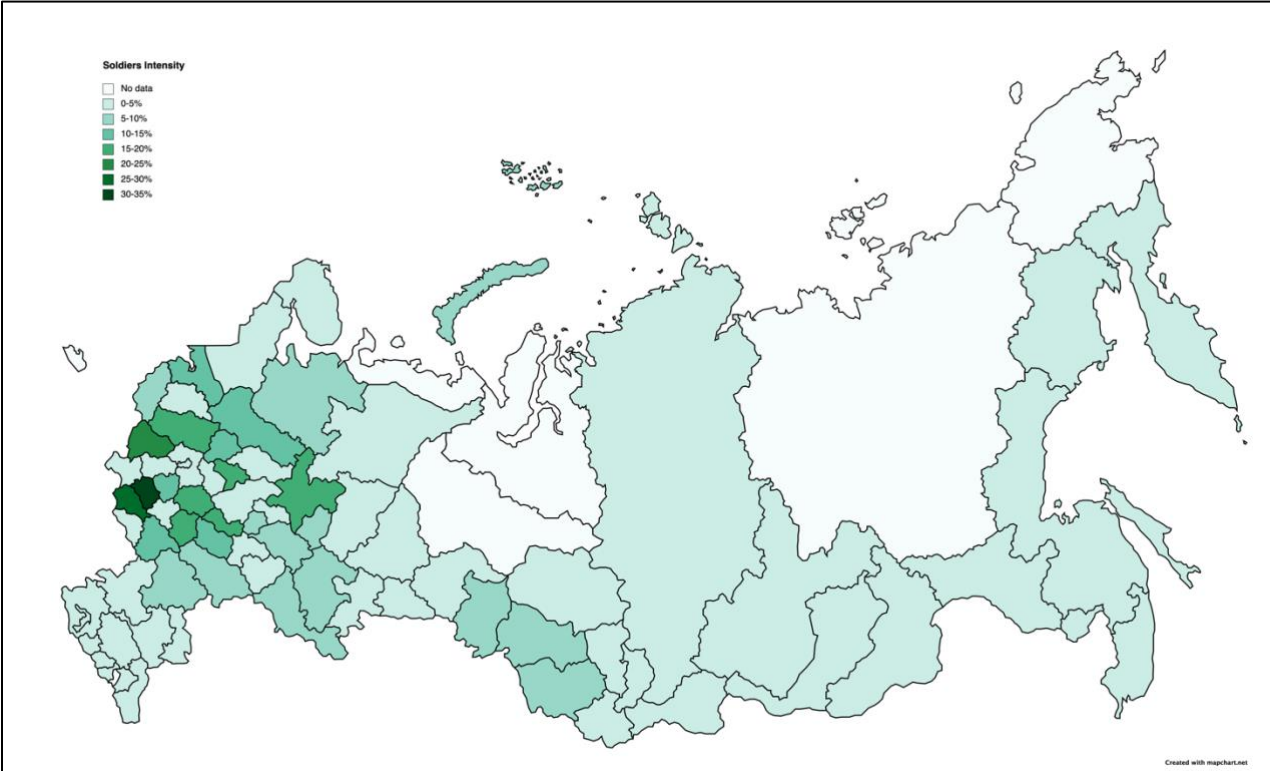
Urban_2010	0.2897*** (0.09)	0.30*** (0.08)	0.29*** (0.09)
Observations	71	71	71
R-squared	0.7477	0.7493	0.7433

TABLE 12. —SUMMARY OF INTERACTIONS

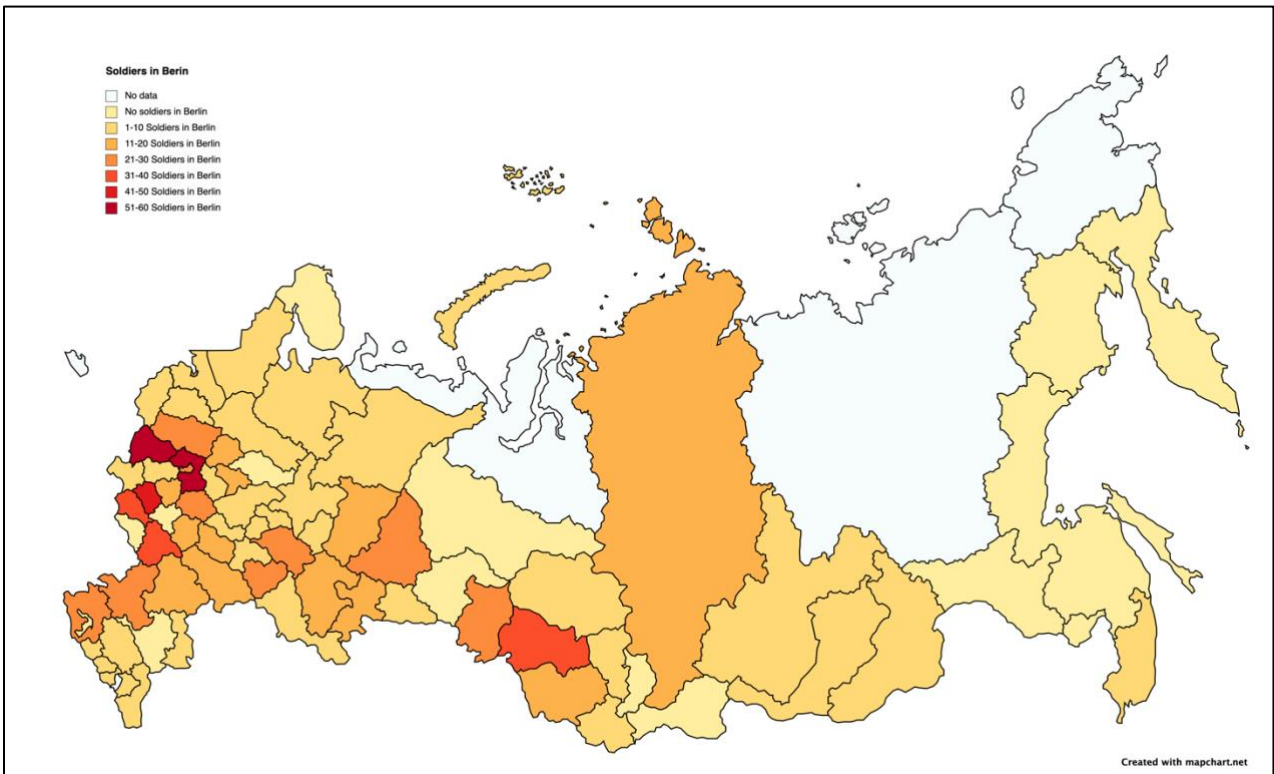
	(1)	(2)	(3)
SoldiersIntensity x median_age	+		
BelrinIntensity x median_age		-	
CampsIntensity x median_age			+
SoldiersIntensity x edu_higher	-		
BerlinIntensity x edu_higher		-	
CampsIntensity x edu_higher			-

Notes: The sign + or - is the sign of the coefficient on the corresponding term. The ± means the ambiguous effect of interaction. Asterics denote the level of significance of the coefficient (** p<0.05, * p<0.1).

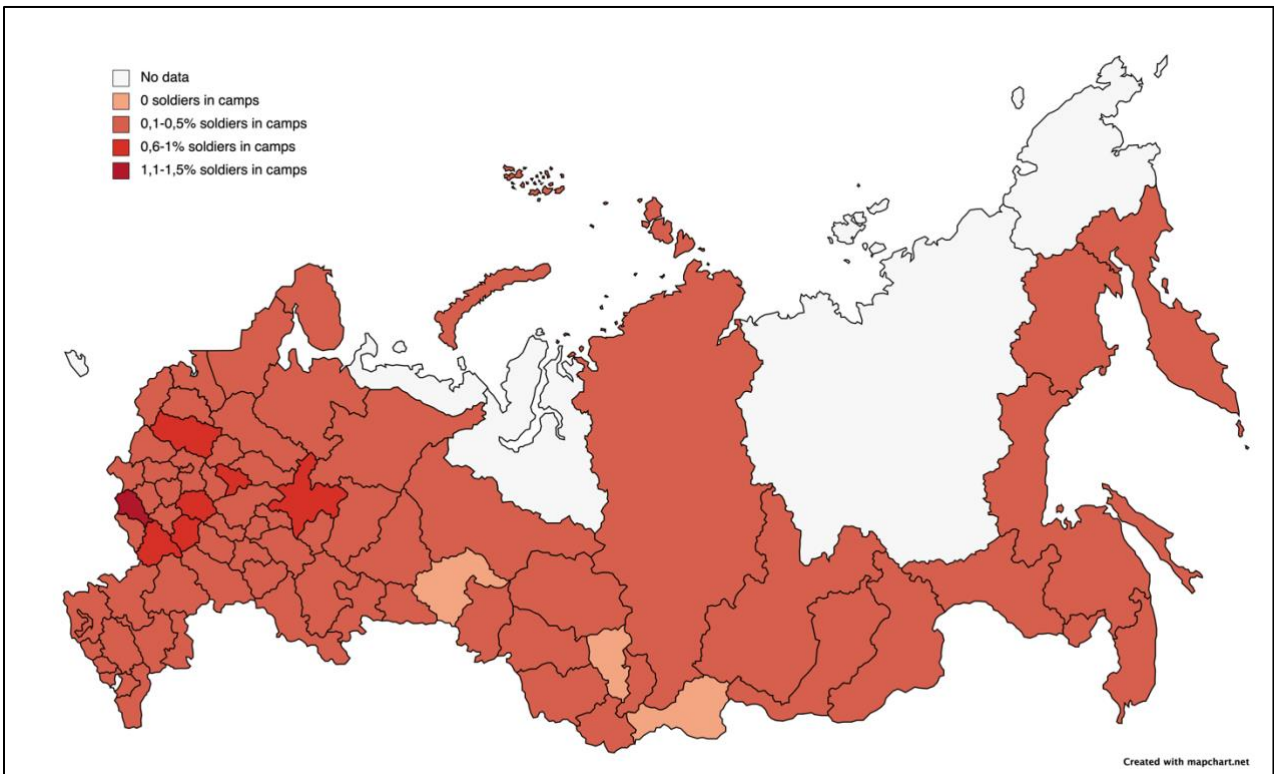
MAP 1. —SOLDIERS INTENSITY



MAP 2. —SOLDIERS IN BERLIN



MAP 3. —CAMPSINTENSITY



MAP 4. —GULAG CAMPS

