Targeting and Public Opinion: An Experimental Analysis in Ukraine

Online Supplemental Appendices

Appendix A: Survey Sample

This Appendix provides additional information regarding our survey sample. Figure 1 reports the gender of our respondents. Figure 2 reports the distribution of ages in the sample. Figure 3 reports the distribution of political party affiliations in the sample. Figure 4 reports the distribution of education attainment in the sample. Figure 5 reports the distribution of income in the sample. Figure 6 reports the distribution of responses to the following prompt: "Do you think Ukraine should seek closer economic relations with...".

We also compared our survey sample to Ukrainian census data to assess representativeness. Unfortunately, no census data are available for the government-controlled areas (GCA) of Donbas that we surveyed, so the best comparison we can make is to census data for the Donbas region as a whole. Because the GCA certainly do not represent randomly selected portions of Donbas, the demographics of the GCA are predictably different from those of Donbas as a whole. For example, at the time of our survey, the separatists controlled the two largest cities in Donbas (i.e., the municipalities of Donetsk and Luhansk), so our sample within the GCA contains a larger share of individuals living in rural areas than Donbas as a whole. In addition, the conflict has resulted in over a million internally displaced people within Ukraine, and no census has been conducted that accounts for this displacement. Table 1 provides demographic information for Donbas as a whole based on the 2001 Ukrainian census and for our sample within the GCA. Table 1 provides separate data for the Donetsk and Luhansk Oblasts (i.e., the regions rather than the municipalities with the same names). Table 2 provides a list of locations in the GCA and the number of respondents we surveyed in each location.

Figure 1: Gender Distribution

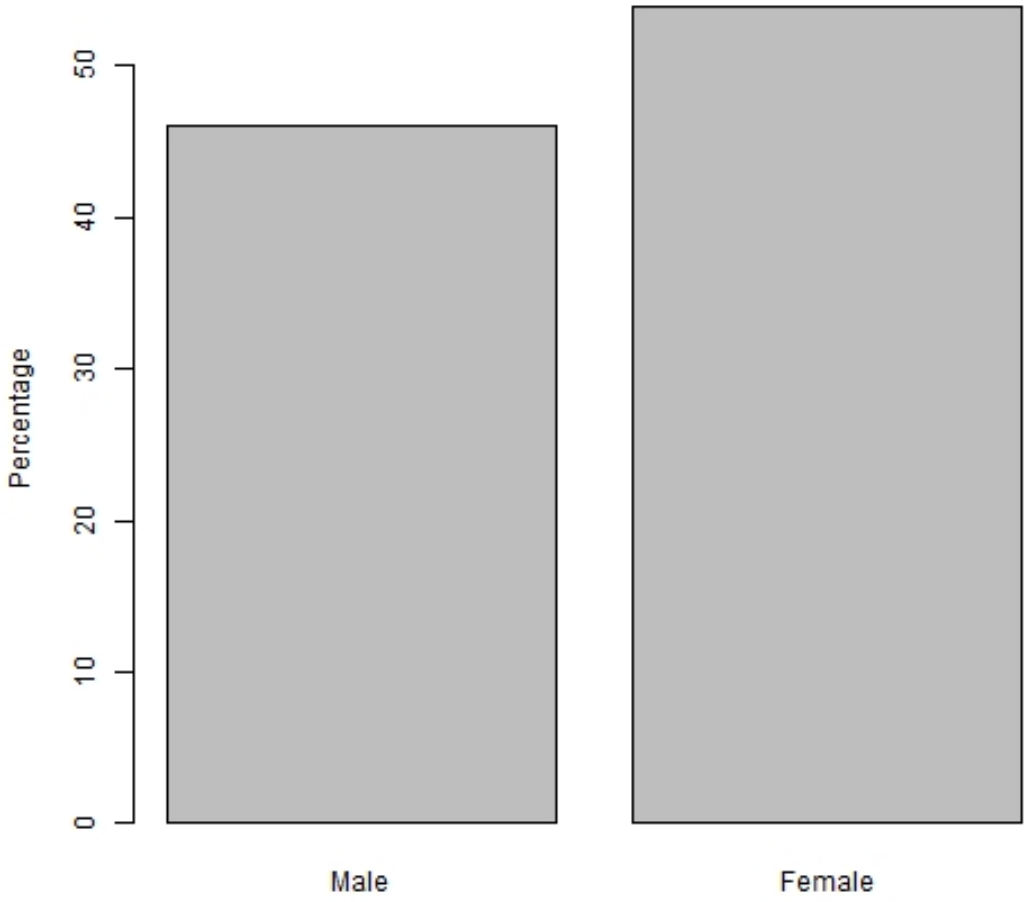


Figure 2: Age Distribution

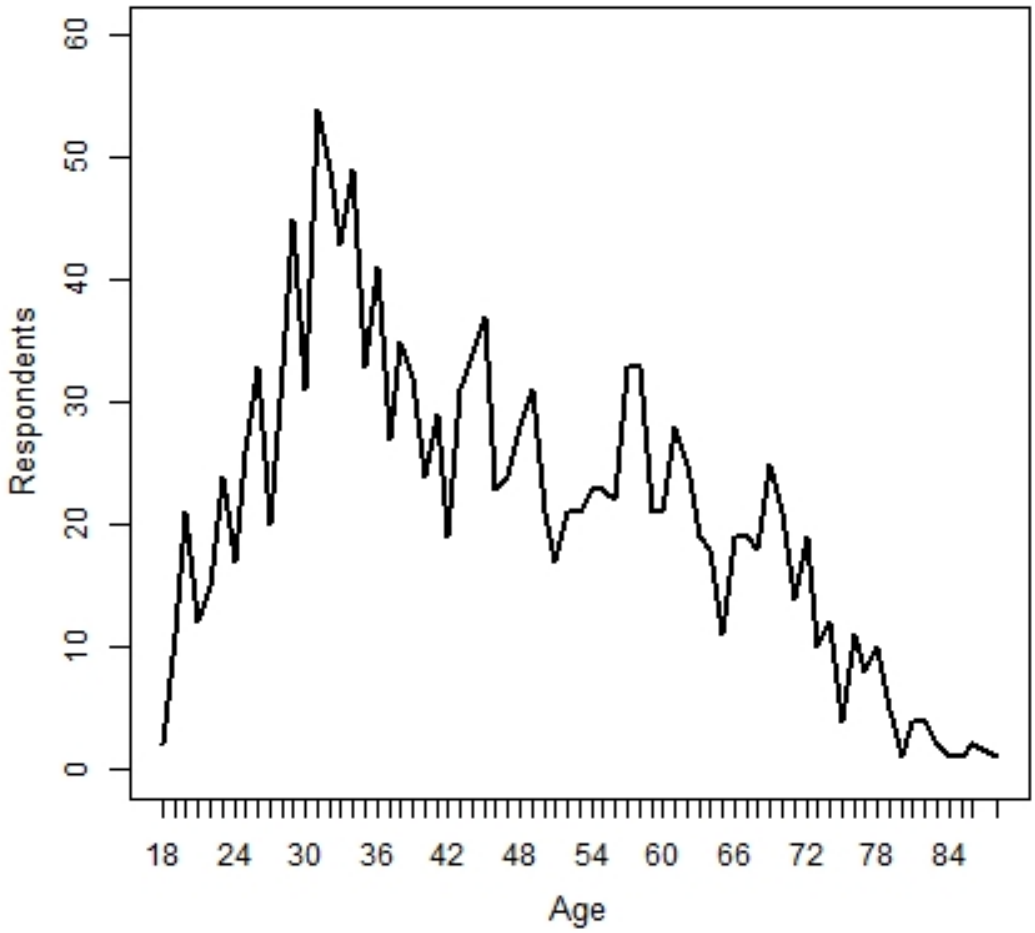


Figure 3: Party Affiliation

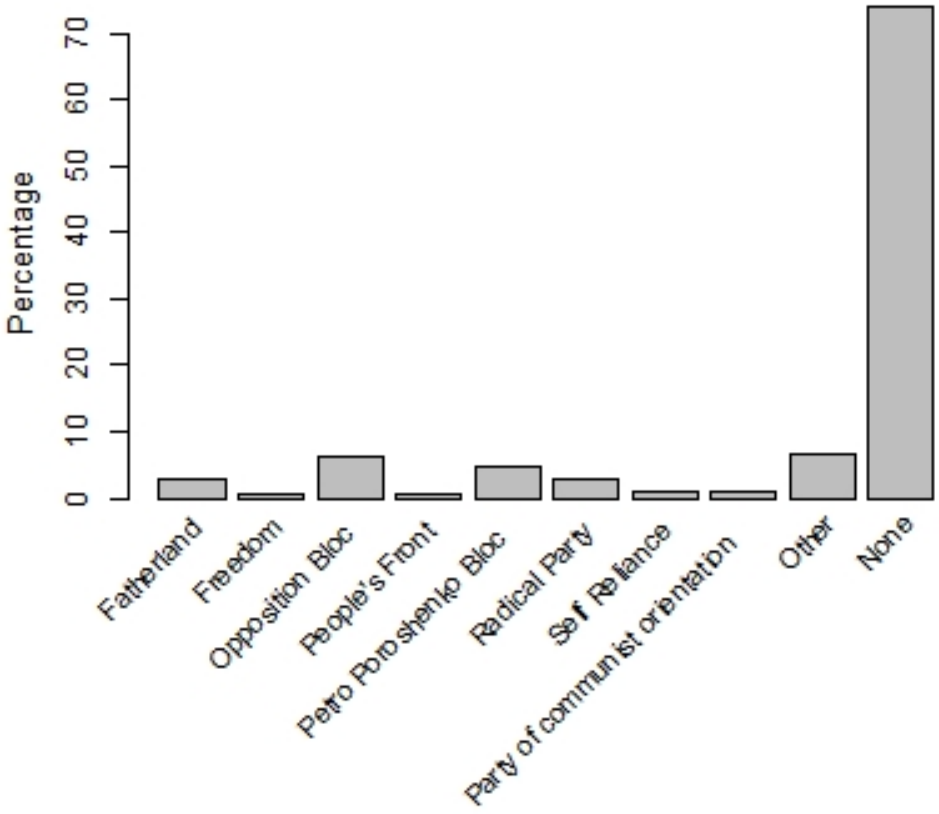


Figure 4: Education

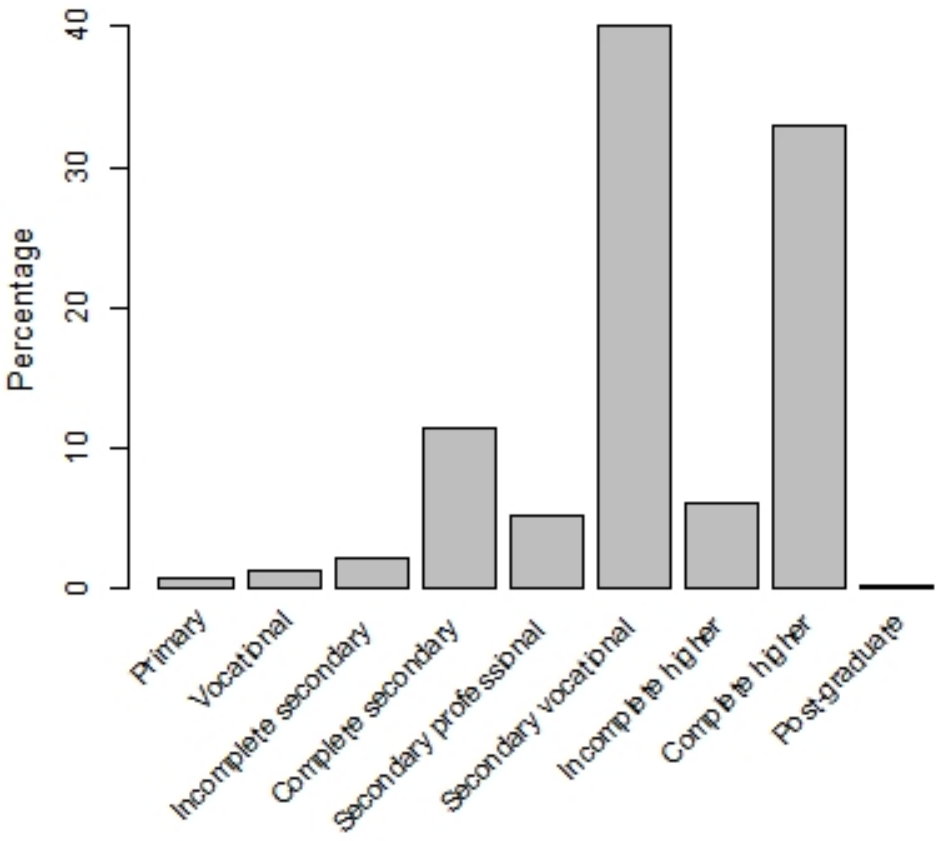


Figure 5: Income in UAH

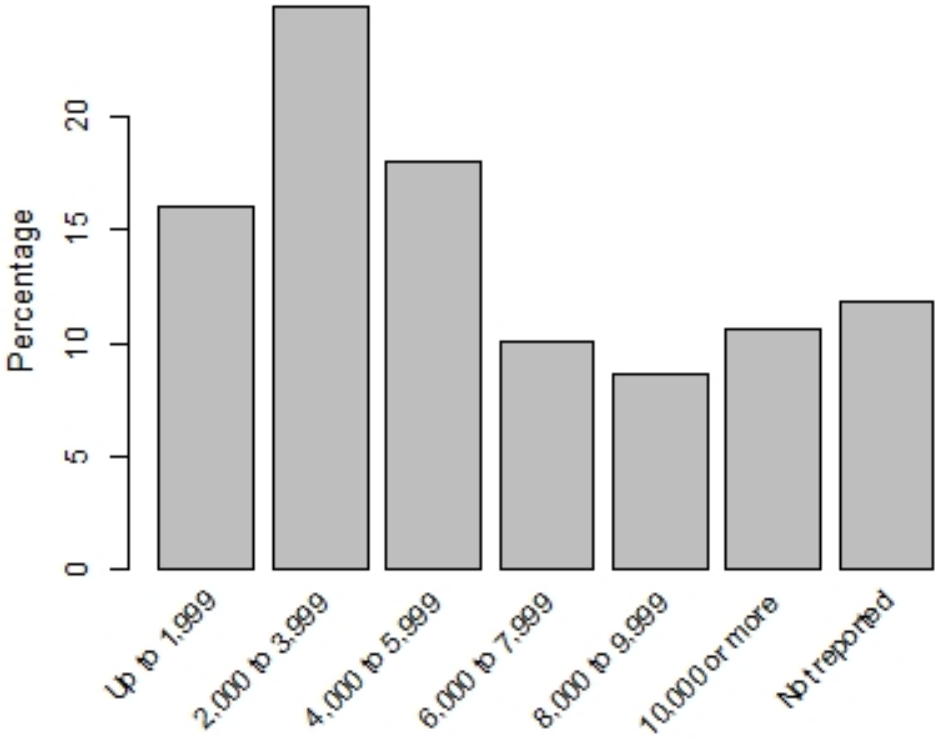


Figure 6: Closer Economic Relations with ...

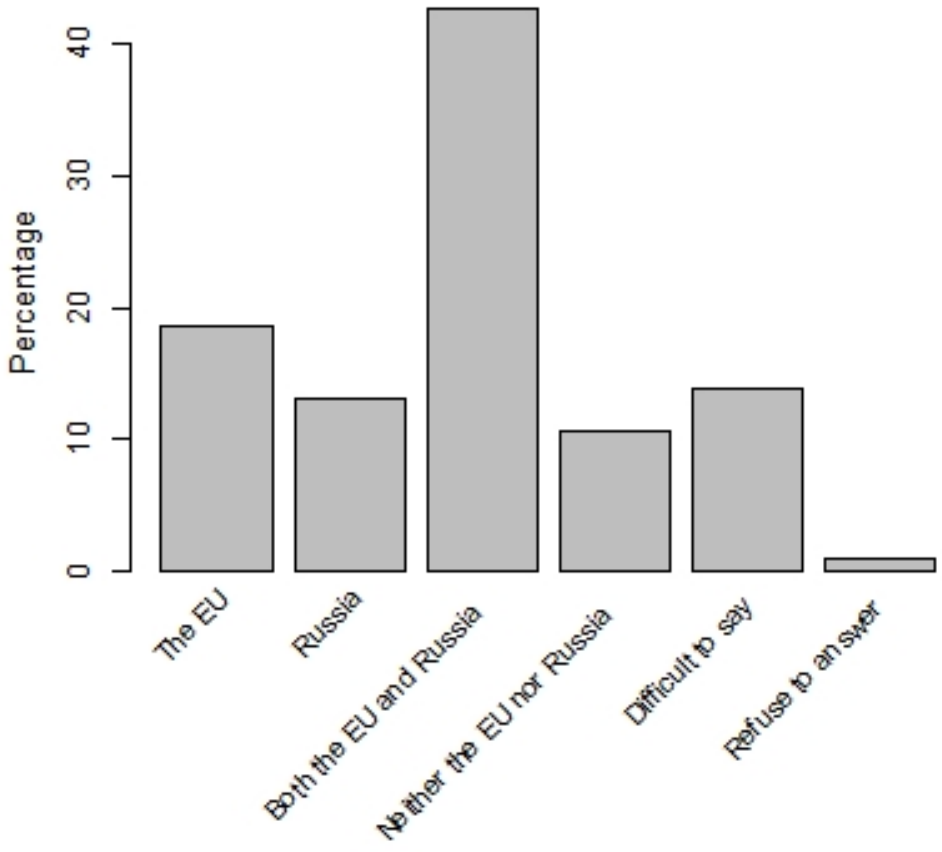


Table 1: Demographics of Donbas and the GCA Sample

	Donetsk Oblast		Luhansk Oblast	
	Oblast Adult Population (%)	GCA Sample (%)	Oblast Adult Population (%)	GCA Sample (%)
Gender				
Male	46	47	46	43
Female	54	53	54	57
Age				
18-29	18	17	18	16
30-39	17	29	17	20
40-49	21	19	21	19
50-59	14	15	14	18
60-69	16	13	17	15
70 or over	13	7	13	13
Location				
Urban	90	83	86	61
Rural	10	17	14	39
Marital Status				
Married	65	60	63	59
Not married	35	40	37	41

Population benchmark data come from the 2001 Ukraine Census, which is available at http://2001.ukrcensus.gov.ua/eng/results/general/. The census includes an age category of 10-19 years, so the 18-29 benchmark group includes only individuals aged 20 to 29. Census figures for marital status include those aged 15 years and older.)

Table 2: Respondents per Location

Mariupol	235	Druzhkivka	24	Bilozerske	10
Severodonetsk	129	Vugledar	23	Siversk	10
Kramatorsk	80	Krasnogorivka	22	Toretsk	9
Kostyantinivka	55	Rubizhne	22	Ukrainsk	9
Svyatogirsk	48	Kurakhov	21	Schastya	9
Mariinka	42	Luman	18	Avdiivka	8
Slovyansk	40	Starobilsk	17	Novogrodivka	8
Bakhmut	37	Selidove	16	Girnik	6
Pokrovsk	34	Girske	14	Bilitske	6
Lisichansk	29	Kreminna	14	Rodinske	5
Myrnohrad	29	Soledar	11	Popasna	2
Volnovakha	27	Mykolaivka	11	Novodruzhek	2
Zolote	26	Chasiv Yar	11	Privillya	1
Dobropillya	25	Swatov	11	Svitlodarsk	1
Various Villages	344				

Appendix B: Balance Tables

Tables 3 and 4 report the results of a series of logit models estimating the extent to which various background covariates predict the treatments for government and opposition tactics, respectively. These models exclude the respondents who did not respond to the outcome prompt. The results indicate that only two background covariates significantly predict treatment assignment: (a) men were less likely to receive the government military targeting treatment; and (b) respondents closer to the line of demarcation were more likely to receive the opposition civilian discriminate treatment.

Table 3: Balance: Government Tactic

	Military	Civilian Discriminate	Civilian Indiscriminate
Age	0.005	-0.004	-0.001
	(0.004)	(0.004)	(0.004)
Gender	-0.283*	0.120	0.145
	(0.134)	(0.131)	(0.130)
Education	0.062	-0.061	0.004
	(0.046)	(0.043)	(0.043)
Income	0.017	-0.014	-0.003
	(0.020)	(0.020)	(0.020)
Proximity	0.036	-0.073	0.037
	(0.069)	(0.068)	(0.067)
Language	-0.343	0.477	-0.082
	(0.342)	(0.390)	(0.345)
Constant	-0.492	-0.983	-0.738
	(0.828)	(0.900)	(0.824)
N	1096	1096	1096
pseudo R^2	0.007	0.005	0.001

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Balance: Opposition Tactic

	Military	Civilian Discriminate	Civilian Indiscriminate
Age	-0.001	0.002	-0.001
	(0.004)	(0.004)	(0.004)
Gender	-0.172	0.090	0.073
	(0.134)	(0.132)	(0.131)
Education	-0.023	-0.013	0.035
	(0.044)	(0.044)	(0.044)
Income	-0.010	0.030	-0.022
	(0.021)	(0.020)	(0.020)
Proximity	-0.122	0.149*	-0.035
	(0.071)	(0.067)	(0.068)
Language	0.005	0.532	-0.469
	(0.372)	(0.395)	(0.345)
Constant	0.002	-2.365**	0.181
	(0.859)	(0.901)	(0.809)
N	1095	1095	1095
pseudo R^2	0.004	0.006	0.003

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix C: Additional Descriptive Results

Figures 7 and 8 provide the mean levels of both dependent variables in all 18 experimental groups. The outer x-axis shows the government tactic, while the outer y-axis shows the opposition tactic. Within each plot, the lefthand bar shows the mean for respondents who were first informed about the government action, while the righthand bar shows the mean for respondents who were first informed about the opposition action. Figure 7 shows the mean approval of the government in each group, and Figure 8 shows the mean approval of the opposition in each group. The error bars show the standard errors of the means. Tables 5 and 6 provide the same results in table format.

Figure 7: Approval of Government

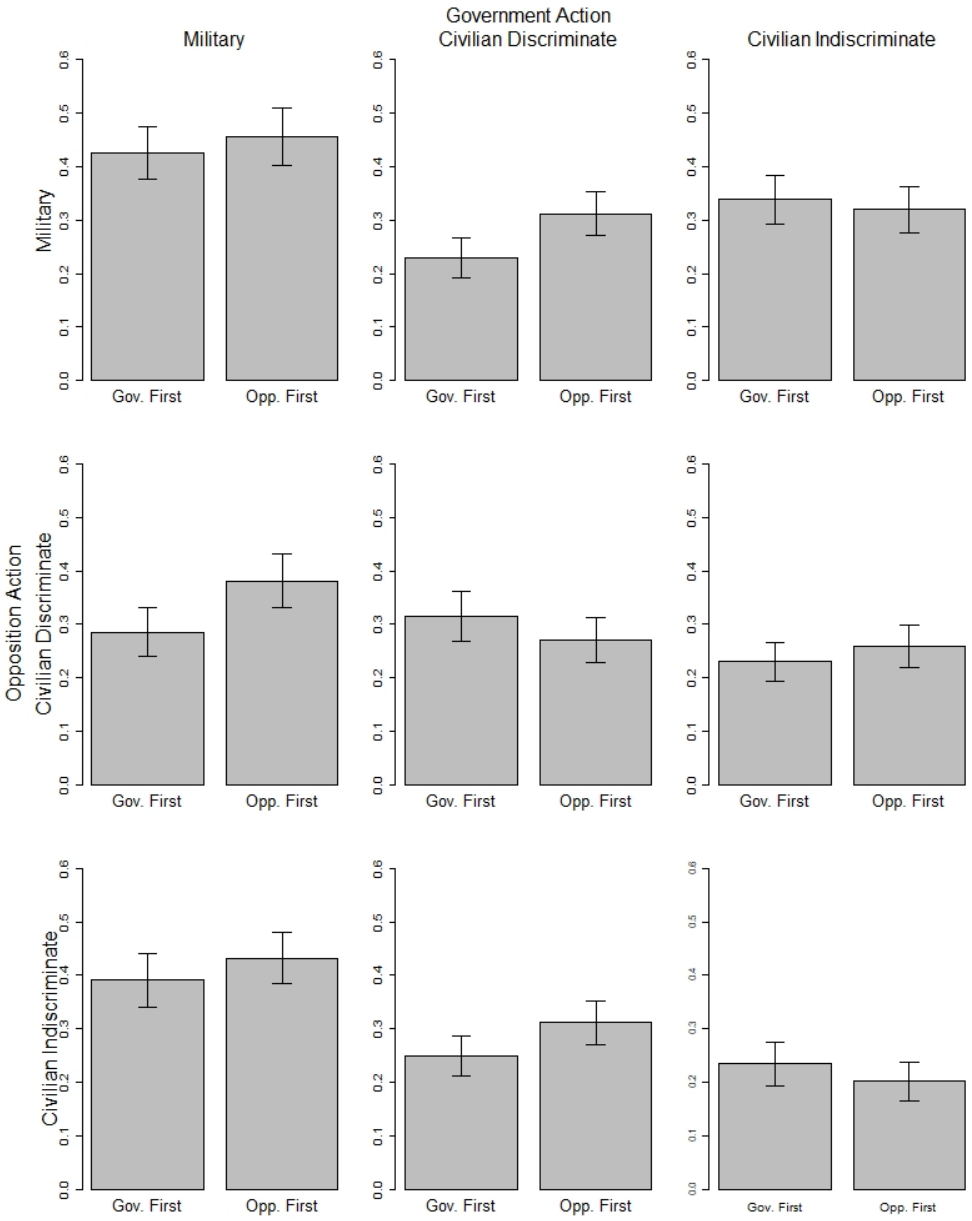


Figure 8: Approval of Opposition

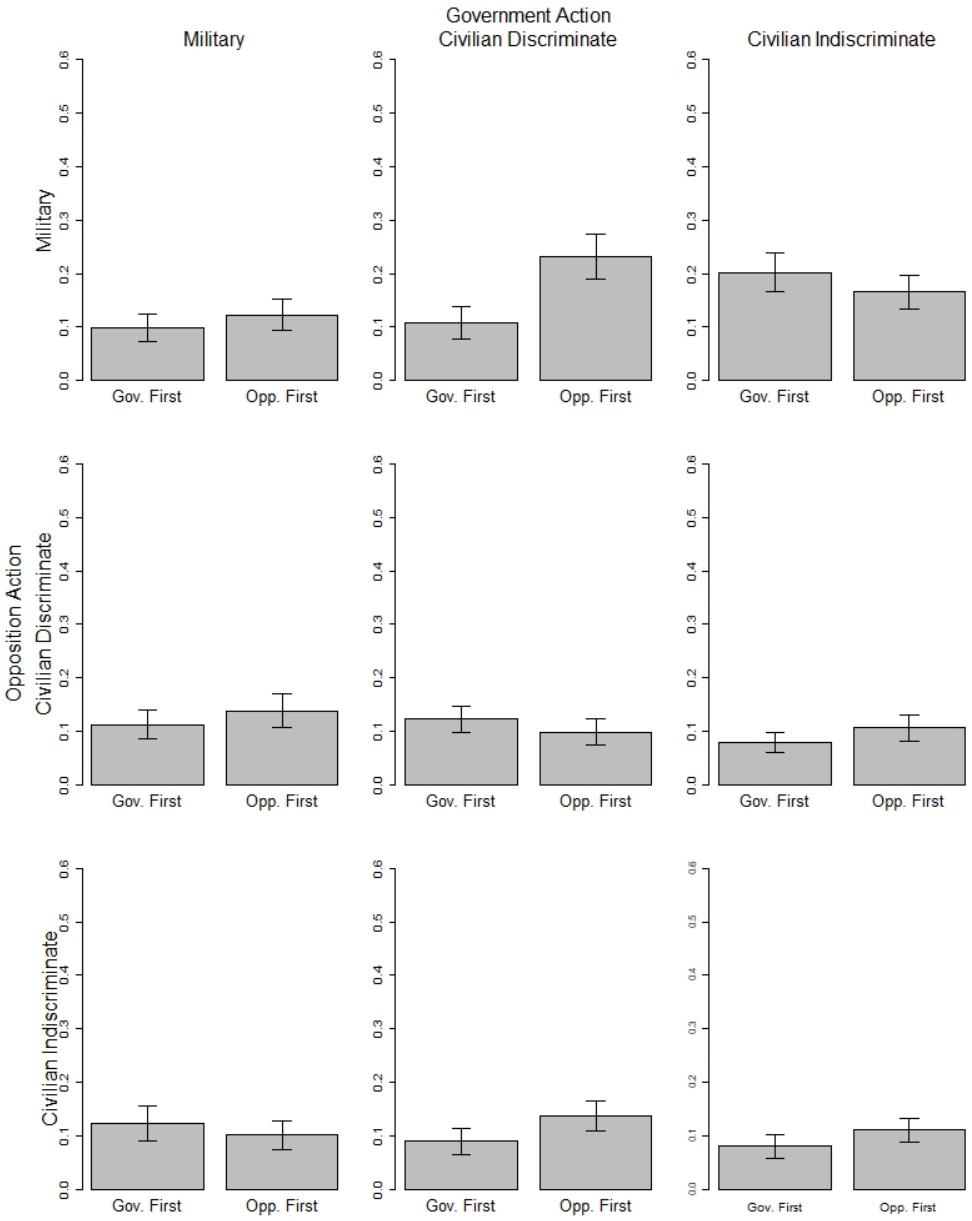


Table 5: Mean Approval of Government – All Experimental Groups

Opposition Action	Government Action					
	Military		Civilian Discriminate		Civilian Indiscriminate	
	Gov. First	Opp. First	Gov. First	Opp. First	Gov. First	Opp. First
Military	0.424	0.456	0.229	0.311	0.337	0.319
	(0.049)	(0.053)	(0.037)	(0.040)	(0.044)	(0.042)
Civilian Discriminate	0.285	0.381	0.315	0.271	0.230	0.259
	(0.044)	(0.050)	(0.046)	(0.041)	(0.036)	(0.040)
Civilian Indiscriminate	0.391	0.432	0.250	0.311	0.234	0.202
	(0.049)	(0.48)	(0.037)	(0.041)	(0.041)	(0.035)

Standard errors in parentheses

Table 6: Mean Approval of Opposition – All Experimental Groups

Opposition Action	Government Action					
	Military		Civilian Discriminate		Civilian Indiscriminate	
	Gov. First	Opp. First	Gov. First	Opp. First	Gov. First	Opp. First
Military	0.099	0.122	0.108	0.231	0.201	0.165
	(0.026)	(0.028)	(0.029)	(0.042)	(0.036)	(0.032)
Civilian Discriminate	0.113	0.138	0.123	0.099	0.080	0.106
	(0.027)	(0.030)	(0.025)	(0.025)	(0.019)	(0.025)
Civilian Indiscriminate	0.122	0.101	0.089	0.136	0.080	0.111
	(0.032)	(0.27)	(0.024)	(0.027)	(0.022)	(0.022)

Standard errors in parentheses

Appendix D: OLS Results

Table 7 provides the results of ordinary least squares models. The first two models reported in Table 7 test hypothesis 1. The last two models reported in Table 7 test hypothesis 2. The sample in models 3 and 4 excludes respondents who were provided the military targeting treatment. Positive coefficients indicate greater levels of approval for the applicable actor. The results of these models are consistent with the difference-of-means tests reported in the main text.

Table 7: OLS Results - Approval

	Government	Opposition	Government	Opposition
Civilian Targeting	0.117***	0.046**	—	—
	(0.022)	(0.014)		
Civilian Indiscriminate Targeting	—	—	-0.029	0.031
			(0.023)	(0.017)
Age	-0.000	0.000	0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.001)
Gender	-0.017	0.000	-0.004	0.018
	(0.021)	(0.014)	(0.024)	(0.017)
Education	0.024***	-0.004	0.018*	0.002
	(0.007)	(0.005)	(0.008)	(0.005)
Income	0.006	-0.001	0.003	-0.001
	(0.003)	(0.002)	(0.004)	(0.003)
Proximity	0.018	-0.008	0.028*	-0.008
	(0.011)	(0.007)	(0.012)	(0.009)
Language	-0.228***	0.034	-0.214**	0.041
	(0.056)	(0.037)	(0.068)	(0.051)
Constant	0.537***	0.086	0.500**	0.033
	(0.132)	(0.087)	(0.158)	(0.115)
N	1096	1095	757	755
R^2	0.065	0.013	0.031	0.010

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix E: Ordered Probit Results

Table 8 provides the results of models similar to those reported in Appendix D, but using ordered probit estimation. The results are consistent with the OLS results reported in Appendix D.

Table 8: Ordered Probit Results - Approval

	Government	Opposition	Government	Opposition
Civilian Targeting	0.364***	0.233**	—	—
	(0.073)	(0.081)		
Civilian Indiscriminate Targeting	—	—	-0.111	-0.157
			(0.082)	(0.097)
Age	-0.001	0.001	0.001	0.000
	(0.002)	(0.002)	(0.003)	(0.003)
Gender	-0.062	-0.004	-0.019	0.098
	(0.069)	(0.079)	(0.084)	(0.095)
Education	0.082***	-0.023	0.067*	0.007
	(0.023)	(0.026)	(0.028)	(0.031)
Income	0.018	-0.008	0.010	-0.007
	(0.010)	(0.012)	(0.013)	(0.015)
Proximity	0.057	-0.044	0.092*	-0.034
	(0.036)	(0.041)	(0.043)	(0.049)
Language	-0.695***	0.225	-0.678**	0.258
	(0.182)	(0.231)	(0.232)	(0.314)
N	1096	1095	757	755
pseudo R^2	0.022	0.006	0.011	0.004

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix F: Manipulation/Trust Checks

We asked all the respondents if they could correctly recall the tactic of violence used by each armed actor. 278 respondents correctly answered this question with respect to the government, and 255 correctly answered this question with respect to the opposition. We also asked all respondents to tell us the extent to which they considered the information we had provided them trustworthy. Exactly 1000 respondents found the information trustworthy. [1]

Figures 9 and 10 show the results of robustness tests in which we restrict the samples to (1) those respondents who correctly recalled the tactic of violence they were told the actor used; and (2) those who responded that they found the information trustworthy. The top two panels in Figure 9 demonstrate the robustness of our results with respect to Hypothesis 1 using these subsamples. Not surprisingly, the effect size is much larger with respect to the respondents who correctly answered the manipulation check because the effect size in the full sample is likely weighed downward by lack of recall among other respondents. The bottom two panels in Figure 9 provide the tests of Hypothesis 2 using the subsamples. In these subsamples, we cannot reject the null hypothesis.

The top two panels of Figure 10 use these subsamples to show the robustness of the results presented in Figure 7 of the main paper with respect to approval of the government. As reported in the main paper, when the opposition uses a harsher tactic than the government, approval of the government increases. As in the main results, when the government used a harsher tactic than the opposition, doing so significantly reduced approval of the government. The lower two panels of Figure 10 use these subsamples to show the robustness of the results presented in Figure 7 of the main paper with respect to approval of the opposition. As in the main results, when the government uses a harsher tactic than the opposition, approval of the opposition correspondingly increases. However, as in the main results, when the opposition uses a harsher tactic than the government, we cannot reject the null hypothesis.

[1] These are the respondents who indicated they found the information either "very trustworthy" or "partly trustworthy".

Figure 9: Manipulation and Trust Checks - H1 and H2

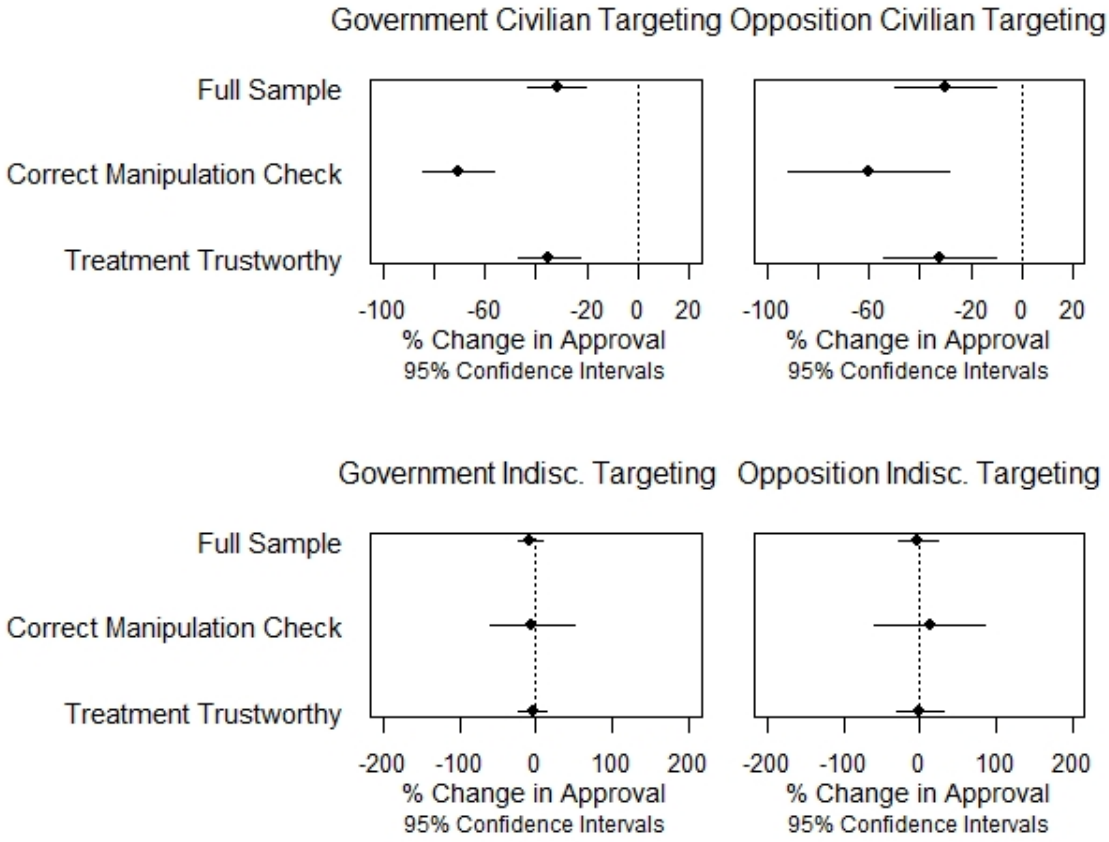
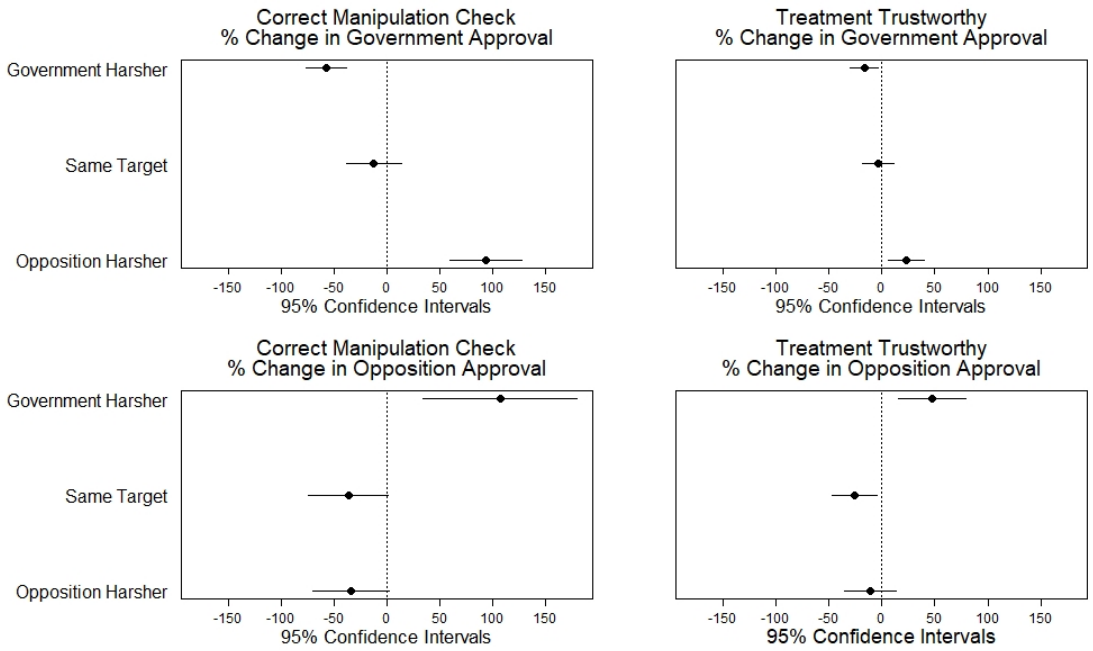


Figure 10: Manipulation and Trust Checks - H3



Appendix G: Non-Response and Social Desirability Bias

Of our sample of 1,501, 1,096 respondents answered the outcome question about their approval of the government's actions, and 1,095 respondents answered the outcome question about their approval of the opposition's actions. Missingness in the outcome can potentially bias results if non-response is related to treatment. Such patterned missingness can be one reflection of social desirability bias, which is a concern when asking respondents about sensitive topics like violence. However, we find no significant differences in non-response rates across experimental groups that would be suggestive of such bias. We find that treatment is not a significant predictor of non-response for either the government approval (p 0.2458) or opposition approval (p 0.4486) outcome items. We also analyzed the respondents' choice of the middle answer options (i.e., "Neither approve nor disapprove"). Individuals might choose this option to avoid reporting their sincere attitudes toward armed groups. We find that treatment is not a significant predictor of choosing the middle option for either the government approval (p 0.8790) or opposition approval (p 0.2354) outcome items.

One additional concern is that social desirability bias may be larger in areas previously under opposition control. This is especially the case for the cities of Mariupol, Kramatorsk, and Sloviansk, which were taken over by separatists in the opening days of the fighting only to be retaken by government forces later that summer. Residents of these cities may be particularly wary of expressing their sincere opinions. Figures 11 through 14 show the results of robustness tests in which we remove the sample all respondents living in Mariupol, Kramatorsk, and Sloviansk. Figures 11 and 12 demonstrate the robustness of our results with respect to Hypothesis 1 using these subsamples. Figures 13 and 14 provide the results of tests of Hypothesis 2 using the subsamples.

Figure 11: Effect of Government Civilian Targeting - Three Cities Removed

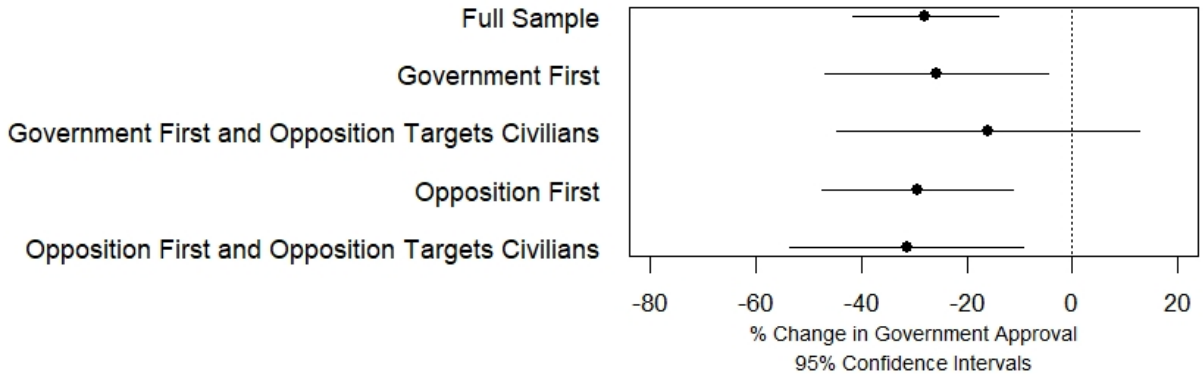


Figure 12: Effect of Opposition Civilian Targeting - Three Cities Removed

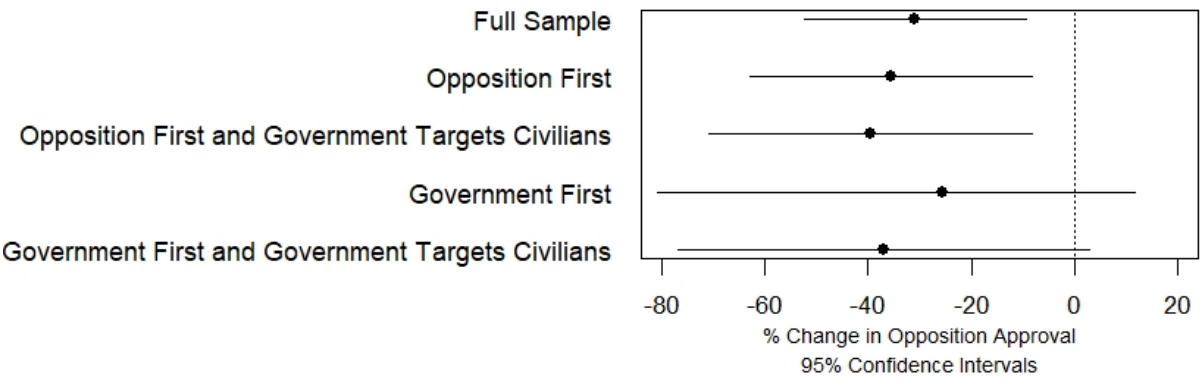


Figure 13: Effect of Government Indisc. Civilian Targeting - Three Cities Removed

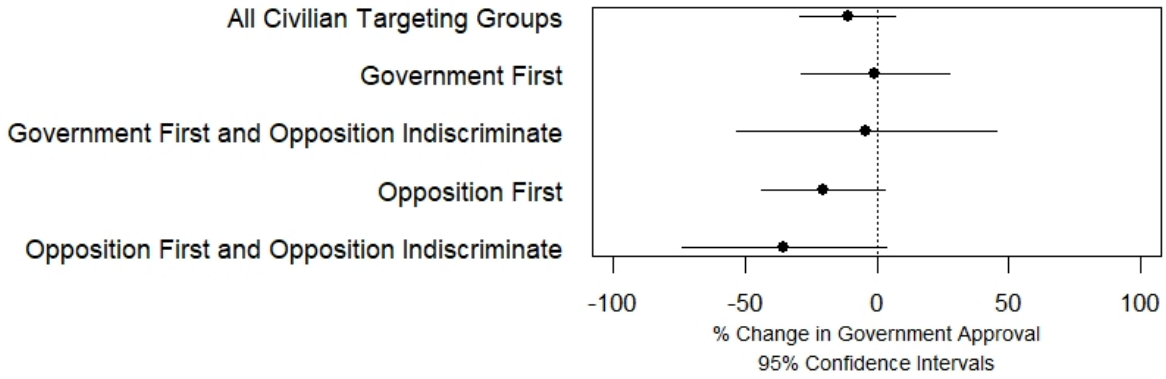
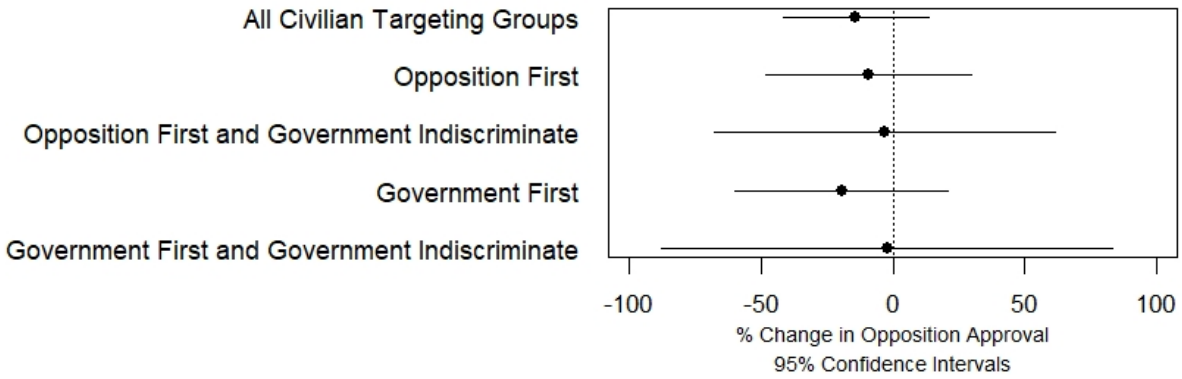


Figure 14: Effect of Opposition Indisc. Civilian Targeting - Three Cities Removed



Appendix H: Heterogeneous Treatment Effects

This section provides the results of tests reported in Section 5.4 of the paper. Table 9 reports the heterogenous effects of civilian targeting depending on answers to the prompt "Do you think Ukraine should seek closer economic relations with...". Table 10 reports the heterogenous effects of civilian targeting depending on reported levels of trust in the Ukrainian government.

Table 9: Heterogenous Treatment Effects - Closer Relations with EU/Russia

	Approval of Government	Approval of Opposition
Civilian Targeting	-0.101***	-0.067***
	(0.025)	(0.017)
Closer Relations to EU	0.318***	-0.050*
	(0.029)	(0.020)
Closer Relations to EU	-0.121*	0.083*
x Civilian Targeting	(0.050)	(0.035)
Constant	0.204***	0.116***
	(0.014)	(0.010)
N	973	972
R^2	0.220	0.038

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Heterogenous Treatment Effects - Trust in Government

	Approval of Government	Approval of Opposition
Civilian Targeting	-0.365***	0.116
	(0.106)	(0.068)
Trust in Government	-0.117***	0.010
	(0.016)	(0.012)
Trust in Government	0.069*	-0.048*
x Civilian Targeting	(0.031)	(0.020)
Constant	0.657***	0.076
	(0.055)	(0.040)
N	1033	1034
R^2	0.114	0.021

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$