

# Nudging Civilian Evacuation During War: Evidence from Ukraine\*

Seung-Keun Martinez<sup>†</sup>      Monika Pompeo<sup>‡</sup>      Roman Sheremeta<sup>§</sup>  
Volodymyr Vakhitov<sup>¶</sup>      Matthias Weber<sup>||</sup>      Nataliia Zaika<sup>\*\*</sup>

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## Abstract

In times of war, evacuating civilians from conflict zones is of critical importance for their survival and well-being. However, many people are hesitant to evacuate. Text-based nudges are a promising, yet unexplored, venue to increase the willingness to evacuate. We conduct a controlled survey experiment in Ukraine, manipulating the framing of automated alert messages. Our findings suggest that providing individuals with an evacuation plan by the authorities is crucial. The specific framing of the message itself does not seem to play a role in the perceived effectiveness of the messages. Heterogeneity analysis shows that women respond more strongly to information about a provided evacuation plan. Furthermore, having a pre-existing personal evacuation plan and being provided with one by the authorities act as substitutes.

**JEL Classification:** D78, D91, C91

**Keywords:** evacuation, Russo-Ukrainian war, nudge, text-based alert

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<sup>†</sup>School of Economics, University of Nottingham, United Kingdom. Email: [seung-keun.martinez@nottingham.ac.uk](mailto:seung-keun.martinez@nottingham.ac.uk).

<sup>‡</sup>Social Science Experimental Laboratory, New York University Abu Dhabi, United Arab Emirates. Email: [monika.pompeo@nyu.edu](mailto:monika.pompeo@nyu.edu).

<sup>§</sup>Weatherhead School of Management, Case Western Reserve University, United States of America. Email: [roman.sheremeta@case.edu](mailto:roman.sheremeta@case.edu).

<sup>¶</sup>Institute for Behavioral Studies, American University Kyiv, Ukraine. Email: [volodymyr.vakhitov@auk.edu.ua](mailto:volodymyr.vakhitov@auk.edu.ua).

<sup>||</sup>School of Finance, University of St. Gallen and Swiss Finance Institute, Switzerland. Email: [matthias.weber@unisg.ch](mailto:matthias.weber@unisg.ch).

<sup>\*\*</sup>Institute for Behavioral Studies, American University Kyiv, Ukraine. Email: [nataliia.zaika@auk.edu.ua](mailto:nataliia.zaika@auk.edu.ua).

# 1 Introduction

Each year, tens of thousands of people die due to armed conflicts (Roser, Hasell, Herre, & Macdonald, 2022). Many of these deaths are preventable by means of evacuation, that is by moving people from risky to safe zones. Against their best interests, many individuals are often reluctant to evacuate, even when authorities issue mandatory evacuation notices. Nudges (soft interventions relying on framing or information provision) are an increasingly popular policy instrument that present a promising avenue to motivate hesitant individuals to evacuate. So far, they have been applied to numerous settings ranging from COVID-19 to climate change (Hagmann, Ho, & Loewenstein, 2019; Tanaka, Nihonsugi, Ohtake, & Haruno, 2021; Patel, 2021; Allcott, 2011; Ghlesla, Grieder, & Schubert, 2020; Dai et al., 2021; Liebe, Gewinner, & Diekmann, 2021). The reason why the use of nudges is so widespread both among public and private institutions is that they have often been found to have a substantial impact and to be cost-effective (Sunstein, 2022; Thaler & Sunstein, 2009; Madrian et al., 2017; Benartzi et al., 2017).

Understanding how authorities could more effectively prompt individuals to evacuate conflict areas is important. Despite this, the difficulties of conducting scientific research during ongoing conflicts or natural disasters has thus far precluded researchers from experimentally examining how to best motivate evacuations in times of crisis. The closest paper to ours uses nudges to prompt evacuation behavior from a *hypothetical* natural disaster. The authors find that nudges that rely on social norms to encourage early evacuation increase intentions to evacuate and engage in preventive storage behavior (Ohtake, Sakata, & Matsuo, 2020). While there is a large literature on the individual determinants of evacuation from natural disasters (Stein, Dueñas-Osorio, & Subramanian, 2010; Charnkol & Tanaboriboon, 2006; Thiede & Brown, 2013; Ohtake, 2022), it is unclear to what extent the findings from this literature carry over to evacuations from conflict zones, as there are potentially important differences between decisions made during wars and natural disasters. For instance, when a natural disaster occurs, people usually have the option to return to their communities and begin rebuilding several days or weeks after the occurrence (Meyers, 1991). The duration of displacement after war zone evacuation is much more uncertain. Therefore, sheltering

in place is not advisable as it might lead to civilians being trapped in active combat zones or in territory permanently seized by invading forces. Further, wars are the result of human activity. As such, the threat that wars pose is perceived differently from that of natural disasters (Goldmann & Galea, 2014). Not only is the type of danger different (the danger of dying in a flood may be perceived very differently from the danger of torture or rape), but civilians may also misjudge their agency in the event itself. The existing sparse evidence about evacuations from war zones is either dated or uses very small samples. Some studies focus on World War II (Crosby, 2021; Welshman, 1998). Others look at more recent events, such as the war in Lebanon but are able to reach only a limited amount of subjects (Gidron, Peleg, Jaffe, & Shenhar, 2010).

Currently, authorities have the opportunity to use text messages or apps to rapidly and consistently alert civilians of imminent or ongoing dangers due to conflict. Testing different types of messages can help increase the number of evacuees from dangerous areas. Our study provides causal evidence on the effectiveness of text-based nudges in a war-affected area. We conducted a controlled survey experiment in July 2022 among people whose residential areas were directly exposed to the early stages of the Russian invasion of Ukraine. Our data is unique in that it provides the policy evaluations of those experiencing an ongoing armed conflict—rather than ex-post opinions. This gives policymakers a tool that can be used to save lives at this moment. The findings can be applied immediately in Ukraine, where further evacuations are likely to be necessary this winter due to the mass mobilization of the Russian army and the damage to the country’s heating infrastructure. The findings may also be applied in many of the other around 50 active conflicts and wars in the world (Roser et al., 2022).

## 2 Experiment and Survey

The experiment was conducted as part of a survey with 2,006 Ukrainian participants. Ukrainians serving in the armed forces were excluded from the survey.

Participants evaluated, on a 10-point scale, how effective they believed a given evacuation mes-

sage would be at convincing residents of their city or village to evacuate (0 – not all effective, 10 – extremely effective). The reason for asking the question in this form is to avoid social desirability biases (Finch, 1987). Such vignette approaches are widely used, especially within the social norms literature (Bicchieri, Lindemans, & Jiang, 2014). The hypothetical nature of the question does not affect our conclusions, as previous research shows a strong relationship between evacuation intention and evacuation behavior (Thompson, Garfin, & Silver, 2017; Kang, Lindell, & Prater, 2007).

Respondents were uniformly distributed across treatments. The experiment used a  $2 \times 5$  factorial between-subjects design. That is, respondents were randomized to one of ten different treatments. Each participant took part in only one treatment—i.e., they evaluated exactly one evacuation message.

## 2.1 Treatments

The treatment differences consist of the type of message shown. One dimension purely varies the framing of the message (*Control*, *Gain of Life*, *Loss of Life*, *Deteriorating Living Conditions*, *Military Effectiveness*). The second dimension concerns whether the messages contain information about an evacuation plan provided by the authorities (*Provided Plan*).

The *Control* and *Control + Provided Plan* messages are adapted from real-world evacuation messages that were reported to us by local residents. The *Control* message provides a standard evacuation order stating that, due to the armed aggression by Russia, the situation in their city has become critical and that they should leave as soon as possible. The only difference between *Control* and *Control + Provided Plan* is that the second contains a simple evacuation plan provided by the authorities. The plan includes a method of transportation that can be booked by telephone in advance of evacuation and the information that accommodation and medical assistance will be available at the destination. An individual's actual evacuation decision is not only driven by her or his desire to evacuate. Other drivers of this decision include the availability of the resources needed to evacuate and the knowledge of possible evacuation means and routes. As such, the

provided plan treatment arm tests what margin of individuals may be persuaded to evacuate by providing specific evacuation instructions. The inclusion of this plan (treatment arm *Provided Plan*) was cross-randomized across all of the message frames.

The *Gain of Life* and *Loss of Life* treatments are based on research showing that framing events as gains or losses differentially affect people's behavior. In particular, it is generally found that losses loom larger than gains in many dimensions, a phenomenon generally referred to as reference-dependent loss aversion (Kahneman & Tversky, 1979; Tversky & Kahneman, 1991; Benartzi & Thaler, 1995; Ariely, Huber, & Wertenbroch, 2005; Post, Van den Assem, Baltussen, & Thaler, 2008; Kahneman & Tversky, 2013; Ruggeri et al., 2020). Literature on loss aversion documents that individuals may accept the risk of incurring a more severe but less certain loss in order to avoid a smaller but more certain loss. In the case of evacuation, this could cause individuals to choose to accept the greater and uncertain risks of staying in place so as to avoid the smaller but more certain losses associated with being displaced from home. Understanding this challenge, messages in the *Gain of Life* and *Loss of Life* treatments convey that there is, in fact, more certainty of life by evacuating. The *Gain of Life* treatment emphasizes that with evacuation there is less uncertainty over whether one's family and oneself will survive the conflict. Correspondingly, the *Loss of Life* treatment stresses the greater uncertainty of survival by staying in place, emphasizing how civilians are being killed and wounded in conflict zones on a daily basis.

The *Deteriorating Living Conditions* and *Military Effectiveness* treatments are informed by previous evidence showing that behavior is influenced by making the consequences of one's actions more salient (Carey et al., 2019). The main idea is that the effectiveness of the messages may be increased by bringing the specific consequences of the decision not to evacuate to the front of one's mind. The *Deteriorating Living Conditions* message states that if individuals decide to stay, their situation could rapidly degrade and they may lose access to food, water, and medicine. The *Military Effectiveness* message states that evacuating civilians spares resources for the military and allows them to do their jobs more effectively. The specific content of all messages are reported in the online appendix.

## 2.2 Sample and Survey Overview

A total of  $N = 2006$  subjects took part in the experiment (Control:  $n_c = 214$ , Control + Provided Plan:  $n_{c+p} = 201$ , Gain of Life:  $n_g = 200$ , Gain of Life + Provided Plan:  $n_{g+p} = 201$ , Loss of Life:  $n_{ll} = 200$ , Loss of Life + Provided Plan:  $n_{ll+p} = 207$ , Deteriorating Living Conditions  $n_{lvc} = 203$ , Deteriorating Living Conditions + Provided Plan:  $n_{lvc+p} = 197$ , Military Effectiveness:  $n_{me} = 192$ , Military Effectiveness + Provided Plan:  $n_{me+p} = 191$ ). 60% of subjects were female, the average age was 38.5 years. The experiment took place at the end of a survey, which was implemented by Gradus, a survey company specializing in the recruitment of subjects within Ukraine. The company employs a panel of respondents which has not changed since the beginning of the war. For the survey, the company recruited a representative sample of individuals from the regions that were directly effected by the war. The subjects took part in the survey through a mobile app. They had the choice to complete the survey either in Ukrainian or Russian. It was carried out in July 2022. The survey contained questions on socio-demographic characteristics, risk perceptions, and evacuation behavior, as described in the online appendix.

## 2.3 Pre-registration

The experiment was pre-registered ([https://aspredicted.org/5PH\\_J1J](https://aspredicted.org/5PH_J1J)). The pre-registration specifies that the analysis makes use of linear regressions with heteroskedasticity-robust error terms. It further spells out the following way of analyzing the data. In the basic regression specification, no control variables are used, the only independent variables are treatment dummies. In further specifications, regressions with interaction terms and additional covariates, in particular demographic control variables, are conducted. A causal interpretation of the effects is warranted, as participants are randomized to treatments.

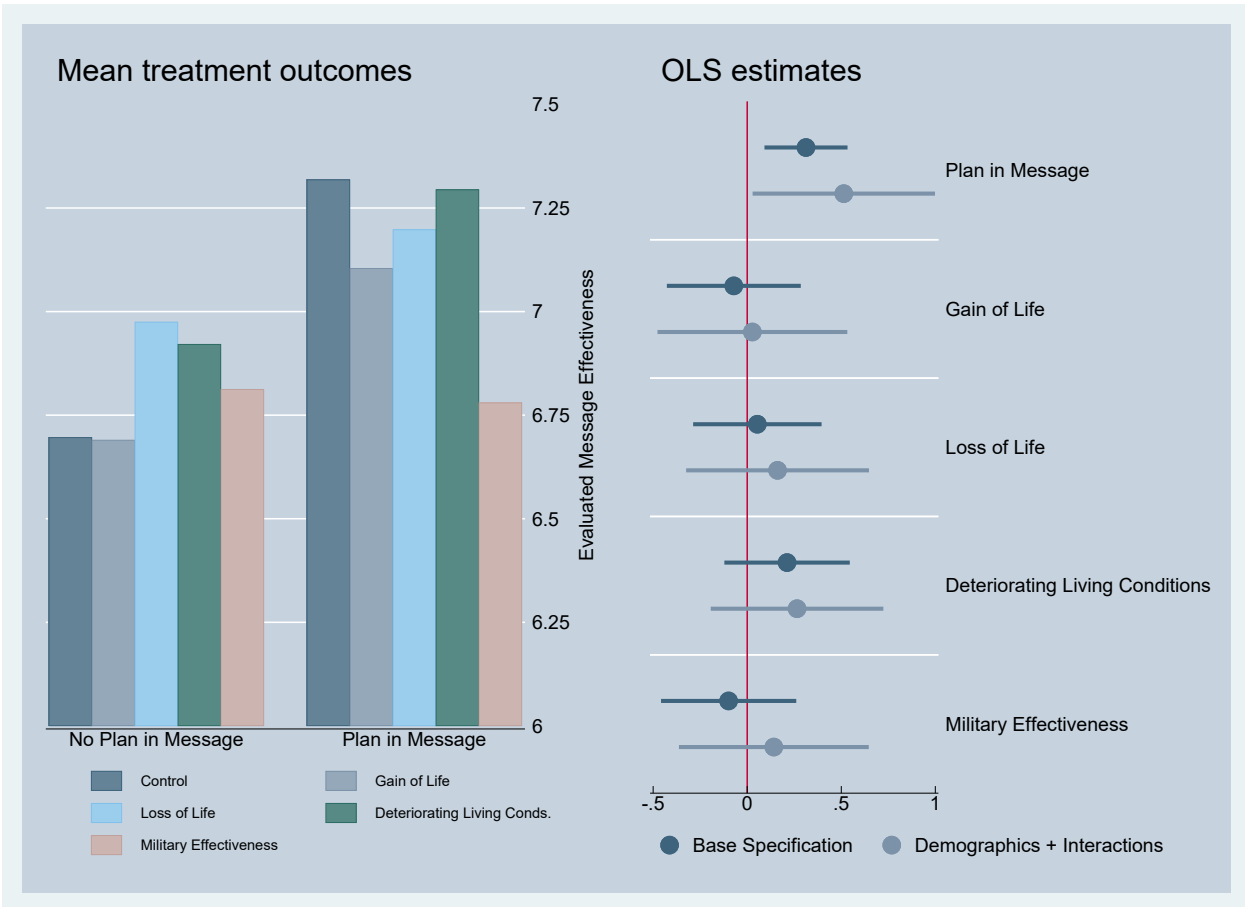
## 3 Results

### 3.1 Treatment Effects

We start by examining how framing impacts the perception of the effectiveness of evacuation messaging. The means of the message evaluations per treatment are shown in the Figure 1 (left panel). Framing (*Control*, *Gain of Life*, *Loss of Life*, *Deteriorating Living Conditions*, *Military Effectiveness*) has no discernible treatment effect on the effectiveness of evacuation messaging. However, the provision of a plan has a positive and significant treatment effect (for all message frames except *Military Effectiveness*).

Figure 1 (right panel) shows that the effects inferred from the treatment means are confirmed in regression analyses. The dark blue dots represent the coefficient estimates from an OLS regression specification only containing treatment variables. The grey dots show the same coefficients when also controlling for interactions between message framing and plan provision as well as participant-specific demographics (age, gender, marital status, number of dependents, region of residence and past evacuation decisions). The lines through the dots represent 95% confidence intervals. Details on the data analysis can be found in the online appendix.

The magnitude of the *Provided Plan* treatment effect is between 0.33 (in the main regression specification) and 0.55 (when including the additional covariates). This is a meaningful and sizable magnitude. Given that mean evaluations in the treatments without a plan are around 6.5 – 7, this magnitude corresponds to an improvement of at least 5% and possibly up to 10%. If this evaluation corresponds to actual evacuation decisions, the authorities (or NGOs) could save many lives just by providing information about an evacuation plan (as of July 2022, there were still an estimated 350,000 citizens remaining in the Ukrainian-controlled part of Donetsk Oblast (Ebel, 2022)). This seems likely considering the evidence from the natural disaster literature, which suggests that intentions to evacuate are strongly correlated with actual evacuation decisions (Thompson et al., 2017).



**Figure 1: Effectiveness of Evacuation Nudges**

Mean outcomes in all treatments (left) and coefficient estimates of OLS regressions (right). Coefficient estimates (dots) are presented with 95% confidence intervals. The coefficient estimates come from two regression specifications. The first regresses the evaluated effectiveness of the evacuation message on each treatment variable (vs. pure control). The second specification includes demographics for age, gender, marital status, region of residence, number of dependents and past evacuation behavior, as well as interactions between providing a plan and the message frame.



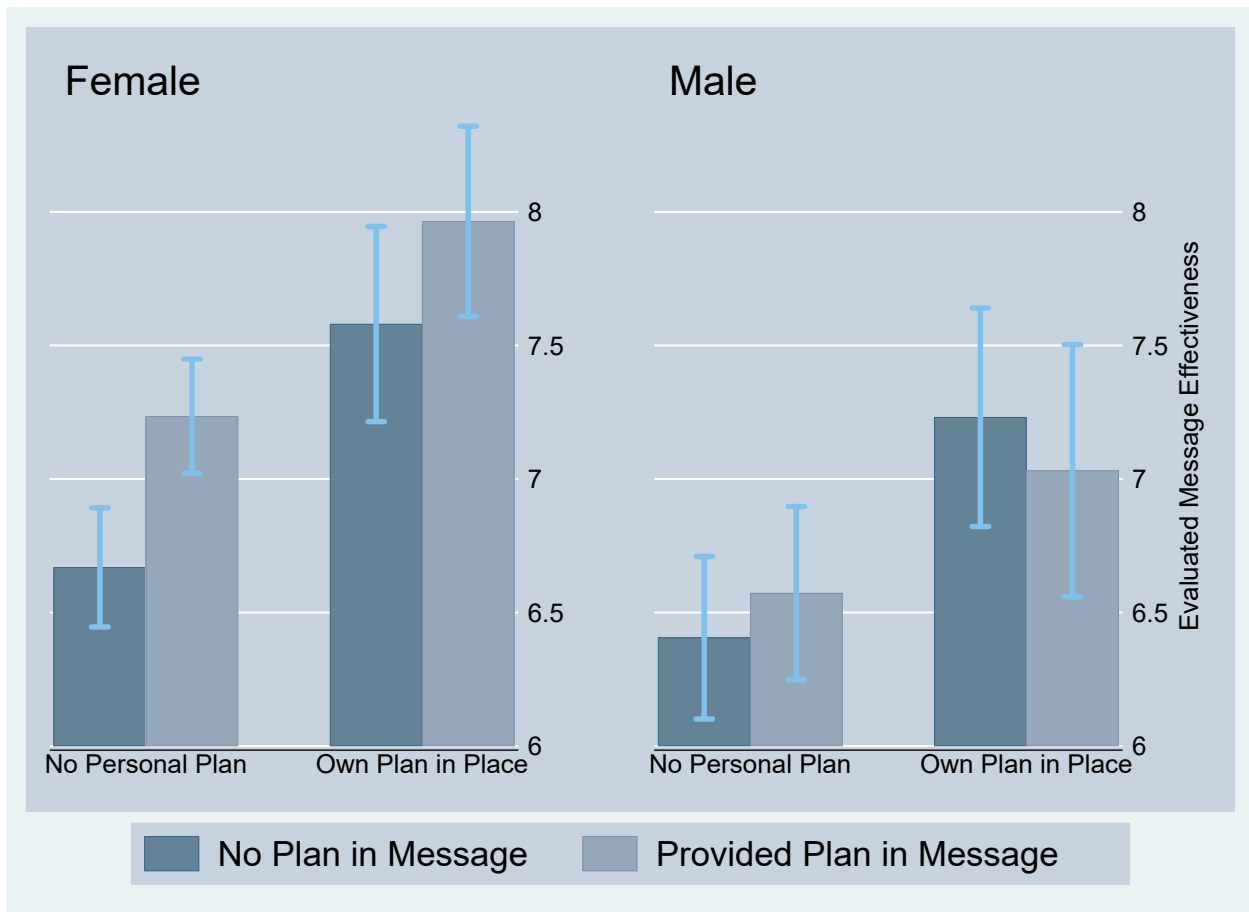
## 3.2 Heterogeneity Analysis

Above results are heterogeneous across two important factors: gender and whether individuals have a pre-existing evacuation plan—that is a planned route and method of evacuation. First, we find that women (who often drive the evacuation decisions in households) react much more strongly to the provision of an evacuation plan than men, who hardly react at all. Second, we find that while those who have a personal plan in place evaluate all messages to be more effective, there is no difference in their evaluations according to the inclusion of a plan provided by the authorities. In other words, having a personal evacuation plan and receiving information about the authorities’ plan are (imperfect) substitutes.

These results are shown in Figure 2. The figure shows the mean evaluations of message effectiveness separated by gender, having a personal evacuation plan already in place, and the inclusion of a plan provided by the authorities. These mean evaluations are aggregated across all message frames. Figure 2 shows that, on average, women evaluate messages that include a plan from the authorities to be more effective by 0.5 points. The effect is strongest among women who do not have their own evacuation plan in place. However, we find no difference in the mean message evaluations according to provision of a plan among men—even if they have no evacuation plan of their own. Lastly, we find that both men and women who have pre-existing plans evaluate all evacuation messages to be, on average, 0.8 points more effective. The results that men and women respond differently to the provision of an evacuation plan and that those who already have an evacuation plan rate all evacuation messages as more effective are statistically significant at the 5% level. The corresponding regression analyses can be found in Tables S4 and S5 in the online appendix.

## 3.3 Determinants of Having a Pre-existing Plan

Given the apparent importance of having an evacuation plan in place at predicting who will or will not respond to evacuation orders, we investigate which individual characteristics are most associated with having a pre-existing evacuation plan. Figure 3 shows the coefficients (and 95% confidence intervals) of a linear probability model on who has pre-existing evacuation plans. Look-



**Figure 2: The Role of Evacuation Plans by Gender**

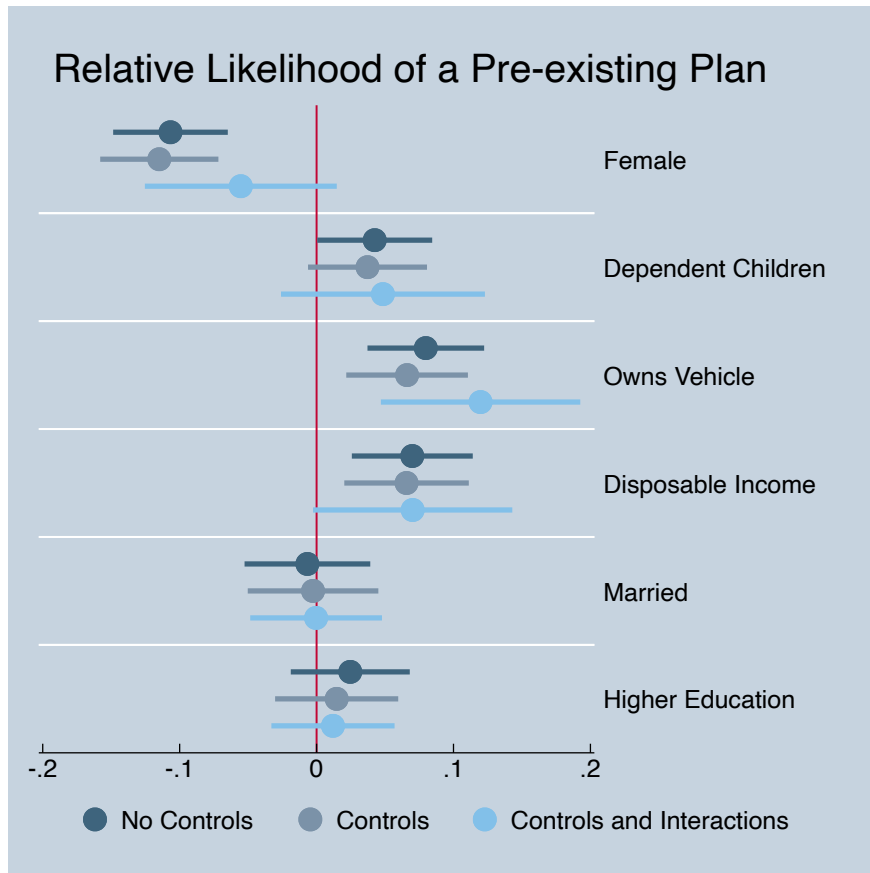
Average evaluated message effectiveness separated by gender, the existence of a personal evacuation plan, and the *Provided Plan* treatment arm. Sample standard deviations are shown in brackets.

ing at the regression without additional controls, we find that the practical constraints of owning a car and having disposable income are highly predictive of having a personal evacuation plan—with absolute changes of 7% and 8% over the baseline of a 25% likelihood. We also find that having small children increases the likelihood of having a plan (+4%) and that women are less likely to have a plan (-11%). Controlling for age, region of residence, and past evacuation choices has little effect on these estimates. The only notable interaction we find is that the difference between men and women in the likelihood of having a personal plan is driven by the fact that women who own a car are less likely to have a plan of evacuation than men who own a car. The corresponding regressions to Figure 3 can be found in Table S6 in the online appendix.

## 4 Discussion

Our research indicates clear policy implications on how to optimally design evacuation messages in the face of an imminent disaster. First, we show the importance of providing a concrete plan if governmental organizations or NGOs want to convince civilians to evacuate from a war zone. The framing of the message itself has little impact. The latter part can be viewed as a reassuring finding for those who design the messages: they cannot make grave mistakes with the wording of their message. Our null-results on framing could be due to those facing the threat of war not being naive about the potential dangers of sheltering in place. The most important take-away for those sending evacuation messages is to provide a concrete plan of evacuation (i.e., a course of action).

Our results also suggest that the personal evacuation plans and the authorities' plans are substitutes, and that existence of a personal plan is largely determined by access to a means of evacuation (i.e., a personal vehicle) and the resources to sustain oneself during evacuation (spare income/cash). Thus, in order to maximize the number of evacuees we recommend a two-step approach. The first step is an early warning that the situation in the settlement is becoming increasingly dangerous. This first message should instruct people to make their own personal evacuation plan if possible



**Figure 3: The Determinants of Having a Pre-existing Plan**

The coefficients (dots) of three linear probability models on who has a personal evacuation plan in place are shown above. Results on binary variables for gender, children, owning a car, having disposable income, marital status and having attended university are shown. The gray dots include controls for age, region of residence and past evacuation decisions. The light blue dots additionally allow for interactions between gender and having children, owning a vehicle, and having disposable income. 95% confidence intervals, assuming heteroskedasticity-robust standard errors, are shown with each coefficient. Table S6 in the online appendix provides additional detail.

(along with guidance on what such a plan should entail). It should also instruct those who do not have an independent means of transportation to be prepared to be evacuated by the authorities (along with guidance on how such an evacuation would take place). Should it become appropriate, the second step should instruct everyone who can evacuate independently to do so (ideally while the outward journey is still relatively safe). If the government (or an NGO) has an evacuation plan, the second wave of messages should prioritize informing individuals on how to participate in the authority's organized plan.

Finally, we find stark differences in how men and women react to the provision of an evacuation plan from the authorities. Specifically, we find that women respond more strongly to information about the provided evacuation plan. One explanation for this finding could be that women are more risk averse than men (Croson & Gneezy, 2009; Charness & Gneezy, 2012). As the availability of an evacuation plan by the authorities reduces the risk related to evacuation, women can be expected to react more strongly. Another explanation for our finding could be that men are more overconfident than women (Lundeberg, Fox, & Punčohaf, 1994; Niederle & Vesterlund, 2007). Thus, one may expect men to be less responsive to the authorities' evacuation plan since it would have relatively little impact on their confidence in their ability to evacuate. The clear policy implication of our findings is that in case of limited ability to provide information to all people, targeting women is more effective than targeting men.

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# Online Appendix for “Nudging Civilian Evacuation During War: Evidence from Ukraine”

## **A Message texts and outcome variable**

The messages shown to participants in the different treatments are reproduced in English translation in Table S1. The question/instruction for the outcome variable above the presented message is as follows: “If you needed to make sure that the residents of your city evacuate due to the danger of hostilities, rate how effective the following message would be on a scale from 0 to 10, where 0 is completely ineffective (no one would leave) and 10 is very effective (almost everyone would leave).”

## **B Survey details**

The survey was implemented by Gradus, a survey company specialized in the recruitment of subjects within Ukraine. The company employed a panel of respondents which has not changed since the beginning of the war. The subjects take part in the survey through a mobile app. The survey could be completed in Ukrainian or Russian. It was carried out in July 2022. The survey contained questions on socio-demographic characteristics, risk perceptions, and evacuation behavior. In the following, we summarize the type of questions asked:

- **Socio-demographic characteristics**

Place of residence before the full-fledged invasion, sex, age, marital status, family characteristics (number of children under and over 18, whether the children live in the same household, older parents living in the same city), pets, religion, income, and education.

**Table S1: Message texts in the experiment**

<b>Treatment</b>	<b>Message</b>
<b>Control</b>	Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Leave as soon as possible!
<b>Control + Provided Plan</b>	Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Free buses will be waiting for you at < ... >. Registration by phone < ... >. At the destination, you will be provided with accommodation and medical assistance. Take with you documents, personal belongings and food for 2-3 days. Leave as soon as possible!
<b>Gain of Life</b>	Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Save your own life, the lives of your children and relatives. Evacuation saves lives. Leave as soon as possible!
<b>Gain of Life + Plan</b>	Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Free buses will be waiting for you at < ... >. Registration by phone < ... >. At the destination, you will be provided with accommodation and medical assistance. Take with you documents, personal belongings and food for 2-3 days. Save your own life, the lives of your children and relatives. Evacuation saves lives. Leave as soon as possible!
<b>Loss of Life</b>	Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Civilians are killed and wounded almost every day. Do not endanger yourself, your children and relatives. Leave as soon as possible!

**Loss of Life  
+ Provided Plan**

Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Free buses will be waiting for you at < ... >. Registration by phone < ... >. At the destination, you will be provided with accommodation and medical assistance. Take with you documents, personal belongings and food for 2-3 days. Civilians are killed and wounded almost every day. Do not endanger yourself, your children and relatives. Leave as soon as possible!

**Deteriorating  
Living Conditions**

Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Infrastructure and life support facilities, residential buildings are being destroyed every day. You risk being left without water, gas, electricity. Delivering food, drinking water, medicines to the city is becoming more difficult and dangerous. Leave as soon as possible!

**Deteriorating Living  
Conditions + Provided Plan**

Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Free buses will be waiting for you at < ... >. Registration by phone < ... >. At the destination, you will be provided with accommodation and medical assistance. Take with you documents, personal belongings and food for 2-3 days. Infrastructure and life support facilities, residential buildings are being destroyed every day. You risk being left without water, gas, electricity. Delivering food, drinking water, medicines to the city is becoming more difficult and dangerous. Leave as soon as possible!

**Military Effectiveness**

Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. The Armed Forces of Ukraine need all available resources to protect your city. By evacuating, you save the limited resources of the city for the military and enable them to do their job better. Leave as soon as possible!

**Military Effectiveness  
+ Provided Plan**

Due to the armed aggression by Russia, the situation around your city is very critical. We urge you to take a reasonable approach to the issue of evacuation from the danger zone. Free buses will be waiting for you at < ... >. Registration by phone < ... >. At the destination, you will be provided with accommodation and medical assistance. Take with you documents, personal belongings and food for 2-3 days. The Armed Forces of Ukraine need all available resources to protect your city. By evacuating, you save the limited resources of the city for the military and enable them to do their job better. Leave as soon as possible!

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- **Perception of risk and concerns**

Subjects were asked to rate on a scale from Strongly Disagree to Strongly Agree a series of statements about the perceived risks and concerns relating to the evacuation. As an example, those that did not evacuate were asked to rate some of the potential concerns they might have had such as the road being too dangerous and how much did the lack of transportation or means influence their decisions. Those that did evacuate, were asked about the concerns that motivated them to leave such as being the victim of rape and facing various shortages (food, water, etc.).

- **Evacuation behavior**

Whether they evacuated, did not evacuate or evacuated and then returned. Whether the subjects heard any official announcements inviting them to leave the city and by what means. How did they evacuate, on which date and which mode of transportation was used.

Table S2 describes the control variables used in our analysis.

**Table S2:** List of control variables used in the analysis

Variable	Description	Wording
age	age in years	
female	gender (female = 1, male = 0)	
family_status_now	current marital status	How would you describe your current marital status?
tot_children	total number of children (sum of children above and below 18)	Number of my children under 17 years of age Number of my children 18 years old and above
oblast	the region of Ukraine the person comes from	Please indicate the area in which you permanently lived before the full-scale war between Russia and Ukraine
evacuation status (q10)	I did not leave the city = 1, evacuated = 2, left to evacuate family and came back = 3, left to serve in the military = 4, other = 5 (Transformed to binary did/did not evacuate variable for regressions)	What best describes your actions after the war began on Feb 24?

## C Data analysis

The (pre-registered) statistical analysis is shown in Table S3. The main regression only contains treatment dummies and is reported in the first column. All framing dummies are insignificant, while the *Provided Plan* treatment dummy is significantly different from zero.

The other columns of Table S3 show the (pre-registered) robustness analyses. The second column contains control variables (age, gender, marital status, number of children, place of residence, and past evacuation decisions). The third column contains interaction effects between framing and plan treatments, and the fourth column contains both control variables and interaction effects.

The regressions used for the first figure (right) of the main text are those in the first and last columns of Table S3. The regressions provide details for the means shown in the second figure (right) in the main text.

Table S4 shows the regressions with a focus on gender effects. Therefore, the interaction of gender with the evacuation plan in the message is included. Table S5 shows the same regression models as Table S3 with the additional explanatory variable of whether participants already had a personal evacuation plan before the full-scale invasion began and with the interaction effect between having an own plan and *Provided Plan*. Lastly, Table S6 regresses a binary variable for having a pre-existing, personal evacuation plan on several personal characteristics. The analysis in these tables was not pre-registered.

**Table S3:** Treatment Effects

	Message Evaluation	Message Evaluation	Message Evaluation	Message Evaluation
Provided Plan	0.33*** (0.11)	0.31*** (0.11)	0.62** (0.24)	0.51** (0.25)
Gain Life	-0.11 (0.18)	-0.07 (0.18)	-0.01 (0.25)	0.03 (0.26)
Loss of Life	0.08 (0.17)	0.05 (0.17)	0.28 (0.24)	0.16 (0.25)
Living Condition	0.10 (0.17)	0.21 (0.17)	0.22 (0.23)	0.26 (0.23)
Military Effectiveness	-0.21 (0.18)	-0.10 (0.18)	0.12 (0.25)	0.14 (0.26)
Provided Plan × Gain Life			-0.21 (0.36)	-0.20 (0.36)
Provided Plan × Loss of Life			-0.40 (0.34)	-0.22 (0.35)
Provided Plan × Living Cond			-0.25 (0.34)	-0.11 (0.34)
Provided Plan × Military			-0.65* (0.36)	-0.49 (0.36)
Constant	6.84*** (0.13)	6.43*** (0.34)	6.70*** (0.17)	6.35*** (0.35)
Responses	2006	1867	2006	1867
Demog. Controls	No	Yes	No	Yes

*Notes:* Robust standard errors in parentheses. Demographic controls are age, gender, marital status, number of dependents, region of residence and past evacuation decisions. The discrepancy in responses is due to the fact that some respondents did not provide demographic data.

**Table S4:** Treatment Effects, Heterogeneity through Gender

	Message Evaluation	Message Evaluation	Message Evaluation	Message Evaluation
Provided Plan	0.03 (0.18)	0.08 (0.19)	0.29 (0.28)	0.29 (0.28)
Gain Life	-0.13 (0.18)	-0.06 (0.18)	-0.04 (0.26)	0.06 (0.26)
Loss of Life	0.08 (0.17)	0.06 (0.17)	0.26 (0.24)	0.18 (0.25)
Living Condition	0.12 (0.17)	0.23 (0.17)	0.21 (0.23)	0.28 (0.23)
Military Effectiveness	-0.20 (0.18)	-0.08 (0.18)	0.10 (0.25)	0.16 (0.26)
Female	0.20 (0.16)	0.22 (0.16)	0.19 (0.16)	0.21 (0.17)
Provided Plan × Female	0.48** (0.23)	0.37 (0.24)	0.48** (0.23)	0.37 (0.24)
Provided Plan × Gain Life			-0.19 (0.36)	-0.23 (0.36)
Provided Plan × Loss of Life			-0.38 (0.34)	-0.23 (0.35)
Provided Plan × Living Cond			-0.19 (0.33)	-0.11 (0.34)
Provided Plan × Military			-0.60* (0.36)	-0.49 (0.36)
Constant	6.72*** (0.16)	6.54*** (0.35)	6.60*** (0.19)	6.46*** (0.36)
Responses	2006	1867	2006	1867
Demog. Controls	No	Yes	No	Yes

*Notes:* Robust standard errors in parentheses. Demographic controls are age, marital status, number of dependents, region of residence and past evacuation decisions. The discrepancy in responses is due to the fact that some respondents did not provide demographic data.



**Table S5:** Treatment Effects, Heterogeneity by Pre-Existing (Own) Plans

	Message Evaluation	Message Evaluation	Message Evaluation	Message Evaluation
Provided Plan	0.43*** (0.13)	0.40*** (0.13)	0.73*** (0.25)	0.60** (0.26)
Gain Life	-0.10 (0.18)	-0.08 (0.18)	-0.00 (0.25)	0.01 (0.25)
Loss of Life	0.08 (0.17)	0.05 (0.17)	0.28 (0.24)	0.16 (0.25)
Living Condition	0.10 (0.17)	0.20 (0.17)	0.23 (0.23)	0.27 (0.23)
Military Effectiveness	-0.20 (0.18)	-0.11 (0.18)	0.11 (0.25)	0.12 (0.26)
Own Plan	0.84*** (0.17)	0.70*** (0.17)	0.83*** (0.17)	0.70*** (0.17)
Provided Plan × Own Plan	-0.34 (0.24)	-0.23 (0.25)	-0.34 (0.24)	-0.24 (0.25)
Provided Plan × Gain Life			-0.20 (0.35)	-0.18 (0.36)
Provided Plan × Loss of Life			-0.40 (0.34)	-0.23 (0.35)
Provided Plan × Living Cond			-0.27 (0.33)	-0.14 (0.34)
Provided Plan × Military			-0.61* (0.36)	-0.47 (0.36)
Constant	6.60*** (0.14)	6.13*** (0.34)	6.45*** (0.18)	6.05*** (0.36)
Responses	2006	1867	2006	1867
Demog. Controls	No	Yes	No	Yes

*Notes:* Robust standard errors in parentheses. Demographic controls are age, gender, marital status, number of dependents, region of residence and past evacuation decisions. The discrepancy in responses is due to the fact that some respondents did not provide demographic data.

**Table S6: Who is Likely to Have Pre-Existing (Own) Plans**

	Own Plan	Own Plan	Own Plan
Female	-0.11*** (0.02)	-0.11*** (0.02)	-0.06 (0.04)
Dependent Children	0.04** (0.02)	0.04* (0.02)	0.05 (0.04)
Owns Vehicle	0.08*** (0.02)	0.07*** (0.02)	0.12*** (0.04)
Disposable Income	0.07*** (0.02)	0.07*** (0.02)	0.07* (0.04)
Married	-0.01 (0.02)	-0.00 (0.02)	-0.00 (0.02)
Higher Education	0.02 (0.02)	0.01 (0.02)	0.01 (0.02)
Female × Vehicle			-0.09* (0.05)
Female × Disp. Income			-0.01 (0.05)
Female × Children			-0.02 (0.05)
Constant	0.25*** (0.03)	0.32*** (0.06)	0.29*** (0.06)
Responses	1917	1828	1828
Controls	No	Yes	Yes

*Notes:* Robust standard errors in parentheses. Additional controls are age, region of residence and past evacuation decisions. The discrepancy in responses is due to the fact that some respondents did not provide all demographic data.