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How war affects political attitudes: Evidence from eastern Ukraine

Martin Huber
and
Svitlana Tyahlo

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Martin Huber and Svitlana Tyahlo

University of Fribourg, Department of Economics

Abstract: This study empirically evaluates the impact of the war in eastern Ukraine on the political attitudes and sentiments towards Ukraine and Russia among the population living close to the war zone on the territory controlled by the Ukrainian government. Exploiting unique survey data that were collected in early 2013 (13 months before the outbreak of the conflict) and early 2015 (11 months after the outbreak), we employ two strategies to infer how the war has affected two different groups defined by distance to the war zone. First, we apply a before-after analysis to examine intra-group changes in attitudes over time. Second, we use a difference-in-differences approach to investigate inter-group divergence over time. Under particular assumptions, the latter approach yields a lower absolute bound for the effect. We control for a range of observed characteristics and consider both parametric and semiparametric estimation based on inverse probability weighting. Our results suggest that one year of conflict negatively affected attitudes towards Russia, while mostly no statistically significant intra- or inter-group differences were found for sentiments towards Ukraine.

1　Introduction

This study aims at evaluating the impact of the conflict in eastern Ukraine on the political orientation of the population in the war-affected area. The pro-Russian unrest in the east of Ukraine, which started in April 2014 shortly after Russia had annexed Crimea in March 2014, escalated to a violent war in spring 2014. Given its geopolitical context and its implications for stability and security in Europe, this military conflict echoed far beyond in multilateral political and economic relations.[1] Exploiting unique survey data from a repeated cross section, we investigate how preferences about the political status of Ukraine and sentiments towards Ukraine and Russia evolved among individuals living close to the war zone on the Ukrainian-controlled territory between early 2013, i.e. 13 months before the war, and 2015, i.e. 11 months after the war outbreak. Our analysis therefore focuses on the eastern part of Ukraine as far as controlled by government forces, namely Donetsk, Luhansk, Kharkiv, Dnipropetrovsk, and Zaporizhia oblasts (administrative units), which before the war used to share strong cultural and socioeconomic ties. Specifically, these regions represent the most extensively Russian speaking part of Ukraine that had the longest common history with Russia (see Barrington and Herron, 2004).

To infer on the causal effect of the conflict, our empirical strategy relies on the assumption that the intensity of the war decreases in the geographic distance to the war zone. We base our analysis on the minimum road distance by car to the cities of Donetsk or Luhansk - the centers of the self-proclaimed Donetsk and Luhansk People's Republics, which are both situated close to the front line - as a measure for distance to the war zone. This allows splitting the sample into two treatment groups: all cities located up to 100 km to either Donetsk or Luhansk form the high intensity group, while more distant cities belong to the low intensity group. We employ two econometric approaches. First, we apply a before-after analysis to examine intra-group changes in attitudes over time. This only yields unbiased effect estimates if time trends in attitudes can be ruled out, at least conditional on observed characteristics. Second, our main strategy is based on a difference-in-differences (DiD) approach to investigate inter-group divergence over time. Under particular assumptions (see Fricke, 2015), namely when the impact in the high intensity

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[1]In response to Russia's supposed role in the conflict in Ukraine, the European Union (EU) and other countries (e.g. the United States, Canada, Norway, Switzerland, Japan, and Australia) introduced a range of diplomatic and economic sanctions against a list of individuals and companies from Russia and Ukraine. Resorting to countermeasures, Russia banned food imports from a number of countries. Christen et al. (2015) assess the potential economic consequences of export sanctions between the EU plus Switzerland and Russia.

group weakly dominates that in the low intensity group in absolute terms, a lower bound for the absolute effect of the war on political attitudes is obtained. We control for a range of observed socioeconomic characteristics and consider both parametric and semiparametric estimation based on inverse probability weighting by the propensity score to belong to the high intensity group.

Our findings suggest that the political attitudes towards Russia have deteriorated as a consequence of the war. In either group, the before-after differences in (i) supporting a political union with Russia and (ii) stating that Ukraine and Russia should be one state are substantially negative and statistically significant at the 5% level in all but one of our main specifications. Furthermore, for (ii), the DiD approach yields a sizable negative effect which is significant at the 10% level in the majority of specifications. Similarly, a negative DiD estimate is found for the judgment that the Ukrainian and Russian cultures are the same, which is mainly driven by before-after differences in the high intensity group. In contrast, both the before-after and DiD estimates on attitudes and sentiments towards Ukraine and Ukrainians (i.e. sympathy for Ukraine and self-association with other Ukrainians) were insignificant in most cases. The estimated effects are relatively robust to the choice of control variables and the definition of the treatment groups in terms of distance to the war zone.

Among the growing literature investigating the political impacts of exposure to war and violence, ethnic conflicts in Sub-Saharan Africa have attracted particular attention. For instance, the results in Bellows and Miguel (2009), Blattman (2009), and Voors et al. (2012) suggest that individuals who personally experienced wartime violence and trauma during civil wars in Africa (Sierra Leone, Uganda, Burundi, respectively) increase their political and civic engagements and community leadership. Also Bateson (2012), who considers a cross section of 70 countries in Latin America, Africa, North America, Europe and Asia, finds that individuals who report that they or their family members have been recent victims of crimes are more politically active than their non-victimized peers. Applying a regression discontinuity-type design to the timing and location of (Afrobarometer) survey interviews in Zimbabwe, Garcia-Ponce and Pasquale (2015) documents that individuals indirectly exposed to political repression self-report higher levels of trust into the state and its institutions. Erikson and Stoker (2011) examine how Vietnam draft lottery numbers randomly assigned according to birth dates influenced the political attitudes of males. Men with low lottery numbers are found to be more antiwar and liberal in their voting behavior than those with high lottery numbers protected from the draft. As one potential mechanism of war, DellaVi-

gna et al. (2014) investigate how exposure to nationalistic cross-border Serbian public radio affects the voting behavior and anti-Serbian sentiment in the post-conflict region of Croatia at the border with Serbia. Employing a DiD and synthetic control approach, ? consider the electoral effects of the terrorist attacks in Madrid and conclude that they shifted the advantage from the conservative to the socialist party in the 2004 congressional election.

Closer related to our research question, Rohner et al. (2013) employ an instrumental variable method to study the civil conflict in Uganda and find that intense violence strengthens within-ethnic group ties, but significantly weakens trust towards other Ugandans. Most relevant for our work is the study by Coupé and Obrizan (2016), which investigates the effects of violence on political outcomes in two cities of the Donetsk region which were temporarily controlled by the pro-Russian militants. Relying on cross sectional survey data, their results suggest that physical damage is negatively associated with the turnout probability and the likelihood to know local political representatives. Property damage, on the other hand, increases self-reported votes for pro-Western parties and reduces support for Donbass remaining a part of Ukraine or for any compromise with the pro-Russian forces.[2]

In contrast to the majority of studies that focus on post-violence outcomes, our analysis, like the one by Coupé and Obrizan (2016), concerns a point in time when the war was still ongoing. However, our study differs from that of Coupé and Obrizan (2016) in three dimensions. First, the outcome variables considered mostly differ, with the present work having a stronger focus on political attitudes towards Ukraine and Russia and Coupé and Obrizan (2016) predominantly (but not exclusively) considering election-related questions. Second, Coupé and Obrizan (2016) rely on observations within a war affected area, while we exploit variation across areas that were and were not exposed to war. Third, while Coupé and Obrizan (2016) use a single cross section, our repeated cross section allows observing the outcome variables already prior to the conflict and applying a DiD approach in order to tackle confounding related to time-constant unobservables. In addition to an OLS-based implementation, we base DiD estimation on a semiparametric weighting approach, which is more flexible in terms of functional form assumptions than the estimators conventionally used in the empirical literature.

Our findings confirm the general result from previous studies that exposure to war and violence

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[2] A further empirical study concerned with the conflict in eastern Ukraine is Zhukov (2016), who, however, does not investigate any effects, but rather the triggers of rebel activity. His results suggest that pre-conflict economic ties with Russia are a better predictor for rebel activity than the ethnolinguistic composition of municipalities.

has consequences with respect to political attitudes, albeit the context differs from much of the literature. Specifically, our estimates suggest that the attitude towards Russia has deteriorated as a consequence of the war, which is probably driven by Russia's perceived role as major proponent of the separatists' objectives through its politics, media, and likely military support.[3] This appears interesting from a political perspective, because it suggests that the conflict did not make eastern Ukrainians more sympathetic towards Russia, at least in the government-controlled areas, as some might have speculated in the light of the close language and cultural ties with Russia. Quite contrarily, Russia appears to have lost political capital in the most Russian speaking part of Ukraine, while no negative effects on attitudes and sentiments towards Ukraine were found. Our results are somewhat in line with the finding of Coupé and Obrizan (2016) that the experience of property damage decreases the support for the view that the Ukrainian government should compromise with Russia.

The remainder of this paper is organized as follows: Section 2 describes the conflict background. Section 3 discusses the data and the definition of the treatment groups and provides a range of descriptive statistics on outcomes and control variables. Section 4 outlines our econometric approaches based on parametric and semiparametric before-after and DiD estimation and discusses identification issues, such as migration patterns in the region. Section 5 presents the estimated results along with a range of robustness checks. Section 6 provides two placebo tests for our DiD approach. Section 7 concludes.

2   Background and development of the conflict in Donbass

From the night of 21 November 2013 on the "Euromaidan" movement - a wave of public demonstrations - captured major cities of Ukraine starting on Independence Square in Kyiv. It was triggered by the decision of the Ukrainian government to temporally suspend the preparation to signing the Association Agreement with the EU[4] due to concerns about the industrial production and relations between Ukraine and members of the Commonwealth of

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[3]At the annual press conference on 17 December 2015, Vladimir Putin admitted that there were military intelligence officers operating in the east of Ukraine. The video is available at: `www.theguardian.com/world/live/2015/dec/17/vladimir-putins-annual-press-conference-live`, retrieved 23 April 2016.

[4]The Guide to the EU-Ukraine Association Agreement is available at: `eeas.europa.eu/images/top_stories/140912_eu-ukraine-associatin-agreement-quick_guide.pdf`, retrieved 23 April 2016.

Independent States (CIS).[5] The initial demand for closer European integration expanded to requests for political change in the country after the failure of the Ukrainian side to sign the Association Agreement at the Eastern Partnership Summit in Vilnius on 28-29 November 2013.[6] The situation culminated into the "Revolution of Dignity" in February 2014 as a result of violent fights with fatalities involving protesters, police and unknown shooters. The Ukrainian parliament voted to oust the acting president who finally fled and left the country. The new presidential elections were scheduled for 25 May 2014. In the meantime, the country was run by a temporary government.

On 16 March 2014, the so-called referendum on the status of Crimea[7] took place, after the peninsula had previously been penetrated by armed forces without insignia most likely belonging to the Russian army.[8] The Organization for Security and Co-operation in Europe (OSCE) refused to send observers to the Crimean "referendum" because it was considered to violate the Ukrainian constitution as well as international law.[9] As a result of the referendum's outcome, Russia officially annexed the peninsular on 18 March 2014.

In Donbass, the pro-Russian unrest escalated to the status of war in early April 2014 following a sequence of events in Ukraine.[10] On 7 April 2014, pro-Russian separatists occupied buildings of the Security Service of Ukraine in Donetsk and Luhansk and self-declared the "Donetsk People's Republic" followed by the "Luhansk People's Republic" on 27 April 2014.[11] In response to the unrest in Donbass, the Ukrainian government launched an "anti-terrorist operation" against the pro-Russian separatists in mid-April. To de-escalate the conflict in Donbass, the representatives of Ukraine, Russia, the US and the EU agreed in Geneva upon dissolving and disarming non-official

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[5]Reported by Interfax-Ukraine at: `en.interfax.com.ua/news/general/176144.html`, retrieved 23 April 2016.

[6]The Joint Declaration of the Eastern Partnership Summit is available at: `www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/EN/foraff/139765.pdf`, retrieved 23 April 2016.

[7]Two options were offered to choose from and either differed from the status quo: whether to join Russia as a federal subject or to restore the Crimean constitution of 1992 which provided greater power to the Crimean government. Reported by The New York Times at: `www.nytimes.com/2014/03/15/world/europe/crimea-vote-does-not-offer-choice-of-status-quo.html?_r=0`, retrieved 23 April 2016.

[8]See for instance the report of "Suomen Sotilas" (Soldier of Finland): `https://web.archive.org/web/20150330124704/http://www.suomensotilas.fi/en/artikkelit/crimea-invaded-high-readiness-forces-russian-federation`, retrieved 23 April 2016.

[9]The OSCE press release is available at: `www.osce.org/cio/116313`, retrieved 23 April 2016.

[10]Reported by BBC: `www.bbc.com/news/world-middle-east-26248275`, retrieved 23 April 2016.

[11]Reported by the Human Rights Watch at: `www.hrw.org/news/2014/09/11/eastern-ukraine-questions-and-answers-about-laws-war`, retrieved 23 April 2016.

military formations in the region. However, the pro-Russian rebels insisted on holding referendums and continued occupying buildings of the Ukrainian administration.[12] On 11 May 2014, the so-called referendums took place on the separatist-held territories to legitimize the self-declared Donetsk and Luhansk People's Republics.[13] Avoiding formal diplomatic recognition, Russia expressed its respect for the outcomes of the "referendums" and its hope for the "civilized implementation" thereof.[14] On 24 May 2014, the self-proclaimed republics declared to form a federal union named "Novorosiya".[15] Since the beginning of the war in Donbass, several waves of army mobilization followed across the territories governed by the Ukrainian authorities. Furthermore, the Russian state-controlled media were banned in the government-held part of Ukraine. On 17 July 2014, the world saw the missile-induced crash of the Malaysia Airlines Flight 17 from Amsterdam to Kuala Lumpur in eastern Ukraine. On 27 January 2015, the Ukrainian parliament passed a resolution declaring Russia an aggressor state[16] supporting terrorism and blocking activities of the United Nations (UN) Security Council.[17]

In response to the development of and the supposed role of Russia in the conflict in Donbass, the European Union (EU) and other countries (e.g. the US, Canada, Norway, Switzerland, Japan, and Australia) introduced or expanded from July 2014 on a range of diplomatic and economic sanctions against a list of individuals and companies from Russia and Ukraine. Following intense consultations of the trilateral contact group (Ukraine, Russia, Organization for Security and Cooperation in Europe), the Minsk II protocol of 12 February 2015[18] was agreed upon after the Minsk protocol of 5 September 2014[19] had failed to resolve the conflict in Donbass. The document outlined

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[12]Reported by The Guardian at:

`www.theguardian.com/world/2014/apr/18/ukraine-separatists-occupation-geneva-agreement`, retrieved 23 April 2016.

[13]Two choices were offered: agree or disagree on the independence status of the Donetsk and Luhansk People's Republics. Reported by The Guardian at: `www.theguardian.com/world/2014/may/10/donetsk-referendum-ukraine-civil-war`, retrieved 23 April 2016.

[14]Reported by Reuters at: `www.reuters.com/article/us-ukraine-crisis-russia-kremlin-idUSBREA4B04O20140512`, retrieved 23 April 2016.

[15]Reported by Russia Today at: `www.rt.com/news/161304-donetsk-lugansk-unite-state/`, retrieved 23 April 2016.

[16]Reported by Unian at: `www.unian.info/politics/1036816-ukrainian-parliament-declares-russia-aggressor-state.html`, retrieved 23 April 2016.

[17]In 2014-2015, Russia vetoed twice draft resolutions of the UN Security Council on the situation in Ukraine. Reported at: `research.un.org/en/docs/sc/quick`, retrieved 23 April 2016.

[18]The document is available in Russian only at: `www.osce.org/cio/140156`, retrieved 23 April 2016.

[19]The document is available in Russian only at: `www.osce.org/home/123257`, retrieved 23 April 2016.

a package of measures for the implementation of the Minsk agreements to successfully reach a lasting ceasefire. On 17 March 2015, the Ukrainian parliament approved a law on the "special status" of certain parts of Donbass which raised broad discussions about its compliance with Minsk II.[20] After months of violations, Ukraine and the separatists ultimately decided to respect the ceasefire from 1 September 2015 on. This entailed a considerable reduction in fighting[21] and no further territorial changes occurred. In the beginning of 2016, the war was therefore considered by some to be a "frozen conflict",[22] yet clashes and casualties continued and lasting peace was still out of reach.

3 Data and treatment definition

Our data come from a representative population survey in Ukraine conducted in February-March 2013 by the sociological institute "Rating" and repeated in March-April 2015 by the company "Socioinform" on behalf of an interdisciplinary research project on regionalism in Ukraine. The sample consists of a repeated cross section with 6000 individual observations per survey year. The first wave includes all 24 oblasts (administrative units) plus the Autonomous Republic of Crimea, while the second wave only covers the territory controlled by the Ukrainian authorities at that time. For this reason, Crimea, which had been annexed by Russia on 18 March 2014, is excluded, as well as those parts of Donetsk and Luhansk oblasts controlled by the pro-Russian separatists. The sampling was based on stratification by gender, age and municipality type. The face-to-face interviews were conducted either in Ukrainian or Russian, as desired by the respondent. Therefore, no misunderstandings related to language issues are to be expected. Interviewers were instructed to emphasize that the survey was carried out for research purposes only and that analyses would be performed anonymously on the aggregate level, in order to minimize mistrust and reluctance to answer politically sensitive questions. Indeed, response rates are rather high as outlined further below.

This study focuses on questions about preferences for the political future of Ukraine, attitudes about Ukrainian-Russian relations and sentiments towards Ukraine and Ukrainians. Respondents

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[20]Reported by Reuters at: `www.reuters.com/article/us-ukraine-crisis-status-idUSKBN0MD1ZK20150317`, retrieved 23 April 2016.

[21]See for instance the UN report at: `http://www.un.org/press/en/2015/sc12154.doc.htm`, retrieved 23 April 2016.

[22]Reported by BBC at: `http://www.bbc.com/news/world-europe-35990401`, retrieved 23 April 2016.

were asked, inter alia, to state their most preferred option out of five mutually exclusive scenarios: Ukraine remains an independent and neutral state, Ukraine enters a large union including Russia, Ukraine splits into separate states, Ukraine joins the EU, Ukraine joins a large union including Central and Eastern European (CEE) states. In our analysis each option is a binary variable which is coded as one if it is picked as preference and zero otherwise. Note that in the results presented in Section 5, the last two options are excluded, as they are not at the center of this paper's focus on attitudes towards Ukraine and Russia. Furthermore, interviewees were asked to which extent they agree or disagree with the statements that the Ukrainian and Russian cultures are exactly the same, that Ukraine and Russia should form one state, that they love Ukraine and whether they speak about Ukrainians as "we" and not as "they". The former two questions are evaluated on a point scale from 1 ("fully disagree") to 7 ("fully agree") and the latter two are assessed on a scale from 1 ("definitely no") to 5 ("definitely yes").

Besides the outcomes of interest, the data also include a range of socioeconomic information about the respondents, namely gender, age, marital status, education, occupation, native language, religion, residence and self-assessed material conditions. To evaluate how the war in eastern Ukraine affected political attitudes and sentiments of the local population, we focus our analysis on the territories controlled by Ukraine sufficiently close to the war zone when the second survey wave took place. Besides the government-controlled parts of the war-affected Donetsk and Luhansk oblasts, the so-called Donbass region, these areas include three further oblasts: Kharkiv, Dnipropetrovsk, and Zaporizhia (hereafter referred to as the "remainder of the east"). Taken together, these five oblasts form the east of Ukraine, which is characterized by a high concentration of native Russian speakers and heavy industry as well as the geographic proximity and historic connections to Russia. Figure 1 illustrates the front line in Donbass end of March to show which parts of the Donetsk and Lugansk regions where under government control at the time of the second survey.

Figure 1: Front line in Donbass as of 31 March 2015

Source: Information Analysis Center of the National Security and Defense
Council of Ukraine: `www.mediarnbo.org`.

Given that the interviewers could reach only areas controlled by the Ukrainian authorities in early 2015 and that the sociological agencies conducting the surveys were different in the two periods, the included cities and villages in eastern Ukraine only partially coincide across the survey waves. To maximize the comparability of observations in 2013 and 2015, our analysis only includes cities that were observed in both periods.[23] The evaluation sample consists of 920 observations in 2013 and 1153 observations in 2015 (see Table A1 in Appendix A) and includes 8 municipalities with 380 observations over both periods in Donbass and 19 municipalities with 1693 observations in the remainder of the east.

To assess whether the evaluation sample is representative for the east of Ukraine prior to the war, we test for mean differences in both control and outcome variables across included and excluded observations, separately for Donbass and the remainder of the east in the first wave. The corresponding descriptive statistics and t-tests are presented in Tables A2 and A3 in Appendix

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[23]The data do not contain any villages in Donbass that appear in both waves. To ensure comparability in municipality size across Donbass and the rest of the east, we therefore also drop villages in the remainder of the east from our evaluation sample.

A. We observe some significant differences in socioeconomic characteristics across groups. The average material conditions and the proportion of marriages or partnership were significantly higher in the excluded observations of Donbass than in the included ones. Compared to the excluded observations in the remainder of the east, the included ones lived on average in significantly larger cities due to dropping villages and in better material conditions, were more likely to have a university degree and to speak Russian as a native language, and more frequently follow the Kyiv Orthodox Church. Concerning the outcome variables, we do not find any significant differences across the included and excluded observations in Donbass. In the remainder of the east, the included observations were on average less pro-Ukrainian and more likely favored the scenario of a split of Ukraine than excluded ones. We therefore bear in mind that in terms of pre-war covariates and outcome variables, our evaluation sample appears to be much more representative for Donbass than for the remainder of the east. However, the latter seems to be only a minor caveat in the context of our quantitative analysis, which focusses on the effect in the war-affected Donbass.

Our DiD approach outlined in Section 4 is based on the assumption that the distance to the war zone determines the intensity of conflict. We expect that the closer individuals live to the conflict area, the higher the "treatment" (i.e. war) intensity should be. Throughout the military conflict in Donbass, the front line has been moving into one or another direction,[24] but the regional capitals Donetsk and Luhansk have permanently been at or close to the front line. Therefore, we take the minimum road distance (by car) to Donetsk or Luhansk - also the political centers of the self-proclaimed Donetsk and Luhansk People's Republics - as a measure for distance to the war zone. Figure A1 in Appendix A displays a frequency distribution of the minimum distance. This allows us to define two treatment groups: all cities located within 100 km to either Donetsk or Luhansk form the high treatment group while more distant cities belong to the low treatment group. The former includes five cities in Donbass and the latter covers three Donbass cities (see Table A4 in Appendix A) plus the remainder of the east.

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[24]The maps of the front line for different dates of the conflict are provided by the Information Analysis Center of the National Security and Defense Council of Ukraine at: www.mediarnbo.org.

Table 1: Mean covariate values by minimum distance to Donetsk or Lugansk

	2013				2015			
	<100 km	≥100 km	Difference	p-value	<100 km	≥100 km	Difference	p-value
City size: <50000 citizens (binary)	0.133	0.168	-0.035	0.824	0.134	0.115	0.019	0.895
	(0.149)	(0.073)	(0.155)		(0.147)	(0.055)	(0.145)	
Female (binary)	0.571	0.555	0.017	0.139	0.573	0.563	0.010	0.785
	(0.009)	(0.007)	(0.011)		(0.039)	(0.009)	(0.037)	
Age	45.276	45.182	0.095	0.897	46.671	46.055	0.616	0.562
	(0.694)	(0.354)	(0.725)		(1.117)	(0.251)	(1.049)	
Secondary specialized education (binary)	0.410	0.382	0.028	0.704	0.427	0.355	0.072	0.076
	(0.077)	(0.018)	(0.073)		(0.036)	(0.021)	(0.039)	
University degree (binary)	0.352	0.417	-0.065	0.541	0.463	0.384	0.080	0.210
	(0.111)	(0.027)	(0.105)		(0.054)	(0.038)	(0.062)	
Ukrainian native-speaker (binary)	0.058	0.265	-0.207	0.000	0.061	0.221	-0.160	0.011
	(0.031)	(0.039)	(0.047)		(0.042)	(0.044)	(0.058)	
Russian native-speaker (binary)	0.404	0.371	0.033	0.780	0.232	0.287	-0.055	0.531
	(0.120)	(0.038)	(0.116)		(0.076)	(0.052)	(0.086)	
Moscow Orthodox Church (binary)	0.307	0.173	0.134	0.214	0.506	0.168	0.339	0.037
	(0.111)	(0.030)	(0.105)		(0.168)	(0.021)	(0.154)	
Kyiv Orthodox Church (binary)	0.125	0.184	-0.059	0.543	0.051	0.192	-0.142	0.000
	(0.101)	(0.029)	(0.097)		(0.017)	(0.016)	(0.022)	
Autocephalous Orthodox Church (binary)	0.159	0.241	-0.082	0.230	0.177	0.357	-0.180	0.140
	(0.059)	(0.040)	(0.067)		(0.125)	(0.032)	(0.118)	
Working (binary)	0.552	0.569	-0.017	0.714	0.512	0.528	-0.015	0.749
	(0.046)	(0.019)	(0.046)		(0.050)	(0.014)	(0.048)	
Retired (binary)	0.248	0.249	-0.001	0.941	0.268	0.275	-0.007	0.825
	(0.014)	(0.015)	(0.020)		(0.034)	(0.009)	(0.032)	
Single (binary)	0.181	0.166	0.014	0.710	0.122	0.141	-0.019	0.416
	(0.039)	(0.015)	(0.039)		(0.017)	(0.017)	(0.023)	
Married or in partnership (binary)	0.610	0.634	-0.024	0.731	0.659	0.614	0.044	0.177
	(0.073)	(0.021)	(0.070)		(0.023)	(0.024)	(0.032)	
Material conditions	4.867	4.173	0.694	0.002	4.988	5.103	-0.115	0.761
(1: very good, …, 7: terrible)	(0.205)	(0.073)	(0.201)		(0.394)	(0.102)	(0.374)	

Note: Each variable is averaged over non-missing values. Standard deviations are clustered on the city level and reported in parentheses.

Tables 1 and 2 report means and t-test results for covariates and outcomes of interest across treatment groups in the two periods. It is mostly municipalities with more than 50000 inhabitants that contribute to our sample. Females represent more than 50 percent of observations and the average age of the respondents is 45-47 years. The majority have at least secondary education, follow one of the Orthodox Churches, are employed, and are married or in a partnership. Russian as native language is more common among respondents than Ukrainian. In both waves, we observe significantly more Ukrainian native speakers in the low treatment group compared to the high one. The respondents in the low treatment group reported significantly better material conditions in 2013 but no significant across-group differences are observed in 2015. The low treatment group includes significantly more followers of the Kyiv Orthodox Church and significantly less followers

of the Moscow Orthodox Church compared to the high treatment group in 2015. Furthermore, the proportion of the respondents with secondary specialized education is significantly larger in the latter. With respect to political attitudes, the high treatment group was significantly more pro-Russian than the low one in the first wave. In the second period, however, only the sentiments towards Ukraine remain significantly different across groups.

Table 2: Mean outcome values by minimum distance to Donetsk or Lugansk

	2013				2015			
	<100 km	≥100 km	Difference	p-value	<100 km	≥100 km	Difference	p-value
Independent, neutral state (binary)	0.193	0.347	-0.153	0.048	0.627	0.434	0.193	0.226
	(0.073)	(0.031)	(0.074)		(0.153)	(0.071)	(0.156)	
Union with Russia (binary)	0.591	0.397	0.194	0.022	0.119	0.103	0.016	0.856
	(0.077)	(0.038)	(0.080)		(0.095)	(0.012)	(0.088)	
Split into separate states (binary)	0.011	0.014	-0.002	0.776	0.102	0.047	0.055	0.265
	(0.007)	(0.004)	(0.008)		(0.049)	(0.018)	(0.048)	
Fully the same cultures	5.271	4.023	1.248	0.019	3.526	4.074	-0.548	0.289
(1: fully disagree, ..., 7: fully agree)	(0.452)	(0.285)	(0.500)		(0.489)	(0.241)	(0.507)	
One state with Russia	5.234	3.710	1.524	0.063	2.113	2.482	-0.370	0.398
(1: fully disagree, ..., 7: fully agree)	(0.844)	(0.144)	(0.783)		(0.424)	(0.190)	(0.431)	
I love Ukraine	3.857	4.209	-0.351	0.050	3.902	4.353	-0.451	0.047
(1: definitely no, ..., 5: definitely yes)	(0.179)	(0.049)	(0.171)		(0.226)	(0.067)	(0.216)	
"We" for Ukrainians	3.914	3.950	-0.035	0.794	4.183	4.096	0.087	0.700
(1: definitely no, ..., 5: definitely yes)	(0.124)	(0.072)	(0.134)		(0.216)	(0.103)	(0.222)	

Note: Each variable is averaged over non-missing values. Standard deviations are clustered on the city level and reported in parentheses.

4 Econometric methods and identification

We use two econometric approaches to infer on the effect of the war on political attitudes and sentiments, using the two groups with high and low treatment intensity as a function of the minimum distance to Donetsk or Luhansk as outlined in Section 3. First, we apply a before-after analysis to examine changes in attitudes for each of the treatment groups over time conditional on a set of controls, i.e. we compare the outcome variables after the outbreak of the war to those prior to the war. This approach relies on the assumption that - at least after controlling for the socioeconomic variables discussed in the previous section - there are no time trends in unobservables affecting the outcomes of interest between the survey waves 2013 and 2015. Considering a linear model, the equation to be estimated takes the following form:

$$Y = \beta_0 + 1_{\{year2015\}}\beta_1 + \mathbf{X}'\beta_2 + U, \tag{1}$$

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where Y is the outcome, $1_{\{year2015\}}$ is an indicator for the year 2015, $\mathbf{X}$ is a vector of control variables, and U is the error term. Coefficient β_1 yields the war effect on the outcome of interest. However, if the assumption of no time trends in unobservables is violated, we cannot separate the war effect from the trend using the before-after comparison, because $1_{\{year2015\}}$ is correlated with U even conditional on $\mathbf{X}$. Albeit we suspect time trends in political preferences and sentiments to be rather negligible given our time window of just two years, we cannot rule them out entirely.

Second, we use a difference-in-differences (DiD) approach to compare the change in attitudes for the high treatment group relative to the low treatment group before and after the outbreak of the war. DiD estimation conventionally assumes (i) that both a treatment and a control group, with the latter not being exposed to the treatment at all, is available and (ii) that the (hypothetical) average outcomes of the treated and control groups, if neither group had actually received the treatment, would follow a common time trend while their levels may differ across groups. As discussed in Lechner (2011), this is for instance satisfied if the effects of unobservables, which differ across treatment groups, on the outcome are constant over time. In our empirical context, however, the assumption of a proper control group with zero treatment intensity does not seem to hold because the entire country is affected by the conflict in eastern Ukraine through the economic and social consequences, the recruitment of troops, the discussions in politics, the media, and the civil society etc.

Adding to the conventional common trend assumption, Fricke (2015) suggests further restrictions which allow comparing high and low treatment (rather than zero treatment) groups over time. His approach identifies a lower bound on the absolute magnitude of effect of a high treatment versus no treatment in the high treatment group even if the no treatment case is not observed in the data. The identifying assumptions imply that (i) the treatment affects the high and low treatment groups in the same direction compared to no treatment and (ii) the effect of the high treatment in the high treatment group is in absolute terms stronger than the effect of the low treatment in the low treatment group.[25] Assuming linearity, DiD estimation is based on the following regression model:

$$Y = \beta_0 + 1_{\{year2015\}}\beta_1 + 1_{\{distance\}}\beta_2 + 1_{\{distance*year2015\}}\beta_3 + \mathbf{X}'\beta_4 + U, \tag{2}$$

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[25]Fricke (2015) also demonstrates that the conventional common trend assumption defined upon treatment versus no treatment does not even allow point identifying the effect of a high versus a low treatment, unless effect homogeneity across treatment groups is assumed.

where Y is the outcome of interest, $1_{\{year2015\}}$ is an indicator for the year 2015, $1_{\{distance\}}$ is an indicator for residing within 100 km from either Donetsk or Luhansk, $1_{\{distance*year2015\}}$ is the interaction of the indicators, $\mathbf{X}$ is a vector of control variables, and U is the error term. Under the stated conditions, coefficient β_3 corresponds to the lower bound of the effect of war.

The interpretation of the DiD results presented in Section 5 crucially depends on whether the mentioned identifying assumptions are satisfied in our empirical context. Given the comparably strong cultural coherence of the region considered, assuming common trends in political attitudes toward Russia and Ukraine in the absence of war appears quite plausible, at least after controlling for socioeconomic factors like gender, age, employment, education, occupation, and material conditions. Nevertheless, in one of our robustness checks presented further below, we base our analysis exclusively on Donbass (and discard the remainder of the east) to make the assumption even more credible. Furthermore, we also believe that the additional restrictions of Fricke (2015) are satisfied. First, treatment intensity can likely be ordered as a function of distance to the war zone, e.g. the likelihood of being exposed to or noticing a military attack should be higher closer to the front line. Second, the effect of war on political attitudes towards Russia and Ukraine should (at least on average) have the same sign across subregions of eastern Ukraine.[26]

We estimate equations (1) and (2) based on OLS, which linearly controls for differences in observed characteristics. As the linearity assumptions may, however, be violated in reality, we also consider a semiparametric approach. The latter is based on inverse probability weighting by the propensity score, i.e. the probability of receiving the treatment conditional on the observed covariates (see Horvitz and Thompson, 1952; Hirano et al., 2003; Abadie, 2005, in the context of DiD estimation). In the first step, we estimate the treatment propensity score by logistic regression. In the second step, we re-weight observations (i) in the high treatment group before the war, (ii) in the low treatment group before the war, and (iii) in the low treatment group after the outbreak of the war to match the distribution of covariates in the high treatment group after the outbreak of the war. Finally, we take differences in the mean differences of the reweighted outcomes within treatment groups over time. Concerning inference, we use a block bootstrap procedure (with 999

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[26]Inspecting the before-after estimates in the different specifications presented in Section 5 reveals that in most cases the sign of the estimates is the same for the high and low treatment groups, apart from a few cases with insignificant results in at least one group. At the same time, the absolute magnitudes of the estimates are mostly larger in the high treatment group. If time trends were absent such that before-after estimation was unbiased, this would provide empirical evidence in favor of the additional restrictions in Fricke (2015).

replications) that accounts for clustering at the municipal level and estimates the standard errors to be used in the t-statistics based on the bootstrap distributions of the resampled parametric and semiparametric effect estimates.

At this point, it is important to acknowledge that several of our control variables (e.g. employment status and material conditions) are likely to be affected by the conflict and thus, endogenous. For this reason, the next section also presents before-after and DiD estimates without controlling for $\mathbf{X}$. Despite the obvious tradeoff between dropping covariates at the risk of omitted variable bias and including covariates at the risk of endogeneity (or selection) bias, the obtained estimates are often not significantly affected by the choice of $\mathbf{X}$. The same applies to using only a subset of the observables.[27]

A final concern for our econometric approaches are sample selection issues due to migration movements between the two waves that importantly affect the composition of the population in the area. That is, individuals with particular characteristics might have been more likely to migrate. For instance, Coupé and Obrizan (2016) report that in their sample coming from two cities in Donetsk, those who stayed and those who temporarily left the cities during military confrontations differed by age, education level, religiousness and ability to speak both Ukrainian and Russian. In our models, we control for these and even more characteristics, but sample selection bias in particular related to unobservables might nevertheless be an issue. For instance, pro-Russian individuals could have left the government-held territory for Russia or the separatist-held areas, while pro-Ukrainian individuals might have done vice versa or migrated further away from the front line within the government-held areas. A specific threat is that the war has induced mass migration out of Donbass such that the residents in 2015 are not representative for those in 2013 anymore, which would jeopardize both our before-after and DiD analyses.

To judge the relevance of such issues, Table 3 reports the net internal migration in five oblasts of eastern Ukraine over 2012-2014, as provided by the Statistics Department of Ukraine based on administrative data on the change of permanent residence.[28] While net migration has already been negative in 2012 and 2013 for Donbass (Luhansk and Donetsk), net out-migration roughly doubled in the war year of 2014. Quite contrarily, net migration to the remainder of the east considerably increased in that year, most likely due to incoming migrants from Donbass. In 2015, all oblasts

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[27]These results are not reported but available on request.

[28]The regional Departments of Statistics provided us with the internal migration data on the city level but for the cities in Donetsk oblast the archive 2013 was left in Donetsk and thus currently inaccessible

but for Kharkiv oblast experienced net out-migration. Even though we do see a noticeable change in net migration patterns during the war, the movements out of Donbass, for instance, appear moderate compared to the overall population of the area (roughly 6.6 million in 2013,[29] including both government- and separatist-held territories). As an important caveat, however, the statistics do not cover migrants or refugees that did not register in their destination municipality. For this reason, we also consider information from the Interagency Headquarters, a governmental agency that provides estimates for the number of the internally displaced persons (IDPs) as a consequence of the events in Crimea and Donbass. As of 31 March 2015 it is claimed that there were 810060 IDPs in total, including 789670 from Donbass,[30] which is a much higher figure than the administrative records indicate. As shown in Figure 2, the highest number of IDPs has been accommodated in eastern Ukraine. In addition to internal migration, many Ukrainians also fled to Russia, starting from 2014. Table 4 illustrates a dramatic increase in the number of Ukrainians registered with the legal status of refugee or temporary asylum in Russia which reached 311407 at the end of 2015.

Table 3: Net internal migration (persons) in the east of Ukraine over 2012-2015

Oblasts	2012	2013	2014	2015
Dnipropetrovsk	-1564	-2169	431	-1177
Donetsk	-4449	-4516	-10677	-9440
Kharkiv	1984	1741	8261	2739
Luhansk	-4034	-4365	-8120	-5811
Zaporizhia	-1361	-1916	-847	-995

Source: State Statistics Service of Ukraine: `www.ukrstat.gov.ua`.

In the light of these migration flows, one could on the one hand argue that migration might create attenuation bias in the main findings of our analysis, namely the negative DiD effects on political attitudes towards Russia. If pro-Ukrainian individuals left the war-affected areas to re-

[29]The average population in Donetsk and Luhansk oblasts is provided by the State Statistics Service of Ukraine: `www.ukrstat.gov.ua`, retrieved 23 April 2016.

[30]This information is published at the governmental portal: `www.kmu.gov.ua/control/uk/publish/article?art_id=248052970&cat_id=244277212`, retrieved 23 April 2016. The "Ukraine Migration Profile 2014" with the numbers of IDPs for all oblasts as of 31 December 2014 is available at: `www.dmsu.gov.ua/images/files/profile_2015_en.pdf`, retrieved 23 April 2016.

settle somewhere else in eastern Ukraine, the drop in the support of Russia would be overestimated in the low treatment group (either through the migrants themselves or through interaction effects with locals) and underestimated in the high treatment group. This would squeeze the absolute magnitude of the negative DiD estimates. On the other hand, this could be countervailed by pro-Russian individuals leaving the war-affected area for territories outside the control of the Ukrainian government, in particular Russia. In this context, it is worth noting that the figures suggest that migration to Russia was lower than to other Ukrainian regions, such that we suspect attenuation bias to be the more relevant threat. This suggests (similarly to our identifying assumptions outlined below) that our main DiD effects on attitudes towards Russia are in absolute magnitude lower bounds for the true effects. Again, we notice that our estimates are not very sensitive to the choice of the socioeconomic characteristics, which one would suspect to correlate with migration decisions.

Figure 2: Internally displaced persons in thousands by destination region as of 31 March 2015
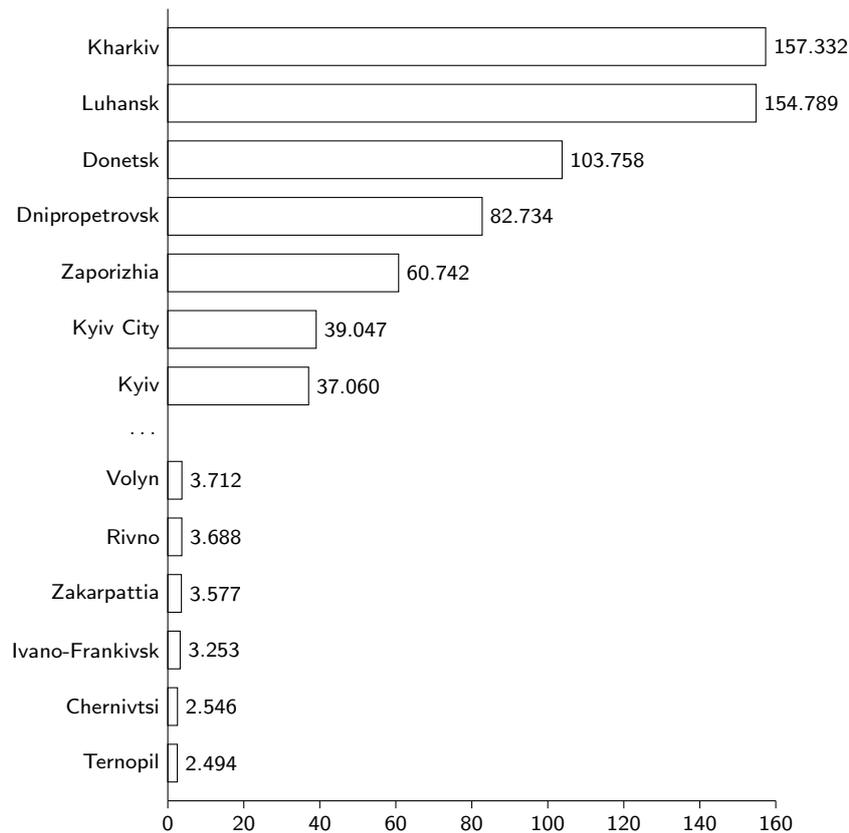
Source: Governmental Portal: `www.kmu.gov.ua`.

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Table 4: Ukrainians registered with refugee or temporary asylum status in Russia over 2012-2015

Status	2012	2013	2014	2015
Refugee	5	5	229	273
Temporary asylum	0	0	231558	311134
Total	5	5	231787	311407

Source: General Administration for Migration Issues of the Interior Ministry of Russia: `http://xn--b1ab2a0a.xn--b1aew.xn--p1ai/about/` `activity/stats/Statistics/Predostavlenie_` `ubezhishha_v_Rossijskoj`.

5 Main results and sensitivity checks

We present the results for before-after and DiD estimation based on (i) unconditional mean differences, which corresponds to setting $\mathbf{X}$ empty in equations (1) and (2), (ii) OLS controlling for the socioeconomic factors mentioned in Section 3, and (iii) propensity score weighting. This entails altogether nine different estimators. Table 5 provides the estimates for our main specification, namely when a road distance of 100 km is used to distinguish between the high and low treatment groups. Columns 1-2, 4-5, and 7-8 show the before-after estimates for the high and low treatment groups separately, whereas columns 3, 6, and 9 display the DiD estimates. Columns 1-3 contain the estimates without controls, columns 4-6 present the OLS estimates controlling for the covariates, and columns 7-9 report the conditional semiparametric results based on weighting.

Table 5: Estimates for a distance threshold of 100 km

	No controls			OLS			Propensity score weighting		
	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.434	0.087	0.347	0.398	0.047	0.351	0.442	0.140	0.301
se	0.192	0.071	0.201	0.211	0.068	0.221	0.209	0.083	0.241
p-value	0.024	0.217	0.085	0.060	0.493	0.112	0.035	0.091	0.212
observations	147	1555	1702	130	1474	1604	130	1474	1604
Union with Russia	-0.472	-0.294	-0.178	-0.445	-0.303	-0.143	-0.488	-0.317	-0.172
se	0.114	0.039	0.119	0.478	0.036	0.481	0.195	0.100	0.223
p-value	0.000	0.000	0.135	0.352	0.000	0.767	0.012	0.002	0.442
observations	147	1555	1702	130	1474	1604	130	1474	1604
Split into separate states	0.090	0.033	0.057	0.108	0.024	0.084	0.095	0.022	0.073
se	0.047	0.018	0.050	0.493	0.015	0.493	0.059	0.034	0.062
p-value	0.053	0.058	0.249	0.827	0.108	0.864	0.107	0.517	0.237
observations	147	1555	1702	130	1474	1604	130	1474	1604
Fully the same cultures	-1.745	0.050	-1.796	-1.745	-0.039	-1.707	-1.978	0.477	-2.455
se	0.674	0.329	0.760	0.833	0.347	0.904	0.983	0.691	1.352
p-value	0.010	0.879	0.018	0.036	0.911	0.059	0.044	0.490	0.069
observations	174	1807	1981	156	1699	1855	156	1699	1855
One state with Russia	-3.121	-1.227	-1.894	-3.285	-1.248	-2.036	-3.550	-1.071	-2.479
se	1.020	0.236	1.032	1.096	0.263	1.134	1.246	0.620	1.559
p-value	0.002	0.000	0.066	0.003	0.000	0.072	0.004	0.084	0.112
observations	165	1675	1840	146	1576	1722	146	1576	1722
I love Ukraine	0.045	0.144	-0.099	0.182	0.175	0.007	0.299	0.127	0.172
se	0.361	0.060	0.365	0.375	0.063	0.382	0.417	0.163	0.453
p-value	0.900	0.016	0.786	0.628	0.006	0.985	0.474	0.436	0.704
observations	187	1886	2073	166	1768	1934	166	1768	1934
"We" for Ukrainians	0.269	0.146	0.122	0.287	0.139	0.148	0.363	0.048	0.315
se	0.212	0.097	0.232	0.262	0.109	0.284	0.280	0.212	0.316
p-value	0.206	0.129	0.598	0.273	0.201	0.602	0.194	0.819	0.319
observations	187	1886	2073	166	1768	1934	166	1768	1934

Note: Observations < 100 km to Donetsk or Luhansk form the high treatment group, while those ≥ 100 km form the low treatment group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

OLS and weighting deliver in general quite similar results in terms of effect magnitudes and directions. We found mostly no statistically significant shift in the sympathy towards Ukraine and self-association with Ukrainians, except for the positive and statistically significant effects based on OLS and estimation without controls regarding I love towards Ukraine in the low treatment group. In contrast, several statistically significantly negative associations were found between the proximity to the war zone and political attitudes towards Russia, which is somewhat in line with the finding of Coupé and Obrizan (2016) that the experience of property damage decreases the support for the view that the Ukrainian government should compromise with Russia. For instance, the high treatment group's support for the statement that Ukrainian and Russian cultures are fully the same weakened over time. While no significant change is observed in the low treatment group,

the DiD effects based on the inter-group changes in the common culture outcome over time are significantly negative at the 10% level.

Furthermore, the support for forming one common state between Ukraine and Russia significantly declined in either treatment group. The DiD estimates are also marginally significant, suggesting that the deterioration was larger in areas closer to the war zone. Moreover, the before-after estimates for having a preference for a political union with Russia are (with the exception of the OLS result for the high treatment group) significantly negative. In contrast, none of the corresponding DiD estimates is statistically significant. The share of those in the high treatment group who prefer Ukraine to remain an independent and neutral state increased significantly over time and also the DiD estimate is marginally significant for OLS and estimation without controls. In line with Coupé and Obrizan (2016), the preference to split Ukraine into separate states appears to have increased in the high treatment group, while the DiD estimate is never significant. To sum up, both the before-after and DiD estimates suggest that the political attitudes towards Russia have deteriorated as a consequence of the war, while this is not the case for sentiments towards Ukraine. For visualization, Figure A2 in Appendix displays the frequency distributions of the non-binary outcomes in the high treatment group over time: there was a negative shift in sentiments towards Russia but no pronounced change with respect to Ukraine.

We run several sensitivity checks to investigate the robustness of our results with respect to the distance-based definition of the treatment groups. First, we examine the results when excluding Mariupol - a city located 113 km from Donetsk but nevertheless very close to the front line (see Figure 1) - from the low treatment group. Second, we vary the definition of the low treatment group as a function of distance. Specifically, we only use observations beyond 200 km from either Donetsk or Luhansk, which implies a distance window of 100 km between the high and low treatment groups that is no longer used in the analysis. Third, we base the analysis exclusively on municipalities in Donbass, to maximize cultural and geographic proximity. Fourth, we move the distance threshold for defining the high and low treatment group to 150 km which affects the composition of either group. Finally, we define the treatment not as a function of distance but based on reported military confrontations in four Donbass cities in our sample (i.e. Artemivsk, Kostiantynivka, Kramatorsk and Mariupol) to distinguish between the high and low treatment groups.

Table 6 contains the estimates when Mariupol is excluded from the low treatment group while the high treatment group and its before-after estimates remain unaffected. The estimates are

quite comparable to the previous results. For instance, we observe similar patterns in terms of sentiments towards Ukraine and Ukrainians, i.g. no significant DiD estimates. Furthermore, we find negative and mostly significant before-after and DiD estimates concerning a common state of Ukraine and Russia, negative DiD estimates on the perception of the Ukrainian and Russian cultures as fully the same, and negative before-after estimates on the preferences of both groups for a union with Russia.

Table 6: Estimates for a distance threshold of 100 km when excluding Mariupol

	No controls			OLS			Propensity score weighting		
	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.434	0.100	0.334	0.398	0.056	0.342	0.442	0.151	0.291
se	0.192	0.077	0.206	0.216	0.077	0.231	0.210	0.083	0.239
p-value	0.024	0.193	0.106	0.065	0.470	0.139	0.036	0.068	0.225
observations	147	1447	1594	130	1370	1500	130	1370	1500
Union with Russia	-0.472	-0.300	-0.172	-0.445	-0.307	-0.138	-0.488	-0.319	-0.169
se	0.119	0.039	0.125	0.590	0.037	0.593	0.191	0.105	0.218
p-value	0.000	0.000	0.168	0.451	0.000	0.815	0.010	0.002	0.438
observations	147	1447	1594	130	1370	1500	130	1370	1500
Split into separate states	0.090	0.020	0.071	0.108	0.011	0.097	0.095	0.016	0.079
se	0.045	0.013	0.047	0.429	0.010	0.430	0.063	0.023	0.065
p-value	0.044	0.132	0.136	0.802	0.261	0.822	0.131	0.492	0.223
observations	147	1447	1594	130	1370	1500	130	1370	1500
Fully the same cultures	-1.745	0.073	-1.818	-1.745	-0.001	-1.744	-1.978	0.498	-2.476
se	0.692	0.364	0.768	0.857	0.376	0.921	0.986	0.691	1.301
p-value	0.012	0.841	0.018	0.042	0.998	0.058	0.045	0.471	0.057
observations	174	1674	1848	156	1571	1727	156	1571	1727
One state with Russia	-3.121	-1.211	-1.911	-3.285	-1.204	-2.081	-3.550	-1.062	-2.488
se	1.034	0.259	1.065	1.084	0.292	1.125	1.170	0.654	1.500
p-value	0.003	0.000	0.073	0.002	0.000	0.064	0.002	0.104	0.097
observations	165	1572	1737	146	1478	1624	146	1478	1624
I love Ukraine	0.045	0.155	-0.110	0.182	0.199	-0.017	0.299	0.153	0.146
se	0.358	0.067	0.363	0.382	0.064	0.386	0.420	0.163	0.439
p-value	0.899	0.020	0.762	0.634	0.002	0.965	0.477	0.348	0.740
observations	187	1750	1937	166	1637	1803	166	1637	1803
"We" for Ukrainians	0.269	0.197	0.072	0.287	0.194	0.093	0.363	0.085	0.278
se	0.206	0.088	0.230	0.251	0.106	0.270	0.275	0.223	0.314
p-value	0.192	0.026	0.755	0.252	0.067	0.730	0.187	0.703	0.375
observations	187	1750	1937	166	1637	1803	166	1637	1803

Note: Observations < 100 km to Donetsk or Luhansk form the high treatment group, while those ≥ 100 km form the low treatment group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Table 7 presents the effects when reducing the low treatment group to observations more than 200 km away from Donetsk or Luhansk. The before-after estimates for the low treatment group are only marginally affected while the high treatment group is the same as in the main specification. Therefore, the DiD results are barely affected. Specifically, the DiD estimates on the similarity of

the Ukrainian and Russian cultures and on the support of a common state are again significantly negative at the 10 or 5% level, as well as the before-after estimates for a common union between Ukraine and Russia.

Table 7: Estimates when excluding cities between 100 km and 200 km

	No controls			OLS			Propensity score weighting		
	<100 km	≥200 km	DiD	<100 km	≥200 km	DiD	<100 km	≥200 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.434	0.068	0.366	0.398	0.027	0.372	0.442	0.138	0.303
se	0.196	0.089	0.218	0.206	0.081	0.224	0.201	0.096	0.238
p-value	0.027	0.443	0.094	0.054	0.742	0.097	0.028	0.147	0.203
observations	147	1275	1422	130	1209	1339	130	1209	1339
Union with Russia	-0.472	-0.302	-0.170	-0.445	-0.312	-0.134	-0.488	-0.306	-0.182
se	0.117	0.043	0.124	0.447	0.041	0.449	0.197	0.122	0.237
p-value	0.000	0.000	0.171	0.319	0.000	0.766	0.013	0.012	0.442
observations	147	1275	1422	130	1209	1339	130	1209	1339
Split into separate states	0.090	0.021	0.069	0.108	0.013	0.095	0.095	0.015	0.079
se	0.045	0.014	0.047	0.353	0.011	0.354	0.058	0.018	0.059
p-value	0.046	0.115	0.146	0.760	0.217	0.789	0.101	0.386	0.176
observations	147	1275	1422	130	1209	1339	130	1209	1339
Fully the same cultures	-1.745	0.174	-1.919	-1.745	0.131	-1.876	-1.978	0.695	-2.672
se	0.692	0.397	0.820	0.809	0.400	0.904	0.966	0.722	1.336
p-value	0.012	0.661	0.019	0.031	0.744	0.038	0.041	0.336	0.045
observations	174	1486	1660	156	1397	1553	156	1397	1553
One state with Russia	-3.121	-1.170	-1.951	-3.285	-1.185	-2.100	-3.550	-0.918	-2.633
se	1.072	0.288	1.107	1.071	0.315	1.112	1.200	0.623	1.494
p-value	0.004	0.000	0.078	0.002	0.000	0.059	0.003	0.141	0.078
observations	165	1395	1560	146	1314	1460	146	1314	1460
I love Ukraine	0.045	0.188	-0.143	0.182	0.224	-0.042	0.299	0.154	0.145
se	0.349	0.065	0.352	0.377	0.065	0.381	0.417	0.165	0.439
p-value	0.897	0.004	0.685	0.630	0.001	0.912	0.473	0.353	0.741
observations	187	1553	1740	166	1456	1622	166	1456	1622
"We" for Ukrainians	0.269	0.203	0.066	0.287	0.194	0.093	0.363	0.116	0.247
se	0.203	0.081	0.223	0.246	0.113	0.266	0.272	0.228	0.313
p-value	0.185	0.013	0.768	0.242	0.086	0.726	0.181	0.610	0.430
observations	187	1553	1740	166	1456	1622	166	1456	1622

Note: Observations < 100 km to Donetsk or Luhansk form the high treatment group, while those ≥ 200 km form the low treatment group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

In Table 8, we report the estimates for the Donbass subsample with at most 193 observations in the high treatment group versus 187 observations in the low treatment group, given the distance threshold of 100 km as in the main specification. This sensitivity check is motivated by the potential concern that Donbass is, despite many historical and cultural similarities with the remainder of the east, nevertheless distinct from other regions in a way that makes the common trend assumption fail when relying on the observations outside of Donbass. Statistical power is now considerably lower due to the substantially smaller sample size, and none of the conditional DiD estimates is

statistically significant at the 10% level. It is nevertheless reassuring that the magnitudes are qualitatively in line with the previous key findings. They again suggest that the preferences for political ties with Russia have weakened.

Table 8: Estimates for Donbass only with a distance threshold of 100 km

	No controls			OLS			Propensity score weighting		
	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.434	0.031	0.403	0.398	0.028	0.370	0.442	0.007	0.435
se	0.185	0.147	0.236	0.182	0.140	0.230	0.199	0.322	0.403
p-value	0.019	0.832	0.087	0.029	0.840	0.108	0.027	0.982	0.280
observations	147	157	304	130	150	280	130	150	280
Union with Russia	-0.472	-0.191	-0.282	-0.445	-0.161	-0.285	-0.488	-0.337	-0.151
se	0.106	0.093	0.143	0.210	0.345	0.405	0.182	0.231	0.301
p-value	0.000	0.041	0.049	0.034	0.641	0.483	0.007	0.145	0.616
observations	147	157	304	130	150	280	130	150	280
Split into separate states	0.090	0.126	-0.035	0.108	0.037	0.071	0.095	0.095	0.000
se	0.044	0.090	0.097	0.155	0.082	0.175	0.053	0.237	0.238
p-value	0.040	0.161	0.716	0.487	0.655	0.686	0.074	0.688	0.999
observations	147	157	304	130	150	280	130	150	280
Fully the same cultures	-1.745	-0.485	-1.260	-1.745	-0.520	-1.226	-1.978	-0.541	-1.436
se	0.671	0.324	0.743	0.768	0.555	0.975	0.967	0.597	1.165
p-value	0.009	0.135	0.090	0.023	0.349	0.209	0.041	0.365	0.218
observations	174	189	363	156	181	337	156	181	337
One state with Russia	-3.121	-1.465	-1.656	-3.285	-1.211	-2.073	-3.550	-1.414	-2.136
se	1.025	0.560	1.186	1.051	1.045	1.453	1.222	0.953	1.642
p-value	0.002	0.009	0.162	0.002	0.246	0.154	0.004	0.138	0.193
observations	165	156	321	146	148	294	146	148	294
I love Ukraine	0.045	-0.021	0.066	0.182	0.034	0.148	0.299	0.066	0.233
se	0.342	0.417	0.547	0.344	0.767	0.831	0.388	0.484	0.641
p-value	0.895	0.960	0.904	0.597	0.965	0.859	0.441	0.892	0.716
observations	187	193	380	166	185	351	166	185	351
"We" for Ukrainians	0.269	-0.438	0.707	0.287	-0.304	0.591	0.363	-0.044	0.407
se	0.201	0.637	0.669	0.223	0.875	0.898	0.254	0.843	0.901
p-value	0.182	0.492	0.291	0.197	0.728	0.510	0.153	0.959	0.652
observations	187	193	380	166	185	351	166	185	351

Note: Observations < 100 km to Donetsk or Luhansk form the high treatment group, while those ≥ 100 km form the low treatment group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Next, we shift the distance threshold further away from the front zone. Thus, the high treatment group expands to seven municipalities in Donbass while the low treatment group is now reduced accordingly. Table 9 provides the results. For most variables, the magnitudes of the before-after estimates in the high treatment group decrease while the sizes of those for the low treatment group increase compared to Table 5. Therefore, this specification generally yields smaller and less statistically significant DiD estimates than the main specification, but nevertheless qualitatively

similar. The negative before-after estimates for a union, as well as for forming one state with Russia remain statistically significant for either treatment group. In the high treatment group, the before-after estimates for belonging to the same culture are borderline significant. The negative DiD estimates for belonging to the same culture are also marginally significant in two out of three cases, while the ones on forming one state are not any more.

Table 9: Estimates for a distance threshold of 150 km

	No controls			OLS			Propensity score weighting		
	<150 km	≥150 km	DiD	<150 km	≥150 km	DiD	<150 km	≥150 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.218	0.093	0.126	0.259	0.048	0.211	0.308	0.163	0.144
se	0.178	0.076	0.193	0.163	0.077	0.181	0.159	0.084	0.174
p-value	0.219	0.221	0.515	0.113	0.530	0.243	0.053	0.052	0.406
observations	281	1421	1702	258	1346	1604	258	1346	1604
Union with Russia	-0.358	-0.306	-0.052	-0.358	-0.311	-0.046	-0.402	-0.357	-0.045
se	0.102	0.040	0.109	0.117	0.039	0.122	0.159	0.074	0.179
p-value	0.000	0.000	0.633	0.002	0.000	0.703	0.012	0.000	0.800
observations	281	1421	1702	258	1346	1604	258	1346	1604
Split into separate states	0.128	0.022	0.106	0.116	0.013	0.103	0.103	0.017	0.086
se	0.049	0.012	0.051	0.250	0.010	0.250	0.062	0.015	0.064
p-value	0.009	0.084	0.037	0.643	0.210	0.680	0.097	0.251	0.181
observations	281	1421	1702	258	1346	1604	258	1346	1604
Fully the same cultures	-1.183	0.094	-1.278	-1.109	0.027	-1.136	-1.054	0.159	-1.213
se	0.565	0.361	0.672	0.584	0.380	0.698	0.669	0.533	0.976
p-value	0.036	0.794	0.057	0.057	0.943	0.104	0.115	0.766	0.214
observations	335	1646	1981	310	1545	1855	310	1545	1855
One state with Russia	-2.363	-1.229	-1.134	-2.489	-1.214	-1.275	-2.463	-1.178	-1.284
se	0.796	0.260	0.823	0.876	0.285	0.926	0.992	0.493	1.214
p-value	0.003	0.000	0.168	0.005	0.000	0.168	0.013	0.017	0.290
observations	295	1545	1840	269	1453	1722	269	1453	1722
I love Ukraine	-0.018	0.177	-0.195	0.088	0.216	-0.128	0.074	0.143	-0.069
se	0.264	0.059	0.271	0.255	0.061	0.263	0.268	0.123	0.314
p-value	0.945	0.003	0.471	0.729	0.000	0.627	0.782	0.245	0.827
observations	352	1721	2073	324	1610	1934	324	1610	1934
"We" for Ukrainians	-0.243	0.235	-0.478	-0.141	0.223	-0.364	-0.185	0.128	-0.313
se	0.299	0.088	0.310	0.249	0.112	0.272	0.293	0.199	0.348
p-value	0.416	0.007	0.124	0.570	0.046	0.180	0.527	0.521	0.369
observations	352	1721	2073	324	1610	1934	324	1610	1934

Note: Observations < 150 km to Donetsk or Luhansk form the high treatment group, while those ≥ 150 km form the low treatment group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

For four of the cities in the Donetsk oblast that are included in our sample, we found that they directly experienced military confrontations in 2014 based on Internet research and checks of the movement of the front according to the maps of the Information Analysis Center of the National Security and Defense Council of Ukraine. In a further robustness check, we assign these cities to

the high treatment group, while all remaining cities in our sample form the low treatment group. The cities in the newly defined high treatment group are located close to the front line, i.e. less than 100 km to Donetsk or Luhansk except for Mariupol. Therefore, the results in Table 10 are mostly in line with the results of the main specification, albeit generally less significant. In particular, while the negative OLS based-DiD effects on the common culture and one state outcomes are borderline significant, the weighting-based estimates are quite imprecise, albeit similar in magnitude. We conclude that our battery of robustness checks by and large confirms the findings of the main specification, namely that the political capital of Russia decreased in the government-held territories in eastern Ukraine affected by the war, while mostly no statistically significant effects are found with respect to sentiments towards Ukraine.

Table 10: Estimates for military confrontations

	No controls			OLS			Propensity score weighting		
	battle	no battle	DiD	battle	no battle	DiD	battle	no battle	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.105	0.116	-0.011	0.155	0.075	0.080	0.209	0.165	0.045
se	0.241	0.074	0.253	0.309	0.076	0.321	0.218	0.108	0.252
p-value	0.663	0.115	0.964	0.616	0.323	0.804	0.337	0.126	0.859
observations	207	1495	1702	194	1410	1604	194	1410	1604
Union with Russia	-0.426	-0.300	-0.126	-0.476	-0.307	-0.168	-0.582	-0.365	-0.217
se	0.146	0.039	0.151	1.000	0.037	1.000	0.212	0.121	0.271
p-value	0.004	0.000	0.403	0.634	0.000	0.866	0.006	0.003	0.423
observations	207	1495	1702	194	1410	1604	194	1410	1604
Split into separate states	0.167	0.021	0.146	0.168	0.012	0.155	0.144	0.008	0.136
se	0.047	0.012	0.048	0.750	0.010	0.750	0.1	0.028	0.101
p-value	0.000	0.090	0.002	0.823	0.214	0.836	0.15	0.762	0.179
observations	207	1495	1702	194	1410	1604	194	1410	1604
Fully the same cultures	-1.299	0.049	-1.348	-1.380	-0.021	-1.359	-1.166	0.078	-1.244
se	0.784	0.347	0.862	0.749	0.364	0.833	0.842	0.725	1.338
p-value	0.097	0.889	0.118	0.065	0.954	0.103	0.166	0.914	0.352
observations	256	1725	1981	239	1616	1855	239	1616	1855
One state with Russia	-3.094	-1.189	-1.905	-3.161	-1.205	-1.956	-3.18	-1.121	-2.059
se	0.913	0.246	0.933	1.053	0.277	1.098	1.208	0.715	1.555
p-value	0.001	0.000	0.041	0.003	0.000	0.075	0.008	0.117	0.186
observations	217	1623	1840	200	1522	1722	200	1522	1722
I love Ukraine	0.078	0.161	-0.083	0.088	0.211	-0.123	0.081	0.123	-0.042
se	0.353	0.064	0.357	0.437	0.063	0.441	0.426	0.175	0.438
p-value	0.824	0.012	0.817	0.841	0.001	0.780	0.849	0.483	0.924
observations	270	1803	2073	252	1682	1934	252	1682	1934
"We" for Ukrainians	-0.139	0.200	-0.338	-0.091	0.204	-0.295	-0.156	0.015	-0.171
se	0.312	0.088	0.325	0.310	0.107	0.328	0.294	0.206	0.349
p-value	0.657	0.024	0.298	0.769	0.057	0.368	0.595	0.943	0.625
observations	270	1803	2073	252	1682	1934	252	1682	1934

Note: Military confrontations in 2014 were reported for Artemivsk, Kostiantynivka, Kramatorsk and Mariupol. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

To investigate effect heterogeneity across language, Table A5 in the Appendix presents our main analysis for the subsample of native Russian speakers, who could differ in attitudes and effects from native Ukrainian speakers. However, the results are qualitatively similar to those in the total sample. Furthermore, we examine effect heterogeneity across age groups by considering the subsample below the median age of 45 in the evaluation sample. Table A6 in Appendix displays the obtained results that are in line with those in the whole sample. As a final check, we examined whether item non-response in the outcome variables is selective in our sample, i.e. varies systematically over time and across treatment groups. For this purpose, we created missing dummies for our outcomes of interest and used them as dependent variables in our estimators. We generally found no evidence for selective item non-response within treatment groups over time or across time trends of treatment groups (see Table A7 in Appendix).

6 Placebo tests

To complement the sensitivity checks, we conduct two placebo tests for our DiD approach in which we assign treatment based on distance to a certain municipality in a region relatively far from the war zone such that war exposure should be perceived as equally low in the entire region. A further criterion is that the region should be culturally rather homogeneous and should not experience a large inflow of IDPs from the war zone (see Figure 2). For these reasons, we picked two regions in the north and the west center of Ukraine (see Figure 3). Following the historically motivated definitions in Denisova-Schmidt and Huber (2014), the northern region includes Chernihiv, Sumy, Poltava, Cherkasy, and Kirovohrad oblasts; the west central region consists of Volyn, Rivno, Zhytomyr, Khmelnytsk, and Vinnytsia oblasts. Within each region, the placebo groups with the high and low treatment are defined based on the road distance (by car) to a particular city chosen to meet two criteria: first, it is not one of Ukrainian major cities in terms of political or military power; second, the resulting placebo groups include a sufficient number of observations to implement the DiD approach. For the north of Ukraine, we consider the distance to Oleksandria (Kirovohrad oblast); for the west center, we take the distance to Zhytomyr (Zhytomyr oblast). Only the cities observed in both survey waves enter our sample, i.e. 18 cities in the west center region and 14 cities in the north.

We compare observations within a 100 km radius from the respective target city to those further away in each region and apply the same three DiD approaches as used in the previous section.

Tables A8 and A9 in Appendix provide the results. Almost all DiD estimates are insignificant at any conventional level, with the exception of the effects on a union with Russia when not controlling for any observed covariates. Our two placebo studies therefore generally support our main econometric approach, which hinges on the assumption that it is the proximity to the war zone which crucially determines the effect of the conflict on political attitudes.

Figure 3: Placebo regions
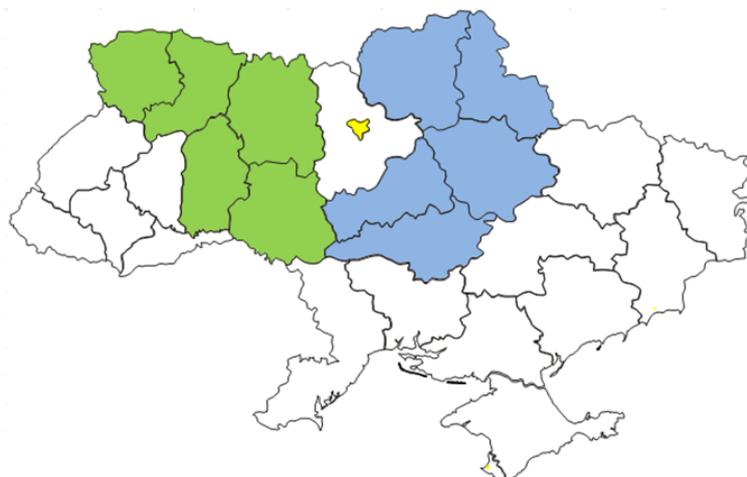
Note: The west center and the north of Ukraine are highlighted in green and blue, respectively.

7   Conclusion

This paper examined the impact of the military conflict in Donbass on the political attitudes towards Ukraine and Russia of the population living close to the front line in eastern Ukraine. Preferences about the future political status of Ukraine, their sentiments towards Ukrainian-Russian relations, as well as self-association with Ukraine and other Ukrainians were at the center of this study. The analysis was based on unique repeated cross sectional data collected from the regions controlled by the Ukrainian authorities a year before and after the outbreak of the war in spring 2014. We applied two econometric strategies to infer on the causal effect of war intensity, based on two treatment groups distinguished by their proximity to the region's major cities of Donetsk or Luhansk situated close to the front line. First, we performed before-after comparisons that assume the absence of time trends in the outcome variables in either group. Second, we used a difference-in-differences (DiD) approach for multiple treatment intensities that under specific assumptions

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estimates a lower bound of the causal effect. We considered both estimation without controlling for covariates, as well as OLS and semiparametric inverse probability weighting by the propensity score which condition on a range of socioeconomic characteristics.

In line with previous findings in the literature, the results suggested that exposure to war affects political preferences and attitudes. Specifically, the conflict in Donbass appears to have negatively affected attitudes towards Russia among the people living in the government-held parts of Donbass close to the front line. The before-after differences in supporting a political union with Russia and in stating that Ukraine and Russia form be one state were negative and statistically significant at the 5% level in all but one of the main specifications. Furthermore, for the latter outcome and the judgement that the Ukrainian and Russian cultures are the same, the DiD approach yielded sizable negative effects that were significant at the 10% level in the majority of regressions. In contrast, we did not find strong evidence that the war affected sentiments towards Ukraine or self-association with other Ukrainians. A number of robustness checks and placebo tests confirmed our main results and did not refute our DiD method.

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A Appendix

Table A1: Choice of the evaluation sample (east of Ukraine)

	Observations		
	2013	2015	Total
Nationwide sample	6000	6000	12000
Entire sample for the east	1915	1545	3460
Excluded villages	284	264	548
Excluded cities	711	128	839
Evaluation sample	920	1153	2073

Note: The nationwide sample includes all regions of Ukraine. The entire sample for the east of Ukraine covers observed cities and villages in Dnipropetrovsk, Donetsk, Kharkiv, Luhansk and Zaporizhia oblasts. The evaluation sample consists of the cities observed in the east of Ukraine in both waves.

Table A2: Mean covariate values in 2013 by city inclusion status

	Donbass				Remainder of the east			
	Included	Excluded	Difference	p-value	Included	Excluded	Difference	p-value
City size: <50 000 citizens (binary)	0.235	0.359	-0.124	0.492	0.147	1.000	-0.853	0.000
	(0.148)	(0.111)	(0.179)		(0.071)	(0.000)	(0.071)	
Female (binary)	0.559	0.576	-0.017	0.248	0.556	0.539	0.017	0.290
	(0.013)	(0.008)	(0.014)		(0.007)	(0.014)	(0.016)	
Age	46.011	46.446	-0.435	0.499	44.995	46.183	-1.188	0.186
	(0.499)	(0.426)	(0.636)		(0.324)	(0.847)	(0.875)	
Secondary specialized education (binary)	0.419	0.450	-0.031	0.576	0.377	0.348	0.029	0.422
	(0.044)	(0.035)	(0.054)		(0.020)	(0.030)	(0.035)	
University degree (binary)	0.346	0.329	0.018	0.806	0.425	0.296	0.129	0.052
	(0.063)	(0.038)	(0.071)		(0.028)	(0.060)	(0.064)	
Ukrainian native-speaker (binary)	0.130	0.057	0.072	0.126	0.268	0.270	-0.001	0.989
	(0.046)	(0.014)	(0.046)		(0.043)	(0.082)	(0.090)	
Russian native-speaker (binary)	0.396	0.541	-0.145	0.127	0.370	0.183	0.187	0.005
	(0.079)	(0.054)	(0.093)		(0.042)	(0.047)	(0.061)	
Moscow Orthodox Church (binary)	0.263	0.352	-0.089	0.227	0.169	0.182	-0.013	0.878
	(0.068)	(0.032)	(0.073)		(0.034)	(0.079)	(0.083)	
Kyiv Orthodox Church (binary)	0.119	0.109	0.010	0.867	0.192	0.064	0.129	0.010
	(0.053)	(0.032)	(0.060)		(0.031)	(0.036)	(0.046)	
Autocephalous Orthodox Church (binary)	0.163	0.234	-0.071	0.323	0.249	0.300	-0.051	0.681
	(0.054)	(0.050)	(0.071)		(0.043)	(0.120)	(0.123)	
Working (binary)	0.531	0.572	-0.041	0.454	0.576	0.574	0.002	0.960
	(0.027)	(0.048)	(0.055)		(0.020)	(0.044)	(0.046)	
Retired (binary)	0.279	0.282	-0.003	0.941	0.242	0.278	-0.037	0.196
	(0.018)	(0.030)	(0.034)		(0.014)	(0.025)	(0.028)	
Single (binary)	0.162	0.133	0.029	0.327	0.170	0.130	0.039	0.185
	(0.026)	(0.016)	(0.030)		(0.016)	(0.025)	(0.029)	
Married or in partnership (binary)	0.609	0.720	-0.111	0.034	0.636	0.661	-0.025	0.613
	(0.048)	(0.021)	(0.050)		(0.023)	(0.044)	(0.048)	
Material conditions	4.648	4.228	0.420	0.068	4.157	4.496	-0.339	0.040
(1: very good, ..., 7: terrible)	(0.192)	(0.128)	(0.223)		(0.080)	(0.141)	(0.048)	

Note: Each variable is averaged over non-missing values. Standard errors are clustered on the city level and reported in parentheses.

Table A3: Mean outcome values in 2013 by city inclusion status

	Donbass				Remainder of the east			
	Included	Excluded	Difference	p-value	Included	Excluded	Difference	p-value
Independent, neutral state (binary)	0.227	0.236	-0.009	0.880	0.354	0.297	0.057	0.449
	(0.053)	(0.030)	(0.058)		(0.034)	(0.023)	(0.146)	
Union with Russia (binary)	0.473	0.569	-0.096	0.319	0.406	0.376	0.030	0.762
	(0.094)	(0.031)	(0.095)		(0.040)	(0.093)	(0.097)	
Split into separate states (binary)	0.020	0.016	0.004	0.707	0.012	0.000	0.012	0.014
	(0.007)	(0.009)	(0.011)		(0.005)	na	(0.004)	
Fully the same cultures	4.805	4.139	0.665	0.164	4.006	4.478	-0.472	0.361
(1: fully disagree, . . . , 7: fully agree)	(0.459)	(0.170)	(0.468)		(0.313)	(0.419)	(0.508)	
One state with Russia	4.804	4.118	0.686	0.252	3.666	3.951	-0.286	0.511
(1: fully disagree, . . . , 7: fully agree)	(0.591)	(0.177)	(0.588)		(0.156)	(0.416)	(0.429)	
I love Ukraine	3.838	4.030	-0.192	0.166	4.248	4.504	-0.256	0.066
(1: definitely no, . . . , 5: definitely yes)	(0.125)	(0.066)	(0.136)		(0.039)	(0.133)	(0.133)	
"We" for Ukrainians	3.905	3.765	0.140	0.346	3.955	4.365	-0.410	0.018
(1: definitely no, . . . , 5: definitely yes)	(0.128)	(0.082)	(0.146)		(0.075)	(0.150)	(0.163)	

Note: Each variable is averaged over non-missing values. Standard errors are clustered on the city level and reported in parentheses.

Figure A1: Frequency distribution of the minimum distance by car to Donetsk or Luhansk
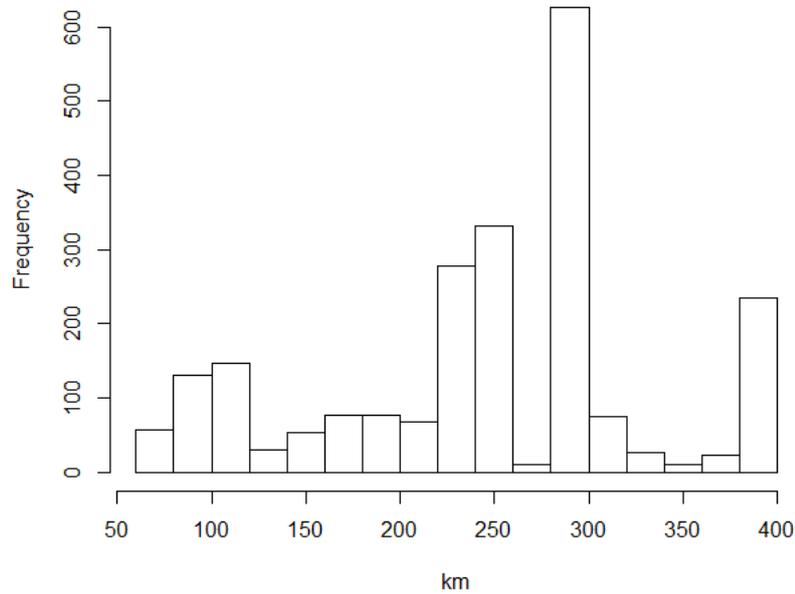
Table A4: Distance by car (km) from Donbass cities to Donetsk and Luhansk

	Donetsk	Luhansk
Artemivsk	85.2	113.0
Bilovodsk	244.0	89.3
Kostiantynivka	67.5	139.0
Kramatorsk	98.9	164.0
Krasnoarmiysk	66.2	189.0
Krasnyy Lyman	140.0	142.0
Mariupol	113.0	273.0
Svatove	199.0	155.0

Source: `www.maps.google.com`.

Figure A2: Frequency distribution of attitudes towards Ukraine and Russia in the high treatment group in 2013-2015
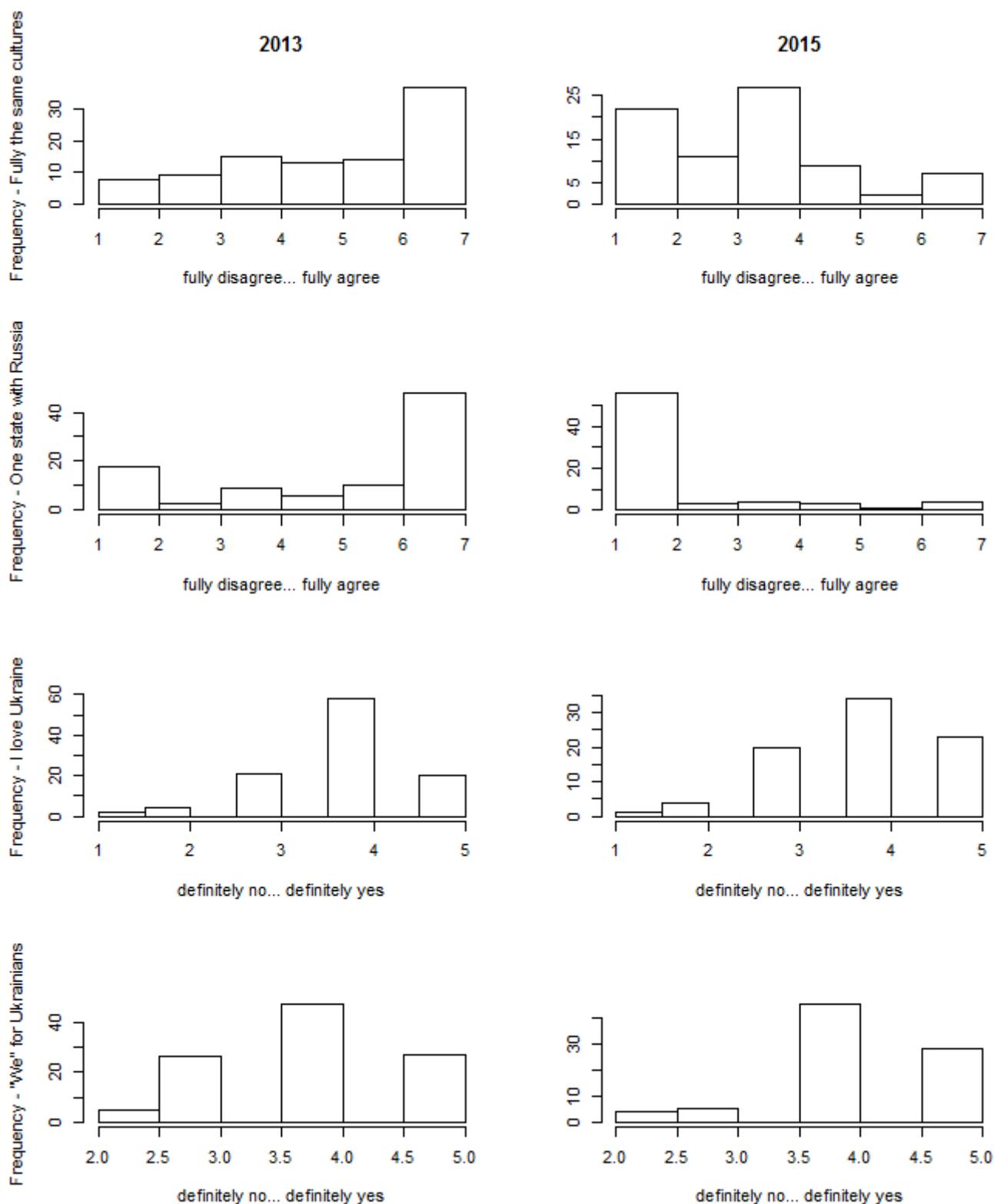
Note: High treatment group includes obsevations up to 100 km by car to Donetsk or Luhansk.

Table A5: Estimates for Russian speakers only with a distance threshold of 100 km

|	No controls			OLS			Propensity score weighting		
	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.006	0.088	-0.082	0.190	0.078	0.112	0.181	0.248	-0.067
se	0.314	0.087	0.327	0.275	0.071	0.280	0.269	0.299	0.360
p-value	0.985	0.308	0.801	0.489	0.269	0.690	0.501	0.407	0.853
observations	46	479	525	41	447	488	41	447	488
Union with Russia	-0.396	-0.263	-0.134	-0.591	-0.242	-0.349	-0.605	-0.361	-0.244
se	0.165	0.067	0.180	0.272	0.054	0.279	0.144	0.293	0.334
p-value	0.016	0.000	0.457	0.030	0.000	0.210	0.000	0.217	0.464
observations	46	479	525	41	447	488	41	447	488
Split into separate states	0.333	0.097	0.236	0.266	0.071	0.195	0.333	0.085	0.248
se	0.190	0.050	0.196	0.353	0.030	0.354	0.190	0.102	0.198
p-value	0.079	0.053	0.228	0.451	0.017	0.582	0.080	0.407	0.209
observations	46	479	525	41	447	488	41	447	488
Fully the same cultures	-1.838	-0.111	-1.727	-2.038	-0.042	-1.997	-1.947	0.618	-2.564
se	0.734	0.293	0.786	0.836	0.275	0.875	0.807	0.990	1.311
p-value	0.012	0.706	0.028	0.015	0.879	0.023	0.016	0.533	0.050
observations	57	578	635	51	531	582	51	531	582
One state with Russia	-3.816	-0.833	-2.983	-4.300	-0.635	-3.665	-4.374	-0.744	-3.630
se	1.290	0.366	1.341	5.446	0.352	5.466	1.554	1.726	2.567
p-value	0.003	0.023	0.026	0.430	0.071	0.503	0.005	0.666	0.157
observations	50	514	564	44	472	516	44	472	516
I love Ukraine	-0.747	-0.036	-0.710	-0.457	0.008	-0.465	-0.485	-0.003	-0.482
se	0.650	0.109	0.654	1.235	0.091	1.237	0.679	0.319	0.759
p-value	0.251	0.739	0.277	0.711	0.931	0.707	0.476	0.993	0.525
observations	61	607	668	55	556	611	55	556	611
"We" for Ukrainians	-0.107	-0.058	-0.048	0.136	-0.005	0.141	0.148	-0.154	0.302
se	0.510	0.146	0.529	0.781	0.120	0.787	0.384	0.404	0.515
p-value	0.835	0.691	0.927	0.862	0.966	0.858	0.700	0.703	0.558
observations	61	607	668	55	556	611	55	556	611

Note: Observations < 100 km to Donetsk or Luhansk form the high treatment group, while those ≥ 100 km form the low treatment group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Table A6: Estimates for age below 45 only with a distance threshold of 100 km

	No controls			OLS			Propensity score weighting		
	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.401	0.009	0.392	0.467	-0.020	0.488	0.374	0.216	0.158
se	0.209	0.060	0.216	0.237	0.059	0.245	0.328	0.169	0.411
p-value	0.055	0.883	0.069	0.048	0.728	0.047	0.254	0.202	0.700
observations	73	759	832	66	714	780	66	714	780
Union with Russia	-0.398	-0.221	-0.178	-0.560	-0.224	-0.337	-0.508	-0.228	-0.281
se	0.105	0.053	0.116	0.282	0.048	0.286	0.228	0.195	0.263
p-value	0.000	0.000	0.125	0.047	0.000	0.239	0.026	0.243	0.285
observations	73	759	832	66	714	780	66	714	780
Split into separate states	0.177	0.050	0.126	0.266	0.034	0.233	0.208	0.035	0.173
se	0.096	0.021	0.098	0.246	0.017	0.246	0.105	0.041	0.100
p-value	0.065	0.017	0.196	0.278	0.044	0.344	0.046	0.391	0.083
observations	73	759	832	66	714	780	66	714	780
Fully the same cultures	-1.727	-0.008	-1.719	-1.602	-0.050	-1.551	-2.026	0.616	-2.642
se	0.709	0.323	0.789	0.694	0.364	0.774	0.955	0.766	1.265
p-value	0.015	0.981	0.029	0.021	0.890	0.045	0.034	0.421	0.037
observations	84	881	965	76	817	893	76	817	893
One state with Russia	-2.929	-1.154	-1.775	-3.403	-1.149	-2.254	-3.449	-0.787	-2.662
se	0.903	0.259	0.928	1.531	0.304	1.572	0.842	0.898	1.302
p-value	0.001	0.000	0.056	0.026	0.000	0.152	0.000	0.381	0.041
observations	82	820	902	73	761	834	73	761	834
Love to Ukraine	0.018	0.225	-0.207	0.140	0.244	-0.104	0.171	0.230	-0.058
se	0.326	0.078	0.331	0.889	0.080	0.895	0.401	0.334	0.511
p-value	0.957	0.004	0.532	0.875	0.002	0.908	0.669	0.492	0.909
observations	93	919	1012	83	847	930	83	847	930
"We" for Ukrainians	0.382	0.157	0.226	0.603	0.151	0.452	0.731	-0.033	0.765
se	0.246	0.113	0.270	0.671	0.127	0.674	0.317	0.313	0.401
p-value	0.121	0.167	0.403	0.369	0.234	0.502	0.021	0.915	0.056
observations	93	919	1012	83	847	930	83	847	930

Note: Median age in the evaluation sample is 45. Observations up to 100 km to Donetsk or Luhansk form the high treatment group, while those from 100 km define the low treatment group. Propensity score is estimated with logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Table A7: Effects on item non-response in outcome variables for distance threshold of 100 km

	No controls			OLS			Propensity score weighting		
	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD	<100 km	≥100 km	DiD
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Independent, neutral state	0.119	-0.030	0.149	0.148	-0.048	0.196	0.177	-0.092	0.269
se	0.184	0.035	0.189	0.250	0.042	0.253	0.310	0.065	0.316
p-value	0.520	0.395	0.430	0.553	0.250	0.439	0.567	0.154	0.394
observations	187	1886	2073	166	1768	1934	166	1768	1934
Union with Russia	0.119	-0.030	0.149	0.148	-0.048	0.196	0.177	-0.092	0.269
se	0.193	0.035	0.197	0.255	0.044	0.260	0.333	0.068	0.338
p-value	0.540	0.394	0.451	0.562	0.271	0.452	0.594	0.179	0.425
observations	187	1886	2073	166	1768	1934	166	1768	1934
Split into separate states	0.119	-0.030	0.149	0.148	-0.048	0.196	0.177	-0.092	0.269
se	0.195	0.037	0.198	0.270	0.042	0.273	0.335	0.065	0.343
p-value	0.543	0.409	0.452	0.584	0.248	0.474	0.596	0.158	0.433
observations	187	1886	2073	166	1768	1934	166	1768	1934
Fully the same cultures	-0.037	-0.015	-0.022	-0.025	-0.018	-0.008	0.004	-0.037	0.040
se	0.015	0.010	0.018	0.021	0.011	0.024	0.026	0.032	0.042
p-value	0.015	0.142	0.228	0.229	0.124	0.748	0.892	0.248	0.332
observations	187	1886	2073	166	1768	1934	166	1768	1934
One state with Russia	0.029	0.022	0.007	0.080	0.005	0.076	0.082	0.004	0.078
se	0.064	0.019	0.066	0.069	0.020	0.072	0.063	0.061	0.085
p-value	0.646	0.249	0.911	0.246	0.809	0.292	0.192	0.947	0.360
observations	187	1886	2073	166	1768	1934	166	1768	1934

Note: Dummies for missing observations in outcomes are treated as outcome variables. There are no missing observations for variables "I love Ukraine" and ""we" for Ukrainians". Observations up to 100 km to Donetsk or Luhansk form the high treatment group, while those from 100 km define the low treatment group. Propensity score is estimated with logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Table A8: Placebo DiD estimates for a distance threshold of 100 km to Okhtyrka

	No controls	OLS	Propensity score weighting
	(1)	(2)	(3)
Independent, neutral state	0.034	0.064	0.083
se	0.094	0.175	0.165
p-value	0.714	0.713	0.616
observations	621	593	593
Union with Russia	0.187	0.193	0.173
se	0.088	0.381	0.271
p-value	0.034	0.613	0.524
observations	621	593	593
Split into separate states	-0.053	-0.063	-0.069
se	0.038	0.048	0.153
p-value	0.160	0.192	0.652
observations	621	593	593
Fully the same cultures	-0.013	-0.229	0.105
se	1.626	1.626	2.287
p-value	0.994	0.888	0.963
observations	708	675	675
One state with Russia	0.311	0.311	0.801
se	0.669	0.672	1.467
p-value	0.642	0.644	0.585
observations	681	650	650
I love Ukraine	0.135	0.054	-0.032
se	0.264	0.492	0.479
p-value	0.608	0.912	0.946
observations	756	718	718
"We" for Ukrainians	0.074	0.032	0.009
se	0.195	0.886	0.237
p-value	0.702	0.971	0.969
observations	756	718	718

Note: Observations < 100 km to Okhtyrka form the high treatment placebo group, while those ≥ 100 km form the low treatment placebo group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Table A9: Placebo DiD estimates for a distance threshold of 100 km to Zhytomyr

	No controls	OLS	Propensity score weighting
	(1)	(2)	(3)
Independent, neutral state	0.213	0.182	0.136
se	0.189	0.223	0.292
p-value	0.260	0.416	0.641
observations	646	627	627
Union with Russia	-0.135	-0.115	-0.021
se	0.070	0.094	0.099
p-value	0.053	0.221	0.836
observations	646	627	627
Split into separate states	0.027	0.025	0.017
se	0.017	0.017	0.015
p-value	0.115	0.142	0.264
observations	646	627	627
Fully the same cultures	0.403	0.341	0.409
se	0.857	0.857	1.346
p-value	0.638	0.691	0.761
observations	710	688	688
One state with Russia	0.173	0.277	0.611
se	0.478	0.454	0.747
p-value	0.718	0.542	0.413
observations	711	691	691
I love Ukraine	0.141	0.073	-0.044
se	0.252	0.208	0.397
p-value	0.576	0.727	0.912
observations	739	716	716
"We" for Ukrainians	-0.048	-0.223	-0.142
se	0.401	0.500	0.530
p-value	0.904	0.655	0.789
observations	739	716	716

Note: Observations < 100 km to Zhytomyr form the high treatment placebo group, while those ≥ 100 km form the low treatment placebo group. Propensity scores are estimated by logistic regression. Standard errors are clustered on the city level using 999 bootstrap replications.

Authors
Martin HUBER
University of Fribourg, Faculty of Economics and Social Sciences, Chair of Applied Econometrics - Evaluation of Public Policies, Bd. de Pérolles 90, 1700 Fribourg, Switzerland.   Phone: +41 26 300 8274;   Email: martin.huber@unifr.ch;
Website: http://www.unifr.ch/appecon/en/team/martin-huber

Svitlana TYAHLO
University of Fribourg, Department of Economics, Chair of Applied Econometrics - Evaluation of Public Policies, Bd. de Pérolles 90, 1700 Fribourg, Switzerland.   Phone: +41 26 300 8276;   Email: svitlana.tyahlo@unifr.ch;
Website: http://www.unifr.ch/appecon/fr/team/svitlana-tyahlo

Abstract
This study empirically evaluates the impact of the war in eastern Ukraine on the political attitudes and sentiments towards Ukraine and Russia among the population living close to the war zone on the territory controlled by the Ukrainian government. Exploiting unique survey data that were collected in early 2013 (13 months before the outbreak of the conflict) and early 2015 (11 months after the outbreak), we employ two strategies to infer how the war has affected two different groups defined by distance to the war zone. First, we apply a before-after analysis to examine intra-group changes in attitudes over time. Second, we use a difference-in-differences approach to investigate inter-group divergence over time. Under particular assumptions, the latter approach yields a lower absolute bound for the effect. We control for a range of observed characteristics and consider both parametric and semiparametric estimation based on inverse probability weighting. Our results suggest that one year of conflict negatively affected attitudes towards Russia, while mostly no statistically significant intra- or inter-group differences were found for sentiments towards Ukraine.

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