

Allies and prosociality in a war: evidence from Ukraine

Pre-analysis plan

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I. Introduction

This plan outlines the research question, hypotheses to be tested, data and models that we propose for analysing the impact of allies (operationalised as matching donors with different identities) that we randomly allocated to Ukrainian respondents in an online field experiment on prosocial behaviour and other social choice characteristics during an ongoing war.

We began the data collection on May 18th 2022, with the help of an independent sociological research company that we contracted. At the time of registration of this pre-analysis plan, we were still waiting for the data collection to be finalised.

This pre-analysis plan is intended as a guide for evaluating the effect of allies in times of war (operationalised as different identities of donors, from within and outside Ukraine, as well as unspecified), in terms of people's prosociality (donations to a humanitarian cause, volunteering), optimism and aspirations for rebuilding the country after the war. We are also interested in whether allies influence beleaguered people's social characteristics (reciprocity, risk and time preferences) correlated with economic progress.

The plan is structured as follows: Section II reviews the motivation for the study, the design summary and data sources; Section III presents our hypotheses; Section IV provides the models that will be estimated in the analysis and Section V describes possible extensions.

II. Outline of the Study

II.1 Context and Study Aim

For a country to survive a conflict, more is needed than just military and financial resources. Amongst other things, individual citizens need to undertake a variety of behaviours that involve helping others. These may range from helping vulnerable individuals evacuate to picking up groceries for neighbours who cannot leave their home. While it has been found that prosociality typically increases amongst citizens in conflict zones (Voors et al. 2012; Guriev Melnikov 2016; Bauer et al. 2016), an unsurprising lack of data means that there is little causal evidence on the determinants of prosociality in a conflict zone. We conduct an online survey experiment in the 2022 Russia war in Ukraine to provide such evidence for one particular determinant of prosociality, *the salience of ally support in a conflict*.

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Theoretically, ally support could either increase or decrease the prosociality of citizens in a warzone. This is because there are competing mechanisms that could shape people's decisions to contribute to the public good. For example, having an ally who contributes could free up own resources needed for survival in a conflict, and hence reduce own contributions. On the other hand, having an ally, especially one with a shared identity, could generate peer effects and an increase in contributions (see, e.g. Charness and Holder, 2017, who show that exogenously formed teams competing for matching donations contribute more than individuals). Hence well-identified empirical evidence is valuable in understanding its effect. We use a survey experiment as observational data will be difficult to come by in a conflict zone and/or be hard to establish the causal effect of ally support on prosocial behaviour. Other experimental methods would be difficult to implement during a conflict. In Ukraine, while in-person experiments are not currently possible, and phone lines are unreliable, contacting urban participants online has remained a feasible option, as most people in cities continue to have access to the Internet. Hence our use of an online survey methodology.

II.2 Experimental Design

1. Sampling strategy, sample size and randomisation

We conduct an online field experiment operationalised through an online survey with around 1000 Ukrainian urban participants (mostly from Ukraine, some possibly temporarily relocated to other countries) aged 16 to 55, who were registered residents of all regions of Ukraine before the Russian invasion. Participants were randomly assigned to four treatment conditions which varied whether they were assigned a donor, and the identity of the donor. In the survey we observe their prosocial behaviour in the form of real donations to a humanitarian cause, and we also measure their preferences, reported prosocial behaviours through non-incentivised questions; we also collect individual characteristics.

The survey was designed by the research team and was implemented by the Ukrainian social research company Info Sapiens in May 2022 (data expected to be finalised in June 2022). Across their pool of pre-registered online participants, who are a representative sample of Ukraine's urban population aged 15-55. The survey sample was obtained by applying gender and age quotas and stratifying by settlement size and macro region of residence in Ukraine.

The randomisation was implemented by Info Sapiens through their online survey platform, and participants had an equal probability to be assigned to any treatment group (in expectation, around 250 participants in each treatment arm).

The survey was implemented both in Russian and in Ukrainian language and participants could choose which language to respond in. The survey took around 10 minutes to complete and participants were paid a fixed fee of 15 UAH (as mobile phone credits) for completing the survey.

1. Measuring prosocial choices in a war zone.

We are primarily interested in whether and how having allies affects the prosocial choices of people in a war zone. We wanted our main measure of prosociality to be the amount donated by participants to a humanitarian cause related to the crisis, but not involving direct military support. We therefore chose donations to the State Emergency Services in Ukraine, which is a government service tasked with civil defense, rescue, protecting civilians and the territory in emergency

situations, and emergency prevention. The service was previously the Ministry of Emergency Situations created in 1996 through the merger of the state civil defense body and the Ukrainian ministry in charge of protecting the population from the consequences of the Chernobyl catastrophe.

All citizens of Ukraine are familiar with this service and are aware that it plays a critical role in protecting civilians during the Russian invasion of Ukraine which started in February 2022.

In the survey we implement a dictator game, in which all respondents are given a fixed amount of 70 UAH (around 2 EUR), of which they can decide how much to keep and how much to donate to the State Emergency Services of Ukraine (any amount from 0 to 70 UAH).

2. The treatments

The main empirical challenge with estimating the impact of external or in-group peer support on people’s decisions to help others using self-reported survey answers is that people who are more prosocial may also have more support from others due to, e.g., reciprocity. Thus, in order to identify the causal effect of allies on prosocial choices, we use an online field experiment in which participants play a dictator game and we vary: 1) whether or not the participants are assigned a matching donor that will exactly match the amount donated by the participant. 2) the identity of the matching donor that will exactly match the amount donated by the participant, as shown in the table below:

| Treatment arm | Existence and Identity of matching donor |
|---|--|
| Control: no matching donor | Participants are not matched with a donor; no information is provided prior to the dictator game |
| Treatment 1: national matching donor | <i>“A generous Ukrainian donor has promised to donate an extra UAH for each UAH that you donate to the Emergency services in Ukraine.”</i> |
| Treatment 3: international matching donor | <i>“A generous donor from a Western European country has promised to donate an extra UAH for each UAH that you donate to the Emergency services in Ukraine.”</i> |
| Treatment 4: unspecified matching donor | <i>“A generous donor has promised to donate an extra UAH for each UAH that you donate to the Emergency services in Ukraine.”</i> |

Participants were randomly allocated into the treatments, with equal probability of being assigned in all of them.

3. Primary outcomes

Our main outcome is *the actual individual amount donated* to the Emergency Service observed in the dictator game.

The game instructions were:

“In addition to the 15 UAH that you will receive for completing this questionnaire, we would like to also **give an extra 70 UAH**. You are free to keep as much of the extra 70 UAH as you like.

You have the option to donate some of the 70 UAH to the State Emergency Service of Ukraine, which provides civilians’ defence and rescue.

[treatment – specific text inserted here; no text for control]

Please click on one of the options below to decide how much you would like to donate to the State Emergency Service of Ukraine.”

The participants were then allowed to enter any integer amount from 0 to 70 in a textbox.

4. *Secondary outcomes*

We will also analyse the effects on a different measure of prosociality: the willingness to engage in volunteering, recorded from answers to the question “*Select the statement that best describes your experience with volunteering*”, where the possible answers were:

- a. I started to engage in volunteering in the last 4 weeks;
- b. I engaged before and continue to engage;
- c. I engaged before the last 4 weeks but did not engage in the last 4 weeks;
- d. I never engaged in volunteering, but I plan to engage in the next six months.
- e. I never engaged in volunteering and I do not plan to engage in the next six months.
- f. Difficult to say

Our measure of the willingness to volunteer will be an indicator equal to 1 if the respondent selected b. or d., and 0 otherwise.

Since defence and economic recovery rely on cooperation and social capital, we are further interested in whether having a matching donor (and specifically having an ally from within and outside Ukraine), can enhance trust, reciprocity, optimism, as well as time and risk preferences.

We measure optimism, trust, reciprocity, risk and time preferences through the non-incentivised questions elicited in Falk et al (2018) study of preferences across countries.

We add our own questions to capture optimism and aspirations related specifically to reconstruction and prosperity in Ukraine. For the purpose of the analysis, we will use these two questions separately, and we will also combine them with the optimism question from Falk et al (2018) in one index of optimism and aspirations.

5. *Further variables (mechanisms)*

Firstly, we would like to measure the effects of matching donations on different parts of the distribution of donations. We will use two further outcomes: 1) the probability of making a non-zero donation; 2) the probability of donating the entire amount.

Secondly, we would like to understand the reasons for the donation decisions. Immediately after the decision of how much to donate, we also asked participants to rank the three most important reasons for their decision, from a list of six possible reasons that proxy for trust in people and in the charity, direct and indirect reciprocity, identity as a Ukrainian national and identity as a citizen of Europe, self-interest, altruism, warm glow and crowding out effects. We will do an exploratory analysis to understand the most common reasons associated with higher donations and the matching donor’s identity.

We also have a longer module about past and present experience with volunteering, parts of which which will be used for analysis in a parallel study.

We are also planning to use secondary geo-located data in order to measure conflict intensity and proximity to the most affected conflict areas, from www.bellingcat.com.

6. Controls

The survey company automatically collects data on respondent's current location (city), gender, age, the location just before the Russian invasion, as well as the language that they chose to respond in.

In addition to these characteristics, we also asked participants in which city they were born and a series of questions about their vulnerability and extent to which the conflict has already affected them, from being physically, emotionally or economically affected, or knowing someone close who was physically or emotionally affected. We collected this data to gauge different dimensions of the psychological or emotional proximity to conflict.

III. Study hypotheses

The table below outlines our main hypotheses and the outcomes we will use to test them.

| | Hypothesis | Outcomes |
|----|--|--|
| I | <p>Impact on primary outcomes:</p> <p><u>Hypothesis 1:</u> Having a matched donor increases the prosociality of individuals in times of conflict. (pooled T1, T2 and T3- C>0; alternatively T1-C>0; T2-C>0; T3-C>0).</p> <p><u>Hypothesis 2:</u> A matched donor whose identity is specified will increase the prosociality of individuals in times of conflict <i>more</i> than a matched donor whose identity is not specified. T2-T1>0 OR T3-T1>0.</p> <p><u>Hypothesis 3:</u> The difference in prosociality between participants with a matched donor whose identity is congruent with the allied countries (Western European country) and those with a Ukrainian matched donor is ambiguous. (T3-T4=?). This will depend on the perception of the participants about a shared identity.</p> | <p>i) Donations to the Emergency Services</p> |
| II | <p>Impact on secondary outcomes:</p> <p><u>Hypothesis 4:</u> Having a matched donor increases the trust, optimism, and reciprocity of individuals in times of conflict. (T1-C>0, T2-C>0, T3-C>0).</p> <p><u>Hypothesis 5:</u> A matched donor whose identity is specified will increase the trust, optimism and reciprocity of individuals in times of conflict <i>more</i> than a matched donor whose identity is not specified.</p> <p><u>Hypothesis 6:</u> The difference in prosociality between participants with a matched donor whose</p> | <p>i) Reported willingness to volunteer in the next six months.</p> <p>ii) Reported Trust in people</p> <p>iii) Reported Optimism</p> <p>iv) Reported Risk</p> <p>v) Reported Reciprocity</p> <p>vi) Reported Time discounting</p> |

| | | |
|--|---|--|
| | <p>identity is congruent with the allied countries (Western European country) and those with a Ukrainian matched donor is ambiguous. (T3-T4=?)</p> <p><u>Hypothesis 7:</u> Having a matched donor, and the type of donor one is matched with have an ambiguous effect on volunteering, risk and time preferences.</p> | |
|--|---|--|

IV. Data analysis:

IV.1 Balance of covariates and graphical analysis

We will conduct differences in means tests on all the control variables across the four treatment arms to ensure the covariates are balanced.

Thereafter, we will conduct a graphical analysis of the main outcomes across treatment arms using bar charts. We will also inspect visually the differences in secondary outcomes across treatment arms. We will also conduct differences in means tests for our outcomes across treatment arms.

IV.2 Econometric analysis

To test hypotheses 1 and 4 we will estimate the following models using OLS estimation:

$$Y_i = \alpha_0 + \alpha_1 T_i + \alpha_2 X_i + \theta_w + \varphi_r + \varepsilon_i \quad (1)$$

Where Y_i is one of the primary or secondary outcome measures used to test these hypotheses, T_i is an indicator equal to 1 if the participant is in treatment arms T1, T2 or T3, and 0 if the participant is in the control group.

X_i is a vector of individual controls, including:

1. Demographics: gender, age, the language that they chose to respond in.
2. Measures of physical proximity to the areas most affected by the conflict (e.g. the minimum distance between the current participant location, or between the participant's location before in January-February 2022, and the main cities under Russian siege in Eastern Ukraine).
3. As part of robustness checks, we will have alternative specifications that also include measures of psychological proximity/conflict intensity for the respondent: whether the respondent has children, whether respondent or their family have had to relocate due to the war, whether the respondent or their family suffered physical injuries or loss of life, whether the respondent or their family suffered economic loss due to the conflict, or a loss index aggregating these indicators.
4. Pre-treatment measures of prosociality: whether or not the respondent has reported that they have engaged in volunteering before the war (alternatively whether or not the respondent has reported that they engaged in volunteering in the past).

The controls are included in order to account for any chance imbalances in covariates between treatment arms and to increase the precision of the estimates.

The vector φ_r includes indicators for macro-regions in Ukraine. If the data is available, we will include also a vector θ_w that contains indicators for the week when the participant responded, to control for major incidents and attacks which could have influenced prosocial behaviour and the likelihood to respond to our survey.

We expect no social spillovers in this study, as participants are independently drawn from the pool of registered respondents.

Multiple Hypotheses Testing:

Since we have two measures capturing the main outcomes, we will apply corrections for multiple hypothesis testing (e.g. the Bonferroni correction) for hypotheses 1-3 (in total 6 hypotheses).

Due to limited power, we will treat the analysis of secondary outcomes, heterogeneity analysis, robustness and mechanisms analysis as exploratory, and we will not apply multiple hypothesis testing corrections for hypotheses 5-7.

To test hypotheses 2-3 and 5-7, we will estimate an expanded model:

$$Y_i = \beta_0 + \beta_1 T1_i + \beta_2 T2_i + \beta_3 T3_i + \beta_4 X_i + \theta_w + \varphi_r + \varepsilon_i \quad (2)$$

$T1_i, T2_i$ and $T3_i$ are indicators of assignment into treatment 1, 2 or 3, respectively. All other variables are as described in model 1.

The coefficients β_1, β_2 and β_3 measure the impact of T1, T2 and T3 on prosociality and other measures.

IV.3 Heterogeneous effects and mechanisms:

In order to see how the treatment effects vary with the respondents' characteristics, we will estimate the above specifications including interactions between the treatment indicators and different covariates, such as *gender, language of choice (Ukrainian vs Russian)*, *pre-treatment prosociality* and *proximity to conflict/conflict intensity* (defined in terms of physical distance from current city of residence to the cities most affected in Eastern Ukraine). For measures of proximity to conflict or conflict exposure, in alternative specifications we will use data such as physical distance from the city of residence or city of birth to the most affected cities; we can also use an index of conflict exposure that aggregates the reported ways in which the war affected the respondents; in addition, we aim to collect secondary geo-located data on conflict intensity, which would enable us to calculate more precise measures of conflict intensity and exposure for the respondents.

Pre-treatment prosociality and proximity to conflict/conflict intensity can give us an insight about people's motivation to behave prosocially during the war.

In order to further disentangle the psychological mechanisms which lead to the donation decisions, given the existence (or absence) of a certain type of matching donor, we will:

- 1) Estimate model 2 with different indicators for respondent's top reasons to the question "Please pick the top three reasons for your choice and rank them" (e.g., an indicator equal to 1 if the top motive was that many other people donated to this humanitarian cause; this would indicate a desire to follow the social norm). This will tell us which of the potential mediators for the choice to donate were activated by the treatments.

- 2) Perform a decomposition analysis, by including in model 2 all the indicators for possible reasons to donate alongside the treatment variables, and testing the significance of their coefficients. If some of them are significant, and they change the coefficients of the treatments and the R-squared, we may, under certain assumptions, conclude that the treatment works by activating these mechanisms.

V. Further analysis:

In the event that we find no treatment effects on the measures of prosociality or other preferences, we aim to extend the study to do a comparison of the preferences during war, with preferences from a representative sample of respondents from Ukraine, of comparable size to our sample, which was collected as part of the Falk et al (2018) study *before* the war in Crimea in Donbas in 2014. We may also repeat our survey in Ukraine later in the year to understand how preferences change during a war. In such a case, we will submit an updated pre-analysis plan.

VI. UPDATE 24/07/2023

In 2023 we were able to secure funding to carry out a second wave of the survey on the same sample of participants that we surveyed in 2022.

In July 2023 we will complete the collection of a second wave of the experimental survey with the same participants as in the 2022 wave (see section II.2. for details of the original survey and sample). Thus, we will have a longitudinal study of prosociality and other social preferences in a subgroup of the original sample. The survey remains largely the same, with five additional questions, and a reminder of the treatment participants were subject to in the first wave.

The aim of the second survey wave was to:

1. Evaluate the 2022 matched donor treatment effects on actual (recalled) donations in the year following the survey.
2. Evaluate the long-term 2022 matched donor treatment effect on actual donations in the dictator game.
3. Evaluate the impact of a light-touch reinforcement of the treatment (a reminder of the last year's treatment) on donations in the dictator game.
4. Evaluate any change in preferences (prosociality, risk, patience, optimism) of participants over time.

VI.1 Changes to the Experimental Design

1. Sampling strategy, sample size and randomisation

The second wave of the survey was updated by the research team and is implemented by the Ukrainian social research company Info Sapiens in July 2023 (data expected to be finalised by 31st July 2023). Info Sapiens invited all 1000 participants from the 2022 wave and the expected response rate is 40%.

The treatment reinforcement matched the original treatment which was allocated through randomisation in 2022.

The survey was implemented both in Russian and in Ukrainian language and participants could choose which language to respond in. The survey is expected to take around 11 minutes to complete and participants' fixed fee remained 15 UAH (as mobile phone credits) for completing the survey.

2. *Measuring prosocial choices in a war zone – additional measures*

In the 2023 survey we again implemented a dictator game, in which all respondents are given a fixed amount of 70 UAH (around 2 EUR), of which they could decide how much to keep and how much to donate to the State Emergency Services of Ukraine (any amount from 0 to 70 UAH). After they make their decision, participants in treatments 1-3 receive a reminder of their matching donor treatment in the previous wave. Subsequently they are asked again whether they want to revise their donated amount. Four additional questions assess the retrospective actual donations participants have made in the past year since the first survey. This will give us the opportunity to measure the impact of the 2022 treatment on actual (recalled) donations.

3. *The treatments*

After deciding on a donation amount out of their 70 UAH allowance, participants are reminded of their 2022 treatment:

Survey type 1: [Nothing more to add here. Skip to the Question text]

In our last survey in May 2022 we asked you if and how much you wanted to donate to the State Emergency Service of Ukraine and we informed you that

Survey type 2: A generous Ukrainian donor donated an extra UAH for each UAH that you donated to the charity.

Survey type 3: A generous donor from a Western European country donated an extra UAH for each UAH that you donated to the charity.

Survey type 4: A generous donor has donated an extra UAH for each UAH that you donated to the charity.

Following this, they are asked whether they want to keep or revise their donation amount.

4. *Other variables*

Most of the remaining questions and control variables remain the same across the two waves.

5. **Study hypotheses**

Updated hypotheses:

| | Hypothesis | Outcomes |
|---|---|---|
| I | Impact on primary outcomes: <u>Hypothesis 1a:</u> Having a one-time matched donor has no impact on prosociality of individuals in times of conflict in the longer term (pooled T1, T2 and T3-C=0;). Outcomes i) and ii) | i) Donations to the Emergency Services in 2023 based on treatment on 2022 ii) Recalled actual donations, frequency of donations. |

| | |
|---|---|
| <p>Hypothesis 2a: No difference between donor identity-treated participant donations in the long-run. $T2-T1=0$ OR $T3-T1=0$. Outcome i) and ii)</p> <p>Hypothesis 3a: A reinforced (reminder) treatment will have a positive impact on donations $\Delta T1, \Delta T2, \Delta T3 > 0$. Outcome iii)</p> | <p>iii) Donations to the Emergency Services in 2023 after 2023 reinforcement.</p> |
| <p>Based on preliminary findings from 2022: Hypothesis 4: the Reinforced treatment will have a stronger positive on impact in areas closer to the combat areas than more distant areas. Outcome iii)</p> | |

6. Data analysis:

We will estimate models 1 and 2 with new outcomes i)-iii). We will also study the 2022 treatment effects on changes in outcome i), and the 2023 treatment effect on changes in outcome iii) compared to 2023 outcome i) and 2022 outcome i).

We will perform the same heterogeneity analyses, focusing on the differential impact of treatments by participants's location (or region of birth) distance to combat areas.

We will also run OLS participant panel data estimations to understand the changes in other preferences over time and by treatment, to understand whether economic and social preferences change during a protracted conflict.

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