Preferences over Borders in Militarized Disputes*

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Abstract

Why do states and individuals prefer peace agreements that align with existing administrative borders, even when those borders lack historical or cultural significance? This paper presents a novel framework and experimental evidence to address this question. Building on theories of conflict bargaining, the study conceptualizes preferences for borders as removable discontinuities in individual utility functions that yield a surplus only when new international borders align with pre-existing internal divisions. A survey experiment conducted among Russian respondents during the ongoing war with Ukraine simulates territorial bargaining scenarios. Results reveal strong preferences for territorial settlements aligned with Ukrainian administrative borders, with respondents willing to trade approximately 13% of additional Ukrainian territory to secure such alignment. This preference is driven by expectations of more durable peace and greater international recognition. The findings provide micro-level evidence of the strategic and institutional value of borders in conflict resolution.

1 Introduction

On September 30, 2022, Vladimir Putin declared that four regions of Ukraine—Donetsk, Luhansk, Kherson, and Zaporizhzhia—were now part of Russia, a move he presented as the fulfillment of historic

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†The materials presented in this paper, including maps and experimental scenarios, are used solely for the purposes of academic research on conflict bargaining. They do not reflect the author's personal views or political beliefs. As a Russian citizen, I unequivocally condemn the Russian Federation's aggression against Ukraine. This work is intended to contribute to a better understanding of conflict dynamics, and should not be interpreted as an endorsement of any form of violence, occupation, or violation of international law.

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justice and the will of the people. Yet, at the time of his announcement, Russia did not fully control any of these territories, and their annexation lacked both a military foundation and historical coherence. This particular combination of Ukrainian regions holds no deep symbolic or cultural significance for Russian statehood. This raises a fundamental question: why commit to a claim over areas that neither reflect historical precedent nor were securely held at the time of annexation?

This move reflects a logic that scholars of international conflict and border politics have increasingly recognized: borders—even historical administrative ones—play a powerful role in shaping territorial claims (Simmons, 2005; Schultz, 2015; Goemans and Schultz, 2017; Abramson and Carter, 2016). Aligning claims with pre-existing administrative boundaries offers several advantages. It helps states signal restraint and credibility in negotiations (Schultz and Goemans, 2019), grounds claims in legal norms recognized by international law (Huth et al., 2011, 2013), preserves existing social capital (Abramson et al., 2022), and reduces disruption to trade and economic flows (Carter and Goemans, 2018; Wolf et al., 2011). These benefits help explain why border-based claims tend to be more persistent and stable over time (Abramson and Carter, 2016; Carter and Goemans, 2014). In this view, borders are not arbitrary lines or mere focal points; they are embedded in the cost-benefit calculations that shape territorial disputes.

Despite extensive macro-level evidence on the strategic value of borders, micro-level support for the presence of preferences over borders remains notably limited. We still know little about how individuals perceive administrative boundaries or whether people consider them in cost-benefit terms consistent with broader theoretical arguments. This paper seeks to bridge that gap by providing individual-level evidence on the role of borders in militarized conflict.

Building on the formal literature on conflict bargaining (Fearon, 1995; Powell, 2006; Bils and Spaniel, 2017; Schultz and Goemans, 2019) and the empirical literature on militarized conflicts fought over territory (Hensel et al., 2008; Abramson and Carter, 2016; Caselli et al., 2015; Fang et al., 2022; Fang and Li, 2020), I develop a general framework in which territorial heterogeneity is described as a set of preferences. I argue that preferences for borders and for different types of territory can be represented as discontinuities in individuals' utility functions. Preferences for borders are conceptualized

as removable discontinuities that produce a utility surplus when new borders align with pre-existing administrative divisions.

I design a novel experiment that simulates bargaining scenarios in which respondents choose between peace agreements and continued conflict. These scenarios vary both in the extent of territorial concessions and in their alignment with established administrative borders. The study focuses on the ongoing conflict between Russia and Ukraine, specifically examining Russian respondents' preferences regarding war outcomes.

The results document strong and robust preferences for territorial divisions that follow existing administrative lines. Respondents are willing to trade up to 13 percentage points of Ukrainian territory in order to secure a new international border aligned with the boundaries of Ukrainian regions. To put this figure into perspective, it is slightly less than half of the territory that Russia controlled at its peak during the war.

The experiment also uncovers a mechanism behind this effect. Respondents expect that borders aligned with administrative lines will lead to more durable peace agreements. This expectation is driven by beliefs about the likelihood of international recognition by third-party actors such as NATO, the EU, or the United States.

2 The Value of Borders

Borders stand out as the most prominent feature of territory, affecting territorial claims, peace settlements, and long-term consequences. Unlike other lines that divide physical space—such as rivers, front lines, or boundaries of oil basins—administrative borders function as institutions that define communities and regulate interactions between them (Simmons, 2005; Schultz, 2015). Among the various duties that borders perform, the literature on institutional theory of borders identifies coordination mechanisms they provide (Carter, 2017).

Borders function as effective coordination mechanisms in economic activity by defining clear territorial boundaries that align incentives and support decision-making processes. For instance, when individuals make decisions about investments in infrastructure, they coordinate with others to gain

benefits from economies of scale. Borders establish well-defined jurisdictions governed by the same rules and norms, which simplify coordination by lowering transaction costs. Once borders are established, they continue to provide a foundation for economic cooperation even when the political environment changes (Wolf et al., 2011; Carter and Goemans, 2018). In contrast, prolonged border instability disrupts the development of social and economic networks and weakens long-term growth (Abramson et al., 2022). Settling a territorial dispute along a previously existing border is valuable in itself because it preserves, or at least partially preserves, accumulated social capital.

Pre-existing administrative lines also coordinate activities within governmental institutions. Each administrative unit typically has its own administration and an established bureaucratic hierarchy. In practice, people living in the territory govern it, address the everyday needs of the population, and carry out basic bureaucratic functions. Even in extreme cases of violent occupation, new governance structures often depend heavily on the continuity of local bureaucracies (Mazower, 2009). Incorporating entire units with existing administrations is therefore less disruptive and less costly than reassigning jurisdictions or reorganizing administrative areas that do not correspond to new borders. Local administrative institutions tend to persist and produce diverging outcomes over time (Lee and Schultz, 2012). The role of political and bureaucratic coherence within administrative units extends beyond conflict situations and helps explain why secession movements with clearly defined administrative boundaries are more likely to succeed in achieving independence (Griffiths, 2015).

Borders provide not only common ground for individuals within communities but also a basis for coordination between adversaries during conflicts. The simplest form of the coordination argument does not require a formal institutional framework. Existing administrative lines separating one unit from another may serve as focal points, drawing attention to one possible division of territory among countless alternatives. They play a role similar to rivers, mountain ranges, or other features familiar to both sides in a conflict (Schelling, 1980). In addition, borders make limited claims in territorial disputes more credible and reduce uncertainty regarding war aims (Carter, 2017; Abramson and Carter, 2016). Leaders often prefer to make small claims and receive concessions attached to them (Schultz and Goemans, 2019; Schultz, 2017). The difficulty, however, is that such claims may involve uncer-

tainty about the claimant's actual goals. For instance, when a dispute concerns co-ethnicity with the inhabitants of a particular area, a claim without a spatially defined boundary lacks credibility because compact minorities are exceptions rather than the norm (Carter and Goemans, 2011). The target state cannot determine where the adversary intends to place the final frontier. In contrast, administrative borders clearly identify the area in dispute (Abramson and Carter, 2016).

The benefits that borders provide make claims and settlements aligned with existing borders more valuable for states involved in territorial disputes. First, a claimant is likely to expect that an initial demand constrained by an existing border is more likely to be satisfied (Carter and Goemans, 2011; Huth et al., 2011). Second, if a war erupts, a settlement based on an existing border is anticipated to be more stable over time and to have a lower probability of conflict recurrence (Carter and Goemans, 2014). Thus, territorial divisions settled along existing borders are qualitatively different from those drawn "from scratch." The intrinsic value of borders should be considered in the cost-benefit calculations made by claimants. Possession of a well-defined border might even outweigh additional territorial gains if they result in a new border drawn arbitrarily between the adversaries.

The main limitation of this line of research is that it relies solely on observational data and cross-country or cross-conflict comparisons. Although such studies provide robust causal or descriptive evidence of the association between borders and conflict, macro-level analyses do not reveal whether these border characteristics are recognized by individuals or factored into their cost-benefit calculations. In what follows, I examine how borders can be incorporated into the analysis of individual decision-making.

3 Theoretical Framework

In this section, I develop a framework that makes it possible to consider the effects of territory in general and borders in particular. This approach has two important features. First, it builds on a standard conflict bargaining model (Fearon, 1995; Powell, 2006). Second, it accounts for the fact that any territory is heterogeneous and assumes that territorial heterogeneity can be described by lines in two-dimensional space. These lines may have different origins. For example, a river or a mountain

range is a type of line that creates natural barriers that are easier to defend. If a particular area contains valuable natural resources, there is a line that defines the boundaries of that area. Borders — both international boundaries and internal administrative divisions — are also lines that divide space into separate administrative jurisdictions. I begin with a qualitative description of how such lines relate to territory in the context of conflict bargaining. Then, I introduce an extended utility function that includes these effects.

3.1 When Lines Matter

Existing literature on conflict bargaining has examined several potential effects of different types of lines. One such effect involves rapid changes in the value of territory that result in *jump discontinuities*. Fearon (1996) analyzes commitment problems as a source of bargaining inefficiency and incorporates territory into the bargaining process through changes in the relative odds of winning. In his model, increased territorial control alters the status quo and raises the probability of victory if bargaining fails. Certain geographic features, such as advantageous defensive lines, can produce sharp shifts in the likelihood of success for one of the adversaries, leading to the collapse of peaceful agreements (Fearon, 1996). These jumps result in discontinuous changes that influence bargaining outcomes (Powell, 2006).

An alternative source of jump discontinuities is associated with issue indivisibility. One interpretation of this phenomenon suggests that actors may assign additional value to complete control over the territory (Hassner, 2003). If a portion of the disputed territory has clearly defined boundaries and is also characterized by indivisibility, then gaining full control of that part generates a discontinuous utility surplus. The special value attached to a specific piece of land may stem from its sacred status (Goddard, 2006; Toft, 2006) or from a belief in a historical right of ownership (Fang and Li, 2020; Fang et al., 2022).

The second effect of lines relates to variation in the value of territory itself, i.e. *changes in the marginal utility of territorial control*. Bils and Spaniel (2017) relax the assumption of non-decreasing utility from territorial control and introduce single-peaked preferences over territorial divisions. This implies that the marginal utility of acquiring additional territory beyond the "ideal point" becomes

negative. Similarly, Schultz and Goemans (2019) derive variation in the value of territory from changes in the benefits and costs of control. If the costs of control remain constant while the benefits decline after a certain point of conquest, then the value of land beyond that point also decreases. This can occur when some parts of the contested territory are more resource-abundant than others (Hensel and Mitchell, 2005; Hensel et al., 2008; Caselli et al., 2015). Alternatively, marginal benefits may remain constant while the costs of control rise after a particular threshold. For instance, when a conflict concerns an ethnic group divided between two states, expanding beyond the area where co-ethnics live leads to higher governance costs due to the inclusion of out-group populations (Davis and Moore, 1997; Gleditsch, 2007).

Jump discontinuity and changes in marginal utility describe the effects of lines that define specific areas within a territory. I introduce a third type of line effect - *removable discontinuity* - which appears exactly on the line and captures the intrinsic value of the line itself. This effect implies that reaching an agreement on the line yields a discontinuous utility surplus, present only when a new international border between two states is located precisely on that line. Settlements that fall slightly below or above it are less valuable than those that coincide with it.

Borders are lines that carry this intrinsic value. However, this value is not immediate, as in the case of resource-rich areas or territories inhabited by co-ethnics. Instead, the value of borders stems from the benefits they may offer in the future (Carter, 2017). These benefits include the potential for economic coordination (Wolf et al., 2011; Carter and Goemans, 2018) and the stability that borders provide (Gibler and Tir, 2010; Carter and Goemans, 2014; Gibler, 2012). The latter mechanism is especially important when considering decisions made during an ongoing conflict. War is always costly, and a territorial arrangement expected to be long-lasting is often preferred over one perceived as unstable and likely leading to renewed conflicts. Territorial transfers that align with administrative borders may be viewed as more legitimate and more consistent with international principles protecting territorial integrity and preventing future wars(Zacher, 2001; Prorok and Huth, 2015; Huth et al., 2011, 2013).

Crucially, these stability benefits can be realized only once a new international border is formally

established on a particular line that carries the symbolic meaning of being recognized as a legitimate boundary. As a result, the effect of the line is discontinuous but spatially isolated - occurring only at a specific location. This distinguishes removable discontinuity from jump discontinuity.

3.2 Extended Utility Function

The next step is to incorporate line effects into the bargaining setup.[1] I consider a simple bargaining scenario in which two states dispute a piece of territory. Each possible agreement corresponds to a division of this land, with one portion transferred from the status quo holder (State 2) to the challenger (State 1). What matters most to the states is how much land changes hands and how that division relates to a specific internal boundary, such as a line of strategic, administrative, or ethnic significance. This internal boundary divides the territory into two regions and introduces an asymmetry: certain areas may carry more value or political sensitivity due to their position relative to the boundary.

In line with the bargaining literature, assume that if war occurs, State 1 wins with probability p and incurs a fixed cost c. Its expected utility from the conflict is:

$$V(F) = \beta_1 p - \beta_2 c \tag{1}$$

I track three features of any possible territorial division. The first is straightforward: x, the amount of land State 1 receives. If this is the only factor relevant for State 1, the utility function corresponds to the standard form based on territorial control:

$$V(B) = f(x) = \alpha_1 x \tag{2}$$

where $f(x)$ is continuous, increasing, and weakly concave (Fearon, 1995). For simplicity, assume linear utility.

The second and third features capture whether the internal boundary is affected and in what way. The key distinction is between a division that *lies exactly on the boundary* and one that *extends beyond*

[1] The full model setup and the formal derivation of parameters are provided in Appendix A.

the boundary.

I define two binary features of a territorial division:

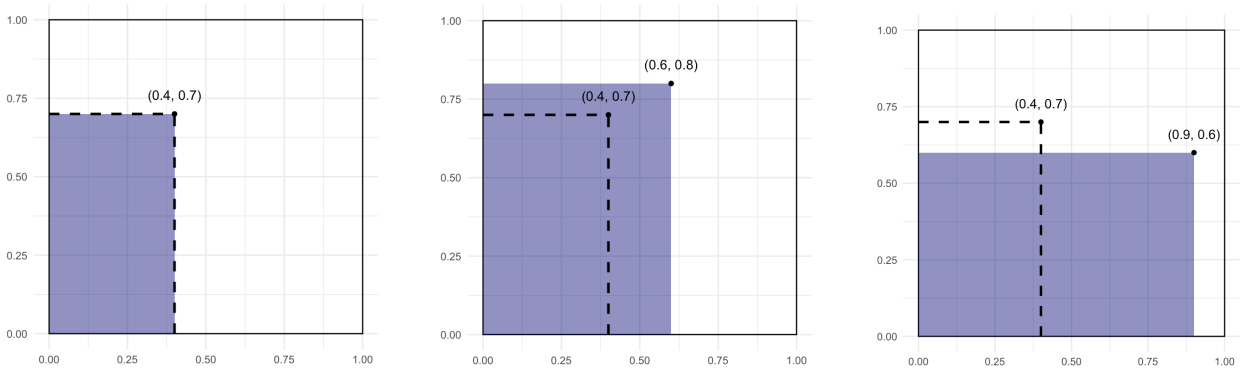
- $d^* = 1$ if the division places the new border exactly along the internal boundary. In this case, the division fully aligns with the pre-existing line. This can be interpreted as a clean transfer of a predefined zone.

- $r = 1$ if the division gives State 1 control over the boundary and extends beyond it. That is, the new territory includes the boundary and also stretches past it.

Together, these features capture whether the boundary is gained and whether it represents a minimal or an expanded gain. In other words, the presence of an internal boundary makes it possible to distinguish between basic territorial value and additional strategic or symbolic value associated with specific lines within the territory.

To illustrate this logic, consider a simple example of a square territory divided by a boundary (dashed line) in Figure 1. Shaded areas represent three potential divisions. The first division fully aligns with the boundary ($d^* = 1$); the second extends beyond the line ($r = 1$); and the third bargain does not include control over the boundary but yields more territory than either of the other two bargains.

Figure 1: Possible configurations of the parameters



$x = 0.28, d^* = 1, r = 0$ $x = 0.48, d^* = 0, r = 1$ $x = 0.54, d^* = 0, r = 0$

Note: Dashed line is an internal boundary. Shaded areas are bargains depicting territory given to State 1

To incorporate potential line effects - removable discontinuity, jump discontinuity, and changes in the marginal utility of territory - into State 1's utility maximization problem, one can augment the utility function from Equation 2 by introducing two parameters that capture line control. The utility from a given bargain B then takes the following form:[2]

$$V(B) = \alpha_1 x + \alpha_2 d^* + \alpha_3 r + \alpha_4 d^* x + \alpha_5 r x \tag{3}$$

The utility function defined in Equation 3 is extensive, and in practice, it is unlikely that all components are relevant in any given case. However, by imposing restrictions on certain parameters of $V(B)$, one can account for the full range of possible effects that internal lines may produce.

The standard linear utility without any boundary effects is a special case, where $\alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$. With $\alpha_1 > 0$ (Figure 2a), State 1 values only the share of land taken from State 2.

The parametrization $\alpha_3 = \alpha_4 = \alpha_5 = 0$ and $\alpha_1, \alpha_2 > 0$ defines a utility function that includes a removable discontinuity at the internal boundary (Figure 2b).

If control of the boundary introduces a jump discontinuity—meaning it provides a constant and persistent benefit once the boundary is reached and occupied (Figure 2c)—the utility function is characterized by the restrictions $\alpha_4 = \alpha_5 = 0$, $\alpha_1 > 0$, and $\alpha_2 = \alpha_3 > 0$. The last condition ensures that the utility gain from capturing the internal boundary is the same in divisions that place the new border exactly on the boundary and in those that extend beyond it. This condition is not required, and one may instead examine heterogeneity between gains realized precisely at the boundary and those realized beyond it.

The parameters α_2 and α_3 determine changes in the level of utility. However, land on either side of the boundary may differ in its marginal utility for State 1. Setting $\alpha_4 = \alpha_5 \neq 0$ introduces this feature and allows for the estimation of changes in marginal utility (Figures 2e and 2d).

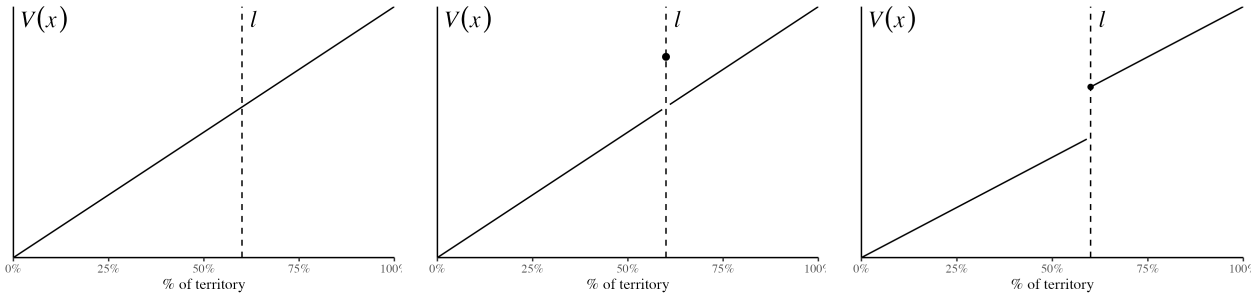
Issue indivisibility also arises as a special case resulting from a specific combination of parameters. Figure 2f illustrates a scenario in which State 1 is unable to accept any division that does not include

[2]Formally, the payoff from victory must equal the utility derived from setting an ideal new border. In practice, it is sufficient to rescale the parameters of $V(B)$ such that $\max_B V(B) = 1$.

the entire area located within the boundary defined by the dashed line.

To sum up, the extended utility function is flexible enough to incorporate various types of territorial heterogeneity. At a fundamental level, it distinguishes between effects that occur only at the boundary (removable discontinuity) and those that arise on different sides of the boundary (jump discontinuity and variation in marginal utility).

Figure 2: Various parametrizations of $V(x)$



(a) $\alpha_1 > 0$ (b) $\alpha_1 > 0, \alpha_2 > 0$ (c) $\alpha_1 > 0, \alpha_2 = \alpha_3 > 0$

(d) $\alpha_1 > 0, \alpha_5 = -\alpha_1, \alpha_3 = \alpha_1 x^l$ (e) $\alpha_1 > 0, \alpha_5 < -\alpha_1, \alpha_3 = \alpha_4 x^l$ (f) $\alpha_4 = \alpha_5 > 0$

Note: Dashed line is an internal boundary l produced by point $(0.5, 0.6)$. Shaded areas are bargains depicting territory given to State 1

3.3 Implications for Empirical Research

The decision problem given by Equations 1 and 3 can be easily implemented in the study of individual preferences over territorial divisions. Assume that a sample of individuals is indexed by i. Each of them has preferences for conflict resolution over a set of bargains B indexed by j. In particular, assume their preferences consist of deterministic components V_F and V_B (1 and 3 respectively) and a random term.

Then, individuals utility from fighting and from a particular bargain B_j is given by:

$$U_i(F) = V_i^F + \varepsilon_i^F$$
$$U_i(B_j) = V_i^{B_j} + \varepsilon_i^{B_j}$$

where ε_i^F, $\varepsilon_i^{B_j}$ are i.i.d. random variables from a Type I GEV distribution with location parameter 0 and scale 1.

Individual i prefers bargain B_j to fighting if $U_i(B_j) > U_i(F)$ or equivalently if $V_i^{B_j} - V_i^F > \varepsilon_i^{B_j} - \varepsilon_i^F$. Hence, the probability that a randomly chosen individual prefers B_j to fighting is $P_i(B_j) = Prob(\varepsilon < V_i^{B_j} - V_i^F)$ where ε follows a logistic distribution. Probability of bargain acceptance can be rewritten as:

$$P_i(B_j) = \frac{1}{1 + exp\left(-\left(V_i^{B_j} - V_i^F\right)\right)} \tag{4}$$

This equation can be estimated with a simple logistic regression. Notice that V_i^F is fixed within individuals while $V_i^{B_j}$ varies across individuals and bargains. In the presence of multiple observed decisions by individuals, only $V_i^{B_j}$ is relevant for estimation and the fixed component is absorbed by individual fixed effects.

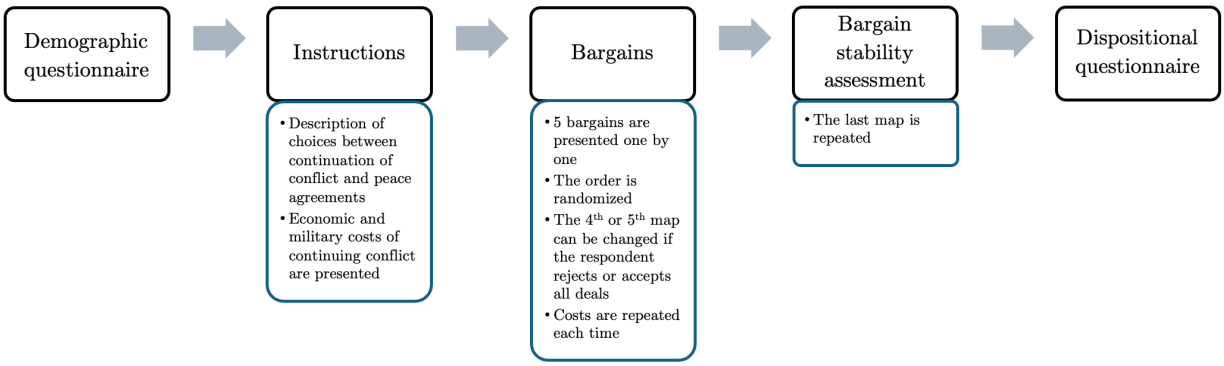
4 Experimental design

To examine the effect of administrative borders and to identify preferences regarding borders and territorial control, I designed a survey experiment that simulates a standard conflict bargaining process. The survey focuses on the ongoing war between Russia and Ukraine. The sample consists of respondents from Russia, the state that initiated the conflict. The survey was conducted in the field from December 2024 to January 2025, during a period when neither a ceasefire nor formal peace talks had begun.

The experiment simulates the bargaining process by presenting respondents with a series of binary choices between continuing the conflict and accepting proposed peace agreements. These agreements

are displayed using maps. The proposed bargains vary in both the extent of territorial concessions from Ukraine and the configuration of the new border between the two states. Figure 3 provides an overview of the experiment and its structure.

Figure 3: Experiment structure



4.1 Bargains

Bargains involving different territorial concessions from Ukraine to Russia are presented visually as maps. Below each map, respondents are shown the following text prompt and question:

> The map shows a potential conflict resolution option. Imagine that if conflict resolution option is chosen, both sides will accept these conditions.
>
> If the conflict continues, one can expect: [...]
>
> What will you choose?
>
> - Settlement option on the map
> - Continuation of military actions

Figure 4 summarizes the bargaining space considered in this study and provides background for it. The red line marks the administrative border between several Ukrainian regions. A region, or *oblast*, is the highest level of administrative division in Ukraine. From this point on, I refer to this border as the reference border. The deals used in the study are defined in relation to this border. The area between the reference border and the territory controlled by Russia prior to 2022 makes up 33.1% of Ukrainian territory, excluding Crimea[3]. The purple area represents the space within which

[3]I fully recognize Ukraine's sovereignty and territorial integrity, including Crimea, as defined by international law.

the proposed territorial divisions differ. In other words, some bargains involve almost no transfer of territory from Ukraine to Russia, while others involve the transfer of up to two thirds of Ukraine's territory. The largest bargain considered involves 68% of the territory.

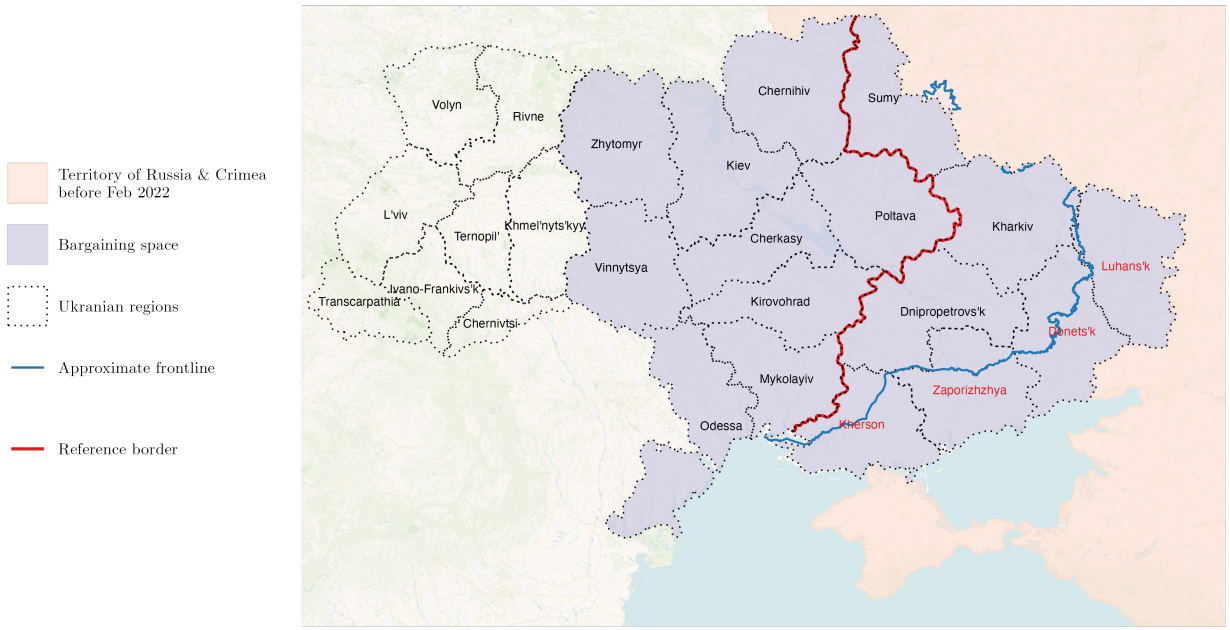


Figure 4: Context of the study

All bargains are divided into five groups (Table 1) based on the percentage of territory ceded to Russia in each agreement. Each respondent reviews one map from each group. This approach ensures that all respondents are exposed to a broad range of bargains and increases the likelihood that the lower bounds of their individual bargaining ranges fall between the data points collected in the survey.

However, for the purposes of this analysis, Crimea is treated as de facto Russia-controlled territory and is excluded from the bargaining. Russia occupied the peninsula in 2014 - before the full-scale invasion of 2022. Historically, Crimea has been perceived differently by Russians. For instance, in 2014, when the first episode of the war unfolded, 73% of Russians believed that Crimea should be part of Russia, compared to only 26% who expressed similar views regarding the separatist republics in Eastern Ukraine (Levada-Center, 2014a,b). Even during the failed peace talks in 2022, Ukraine suggested deferring the question of Crimea's status. Finally, Crimea's isolated geographic location makes it difficult to divide and negotiate over in territorial bargaining.

Table 1: Map groups

Group Name	Territory range (%)	Number of maps
Border Bargain	33	1
Low Gains	< 18	60
Medium-Low Gains	$18 - 33$	70
Medium-High Gains	$33 - 48$	70
High Gains	> 48	80

Variation in territorial gains implied by different bargains allows for identification of the utility function parameter that captures the value assigned to territory. To examine the effects of administrative borders, the Border Bargain group is included in the experiment (Figure 5). This group features one map shown to all respondents. It presents a territorial division that fully aligns with the administrative borders of several Ukrainian regions. This division establishes a new border between Russia and Ukraine that follows the existing administrative structure. None of the divisions in the other groups match these boundaries exactly. However, some of those maps may partially correspond to this specific border or to administrative lines between other Ukrainian oblasts. This particular border is deliberately selected as a reference border because it does not correlate with historical precedents, ethnic or linguistic composition of the population, or modern political divisions in Ukraine.[4]

[4] An extended discussion of the properties of the Border Bargain is provided in Appendix B.

Figure 5: Border Bargain

Variation in the maps allows for the identification of the structural parameters of individuals' utility functions described in the theory section. The Border Bargain represents a distinct division that aligns with administrative borders ($d^* = 1$). Bargains in the Low and Medium-Low Gains groups offer strictly less territory than the Border Bargain, making them incapable of providing border control that extends beyond the reference boundary ($r = 0$). In contrast, Medium-High and High Gains bargains may cross this line arbitrarily ($r = 0$) or include the entire area defined by the reference border and extend control beyond it ($r = 1$) (Figure B4). This structure also increases variation in the amount of territory ceded to Russia and generates additional variation in other properties of the maps, such as control over different cities and differences in border shape.

Randomization

There are two randomization components related to the bargains. First, the order in which the five bargains are presented is randomized. Second, within each group, one map is randomly selected from a pool of potential bargains. Due to the large number of maps included in the experiment, each respondent receives a unique combination of presentation order and selected maps.

The elicitation mechanism in the experiment relies on within-variation in responses from individ-

uals. However, respondents are not required to make different choices; they are free to accept or reject all of the bargains presented to them. To increase variation in responses, the experiment includes a nudging mechanism.

Suppose a respondent has accepted the reference border bargain as well as the randomly assigned 12%, 25%, and 55% bargains. In this case, the fifth map must be drawn from the Medium-High Gains group. Unless the respondent's preferences are highly non-monotonic, there is strong reason to expect that they would accept this bargain as well, since the lower bound of their bargaining range lies well below it. In such cases, the fifth map is re-randomized and selected again from an extreme subset of Low Gains bargains, with the condition that it must differ from the previously shown map. If the initial randomization placed the Border Bargain in the fifth position, the same logic is applied to re-randomize the fourth map.

This nudging mechanism can also be used in the opposite scenario, when a respondent consistently rejects all bargains. Formally, the fifth map is changed when the following conditions are met:

- After 4 maps, a subject has accepted [*rejected*] 4 bargains.
- The 5th bargain is not a Border bargain.
- A previously accepted [*rejected*] bargain from the Low [*High*] Gains group allocated more than 9% [*less than 54%*] of the territory to Russia.

The final condition ensures that if a respondent has already rejected an extreme map, there is no reason to expect that a similar map would change their behavior. If all three conditions are satisfied, the fifth map is redrawn from a subset of the Low Gains group that includes maps with less than 9% of territory, or from the High Gains group with more than 54% of territory.[5] A similar set of conditions applies when the fifth map is a Border Bargain, in which case the fourth map may be redrawn. The algorithm ensures that the random position of the Border Bargain is preserved and that only one map may be changed for each respondent. Information about changes to maps is recorded.

[5]The 9% threshold was selected because it corresponds approximately to the share of Donetsk and Luhansk oblasts—separatist regions of Donbass—that were initially recognized as independent by Russia at the beginning of the war. The 54% threshold was chosen for symmetry.

The implementation of nudging ensures that the position of the Border Bargain in the sequence is not affected (Table C2). At the same time, individuals who were nudged are more likely to be male and tend to be more pessimistic about the possibility of the war ending through peace talks. All model specifications account for these differences either through fixed effects or individual-level covariates. Additionally, I include a control for nudging in all specifications.

4.2 Costs of fighting

Preferences over territory and borders can also be placed in a relative perspective - how valuable are they in comparison to costs that individuals are willing to bear. To be able to analyze the elasticity of these preferences, I introduce information treatment on the costs of fighting. The cost of war is one of the primary components of the standard bargaining model and important element of a broader notion of resolve (Kertzer, 2016). Costs themselves are multifaceted and can take many forms (Dill et al., 2023; Manekin et al., 2019). Since costs of the conflict are of secondary interest, I provide information on two major elements: military casualties and economic consequence of the war.

I employ factorial-type treatment in a vignette form with two independently randomized elements. In particular, respondents are presented with the text:

> If the conflict continues, one can expect:
>
> - The increased impact of sanctions on the Russian economy leading to (1) *the stagnation of the economy [an economic decline of 5% of GDP per year]*
> - Up to (2) *10,000 [65,000]* additional casualties per year with the current rate of losses in the Special Military Operation zone

(1) and (2) correspond to the economic and military costs of the prolonged conflict, respectively. Both types of costs can be low and high and randomized independently. Each respondent has a 50% chance of observing high costs. Randomization balance tests are provided in Table C2.

The projection of low human losses of 5,000 is based on the annualized rate of casualties reported by the Minister of Defense in 2022 - the last time the officials gave an exact number (Reuters, 2022).

The high casualties scenario falls within the range of estimated losses based on excess mortality, official inheritance cases data, and obituaries published on social media (Kobak et al., 2023; Meduza, 2024). Stagnation and economic decline projections represent different scenarios calculated during the conflict. The sources of estimates are not disclosed to avoid the impact of perceived source credibility.

4.3 Empirical Strategy

The experiment is designed to mimic the bargaining process and corresponds to the empirical framework outlined in the theory section. The key equation estimated in the analysis is the following:

$$P(\texttt{Accept}_{ib} = 1) = f(\beta_0 + \beta_1 \texttt{Territory}_{ib} + \beta_2 \texttt{Border}_{ib} + \beta_3 \texttt{Control}_{ib} + \\ + \beta_4 \cdot \texttt{Territory}_{ib} \cdot \texttt{Control}_{ib} + \gamma_i) \quad (5)$$

where i indexes individuals and b indexes bargains. $\texttt{Accept}_{ib}$ is a binary indicator equal to 1 if respondent i accepts bargain b. $\texttt{Territory}_{ib}$ is the percentage of Ukrainian territory ceded to Russia under the proposed bargain. $\texttt{Border}_{ib}$ is a dummy variable indicating the Border Bargain, a bargain that aligns exactly with administrative borders. $\texttt{Control}_{ib}$ is an indicator for bargains that provide control over the Border Bargain and extend beyond it. Finally, γ_i is a vector of individual fixed effects. The primary estimation method is conditional logistic regression.[6] In all bargain-level models, standard errors are clustered at the individual level.

Since different utility specifications correspond to different parameter constraints, I begin with a simple model that includes only $\texttt{Territory}_{ib}$ and gradually introduce additional parameters. This approach allows for the testing of nested models in addition to evaluating the significance of individual parameters.

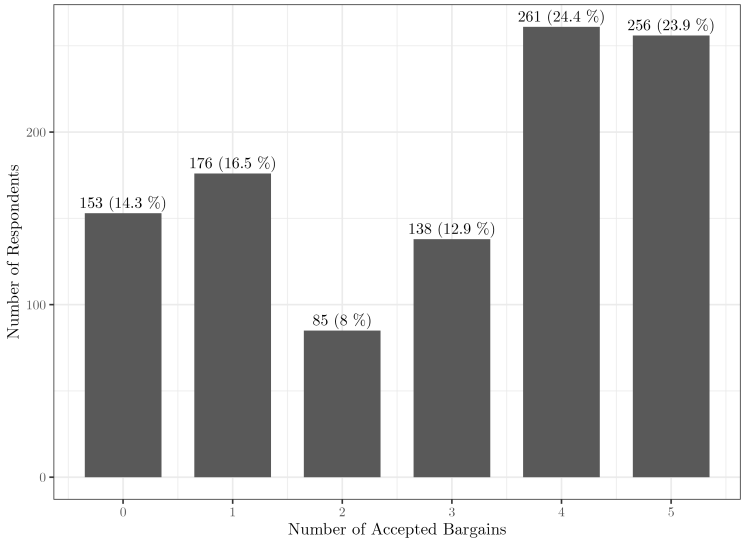
[6] The preregistration materials describe the full model with individual-level covariates and the conditional logit specification as the primary model. I estimate full models with covariates later in the analysis.

4.4 Sample

The initial sample consists of 1,135 individuals, with the majority of responses collected in December 2024. Descriptive statistics are presented in Table C1 in Appendix C.

Figure 6 displays the distribution of respondents by the number of accepted bargains. First, although the median respondent accepted three out of five bargains, the distribution is bimodal and most respondents tended either to accept or to reject most of the proposed deals. Second, 61% (701 of 1,135) made different choices when presented with different bargains. A substantial portion of respondents gave the same response to all bargains: 24% accepted all bargains, and 14% rejected all of them. Given the built-in nudging mechanism, this pattern suggests that those respondents either accepted agreements involving minimal territorial gains — clearly less than what is currently controlled by Russia - or rejected agreements that involved concessions exceeding half of Ukraine's territory. These numbers closely align with estimates from independent sociologists, who, using indirect measures, reported that consistent supporters of the war make up 18% of the population, while consistent opponents account for 21% (Khroniki, 2025). This initial result supports the validity of the sample.

Figure 6: Number of Accepted Bargains



Although the groups that consistently accepted or rejected all bargains are of interest, they do not provide within-individual variation, which is necessary for preference elicitation. In addition, there is

reason to believe that some individuals do not "bargain" due to their disagreement with the Russian government or negative attitudes toward the conflict more broadly. Therefore, the core sample for the analysis includes the 701 individuals who changed their decisions based on the conditions of the bargains. Appendix C presents an overview of the differences between individuals in the core sample and those who do not bargain.

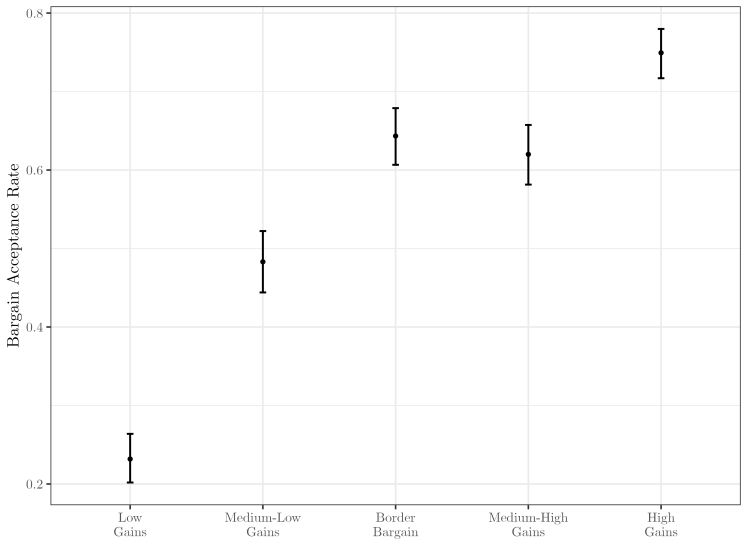
5 Results

5.1 Preferences for Borders and Territory

I start with an initial assessment of the effect of the experimental intervention. Figure 7 shows the acceptance rates within each map group. Only 23.2% of bargains are accepted in the group of Low Gains maps that transfer between 0% and 18% of Ukrainian territory to Russia. This number increases steadily across groups that involve larger territorial concessions and reaches 74.9% in the High Gains group. Overall, if the Border Bargain group is excluded and the core sample of respondents who make varying choices is considered, the average accepted deal transfers 41.2% of Ukraine to Russia—significantly more than 25.1%, which is the average across rejected bargains. This result shows that, on average, individual preferences regarding territorial outcomes increase with the amount of territory transferred, which aligns with the assumptions of the bargaining model of conflict.

The results in the key Border Bargain group provide evidence related to preferences concerning borders. The acceptance rate of the bargain that aligns with the administrative borders of Ukrainian regions is 64.3%, which is very close to the acceptance rate in the Medium-High Gains group. However, the Medium-High Gains group involves territorial concessions ranging from 33.1% to 48%. Without alignment to existing administrative borders, one would expect a considerably lower acceptance rate for a bargain that offers only 33.1% of territory when compared to a group of deals that, on average, involve a 40.7% territorial transfer.

Figure 7: Acceptance Rates



I proceed with the main analysis and estimate a full model that incorporates all available information about the bargains as described in the Equation 5. Table 2 presents estimates from a sequence of nested logit models that represent different utility functions, as described in the theory section. The bottom row includes Wald statistics for the null hypothesis that the unrestricted model does not perform better than the restricted one shown in the preceding column.

Model 1 corresponds to a simple linear utility function that captures preferences over territory. The percentage of territory controlled in a bargain is a strong predictor of the willingness to accept the bargain. Model 2 introduces a dummy variable to distinguish the Border Bargain from other bargains and to model the direct effect of border alignment as a removable discontinuity at the border. The estimate is large and statistically significant. The model is also supported by the Wald test, which indicates that the simple linear utility function does not perform as well as the model that includes the Border variable.

Model 3 extends the specification by including a constant jump discontinuity beyond the border. This variable distinguishes bargains that provide full control over the reference border and continue beyond it from agreements that involve similar levels of territorial control without control over the border. The estimate is positive and significant, which indicates that border effects contribute additional utility even when the presumed new border between the countries lies further away. Both

variables used in the previous models remain consistent in magnitude and significance. Finally, I test for changes in marginal utility before and after the border by interacting the Border under Control dummy with the percentage of territory. The estimates are insignificant, and the model is rejected in favor of the simpler version that includes only the jump discontinuity.

The data supports a utility specification that includes two border effects: a removable discontinuity and a jump discontinuity. It is important to note that the Border Bargain also provides control over the boundary but is excluded from the Border under Control variable to allow for differentiation between the two effects. In theory, the effect could remain constant at and above the border. To examine this possibility, I test the hypothesis that the two coefficients in Model 3 are equal. This hypothesis is clearly rejected (Wald test, $\chi^2 = 7.432, p = 0.006$), which indicates that the two effects are distinct and that administrative borders produce different levels of surplus utility. Based on these results, I use Model 3 as the preferred specification.

Table 2: Effects of borders and territory on bargain acceptance

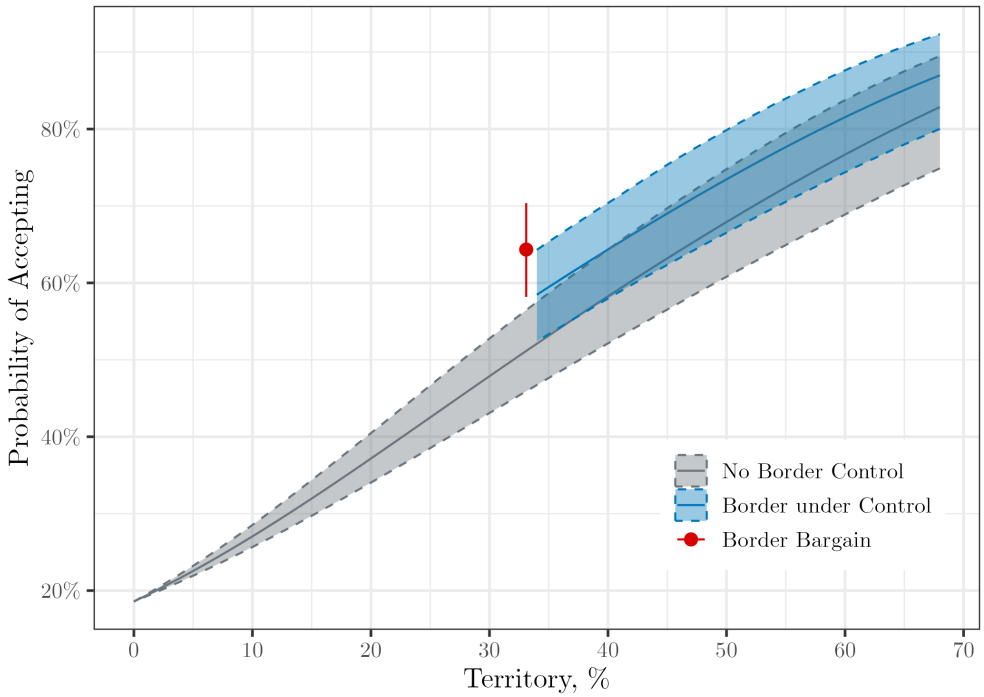
	Accept			
	Model 1	Model 2	Model 3	Model 4
Territory, %	0.084***	0.084***	0.078***	0.076***
	(0.006)	(0.006)	(0.006)	(0.006)
Border Bargain		0.908***	1.025***	1.037***
		(0.131)	(0.142)	(0.143)
Border under Control			0.485**	−0.599
			(0.202)	(0.787)
Territory × Border under Control				0.023
				(0.017)
Respondent FE	Yes	Yes	Yes	Yes
Wald		47.975***	5.751**	1.795
Num. obs.	3505	3505	3505	3505
Num. respondents	701	701	701	701
Pseudo R^2	0.130	0.141	0.143	0.143

Standard errors are clustered at the individual level. All models control for nudging.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Figure 8 summarizes the results visually by presenting predicted probabilities based on the model estimates. Perfect border alignment, as represented by the Border Bargain, introduces a significant

discontinuity and increases the likelihood of bargain acceptance by 13 percentage points (64.3% for the Border Bargain compared to 51.1% for a Medium-High or Low Gains bargain that transfers 33.1% of territory). At the same time, when the border is assumed to be under control and further territorial concessions are made, the probability of accepting the bargain remains higher than for agreements that transfer the same amount of territory without control over the border. This difference is smaller than at the border itself and averages 5.4 percentage points.

Figure 8: Caption



Note: The estimates are based on Model 3 from Table 2. Predicted probabilities and 95% CIs are derived from 5,000 iterations of a semi-parametric bootstrap and averaged across all respondents to account for baseline differences in fixed effects.

The logistic functional form of the model allows interpretation of the estimates in terms of marginal rates of substitution (MRS). Table 3 reports median estimates of key model parameters along with 95% confidence intervals obtained using a block-bootstrap procedure. First, the main parameter estimates remain significant when within-subject correlation is accounted for through the bootstrap. Second, the difference in magnitude between the removable and jump discontinuity estimates is also significant, indicating that the effect of being at the border is greater than the effect of being beyond it. The

remaining estimates in the model make it possible to quantify border effects in terms of territorial control. Exact control of the administrative line is equivalent to approximately 13% of territory. In other words, losing control over the border would require gaining an additional 13% of Ukrainian territory to maintain the same level of utility. The marginal rate of substitution above the administrative line is smaller—only 6%—and is associated with greater uncertainty. The upper bound of this MRS estimate corresponds to 1% of territory.

Overall, the results present a clear pattern showing that individuals do have preferences for territorial divisions that align with existing administrative boundaries within states, even when those borders do not carry additional underlying meaning. These preferences are substantial, and individuals are willing to trade significant portions of the opposing side's territory for a bargain that creates a clearly defined border and transfers complete, well-defined administrative units of another state. Notably, borders produce additional effects that extend beyond these exact divisions. When bargains provide control over some portion of a border, the utility associated with the deal increases even if the alignment is not exact.

Table 3: Effects of borders and territory on bargain acceptance

	Median	95% quantile CI
$\beta^{Territory}$	0.078	[0.067, 0.091]
β^{Border}	1.025	[0.750, 1.310]
$\beta^{Control}$	0.481	[0.090, 0.879]
$\beta^{Border} - \beta^{Control}$	0.540	[0.163, 0.929]
$MRS^{Border} = -\frac{\beta^{Border}}{\beta^{Territory}}$	-13.100	[-17.250, -9.297]
$MRS^{Control} = -\frac{\beta^{Control}}{\beta^{Territory}}$	-6.138	[-11.922, -1.097]
$MRS^{Border} - MRS^{Control}$	-6.875	[-11.309, -1.885]

Estimates come from 5,000 block bootstrap samples estimated with Model 3, Table 2.

Removable Discontinuity Effect

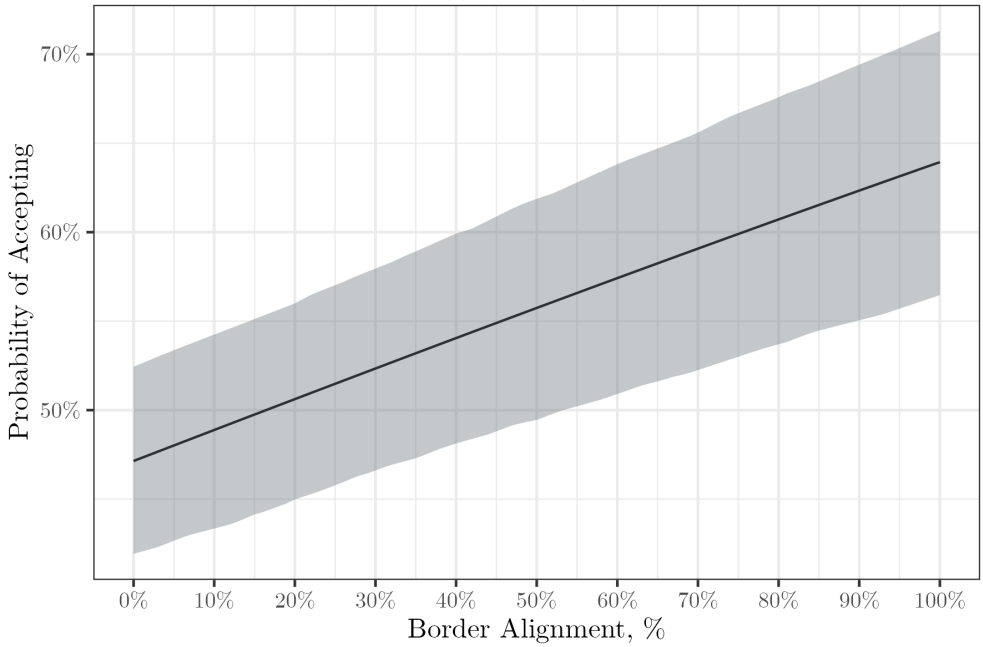
The results presented above provide strong evidence that individuals care about the configuration of peace-agreement borders and strongly prefer agreements that align with existing administrative

divisions. However, a primary concern is whether this effect is truly driven by preferences for borders or merely by visual preferences for regular shapes.

To address this concern, I construct a continuous measure of border alignment. For each bargain in the dataset, I calculate the total length of the new Russian border created by the agreement. Using polygons representing all Ukrainian regional administrative boundaries depicted on the maps, I compute the fraction of the new border that coincides with those boundaries. Substantively, this measure captures the percentage of the new border that follows administrative unit boundaries (see Figure B5 in Appendix B). The Border Bargain is the only agreement in the dataset that achieves 100 percent alignment on this measure, while other maps exhibit varying degrees of overlap. I re-estimate the preferred model, replacing the Border Bargain dummy with the continuous alignment measure.

Estimation results are shown in Figure 9. There is a strong positive association between Border Alignment and willingness to accept bargains. The probability of accepting a bargain increases by approximately 15 percentage points when moving from a non-aligned to a fully aligned map, holding constant the percentage of territory ceded to Russia. This effect is substantial and closely resembles the result from the main specification. Importantly, the effect remains similar in both magnitude and significance when choices involving the Border Bargain are excluded from the sample—that is, when the model is estimated using only observations from the remaining four map groups (Table D1). The marginal rate of substitution in the model without Border Bargain observations is -0.11, meaning that a 1 percentage point increase in border alignment is valued equivalently to a 0.11 percentage point reduction in territorial concessions. When scaled to 100 percent alignment, this yields an implied trade-off of 11.1 percentage points of territory—very close to the estimate obtained from the Border Bargain effect in the previous section.

Figure 9: Effect of the Continuous Measure of Border Alignment



Note: Predicted probabilities and 95% CIs are derived from 5,000 iterations of a semi-parametric bootstrap and averaged across all respondents to account for baseline differences in fixed effects.

Another way to assess whether respondents preferred aligned maps solely due to their visually pleasing appearance is to examine the time they spent making their decisions. One might expect decisions involving the Border Bargain or other continuously aligned agreements to be made more quickly, as these maps may offer visual heuristics that reduce the need for prolonged consideration. Since the experiment was administered online, the time spent on each decision was recorded separately.

There is no evidence that the Border Bargain map or other aligned maps influenced the time respondents spent evaluating a bargain (Table D2). In contrast, bargains involving larger territorial concessions were associated with slightly longer response times — a reasonable pattern, given that such bargains contain more information about the potential gains for Russia and therefore may require more consideration.

Jump Discontinuity Effect

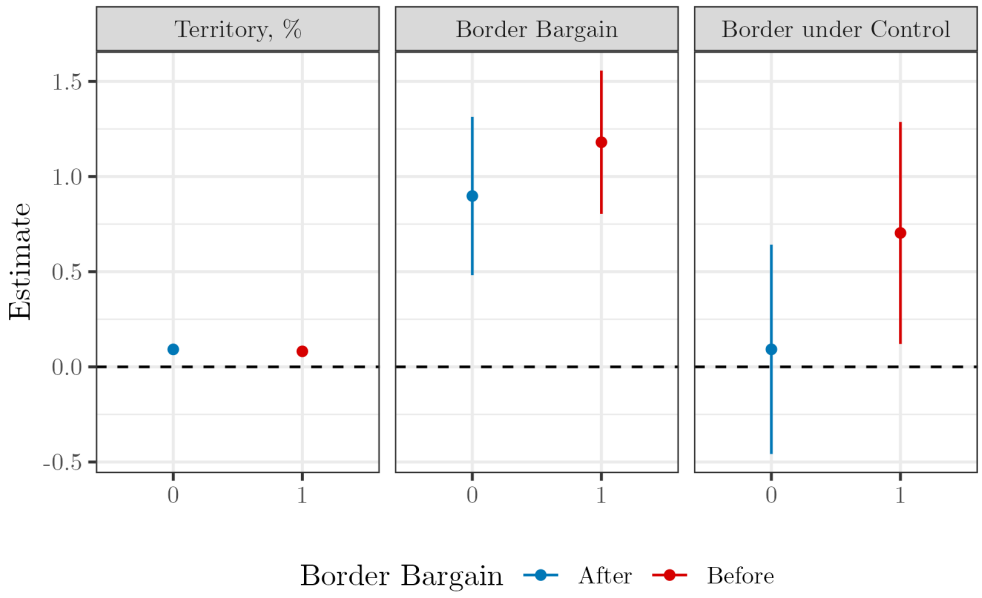
The presence of the jump discontinuity result requires additional attention. In earlier discussion, I primarily considered jump discontinuities in the context of lines that divide qualitatively different types of territory. For example, a boundary may separate areas where co-ethnics reside on one side and individuals with different identities on the other. Alternatively, a line might define a resource-rich region or mark an "indivisible" space due to intangible factors—such as the symbolic status of Jerusalem. In such cases, the logic of capturing an entire unit is clear: the territory is valuable only when held as a whole, resulting in a constant utility surplus.

However, the border used in this study as a reference line lacks these attributes. It was deliberately chosen not to reflect persistent ethnocultural, political, or historical divisions. Why, then, do respondents more frequently choose divisions that allocate this territory to Russia, even when compared to alternatives of similar size that do not give this border? One explanation for this effect draws on an argument from prospect theory: the Border Bargain may have served as a reference point that anchored individual expectations about what was feasible or attainable.

To examine this hypothesis, I use the randomized order in which maps were shown to respondents. I divide the sample into two groups: one in which the Border Bargain appeared before the Medium-High Gains group, and another in which Medium-High Gains was shown first. I then re-estimate the preferred specification within each subsample. In the former group, respondents made decisions with knowledge that an exact division along the border was possible; in the latter group, respondents had not yet seen this option. Due to the randomized order, these two subsamples are approximately equal in size, though relatively small.

The results are presented in Figure 10. The effects of both Territory and the Border Bargain are similar across the two subsamples, regardless of map order. However, the effect of the Border under Control indicator appears only in the subsample where the Border Bargain was shown before Medium-High Gains bargains. Although I cannot statistically reject the null hypothesis that the estimates differ ($p = 0.153$), likely due to small sample sizes, this result offers a plausible interpretation of the observed discontinuity.

Figure 10: The Effect of the Border Bargain Order



5.2 Robustness Checks

I perform a series of robustness checks to ensure that the estimated border effects are not caused by the regression model specification or other factors that are not directly addressed in the analysis.

First, I ensure that the main effect—a removable discontinuity at the border—is clearly identifiable even within a small sample of highly similar bargains. I restrict the sample to individuals who happened to evaluate the Border Bargain alongside at least one other bargain that offers $33.1 \pm \mu$ percent of Ukrainian territory. I vary μ from 0.5 to 5 percentage points and estimate the model on the subset of choices involving maps within this margin. The effect (Figure D1) is statistically significant even in the sample with a 0.5 percentage point margin, indicating that the same individuals are 1.5 times more likely to choose the Border Bargain over conflict than a very similar alternative.

Second, I check whether the results depend on the specification of the conditional logit model. Although this model is the most appropriate and theoretically grounded approach, alternative functional forms can also be used. I re-estimate the regressions from Table 2 using a Linear Probability Model with fixed effects, a standard logistic regression with covariates, and a Mixed Effects Logistic

regression that includes both individual-level covariates and individual-specific intercepts. In the latter case, I estimate model with both the core and the full samples. Across all approaches, the results display a high degree of stability (Table D3).

Third, the experimental design occasionally alters the original randomization through the nudging mechanism. This mechanism should not substantially affect the border estimates because it primarily influences individuals whose preferences fall far below or above the 33.1% territorial threshold. I also control for the nudging effect in all estimated models by including two dummy variables that equal 1 if the map was redrawn from one of the two subsets of extreme bargains. Nevertheless, I restrict the sample to respondents who were not nudged. In addition, I retain only those individuals who accepted 2 or 3 bargains, which indicates that they hold moderate territorial preferences. The results remain consistent in terms of both magnitude and significance (Table D4).

Fourth, the baseline model assumes linear utility from territorial control. Although this assumption is standard in the theoretical literature on conflict bargaining, the general framework permits strictly concave utility functions. I examine whether the results may be driven by the form of the utility function rather than the border effect. I limit the analysis to a narrow range on both sides of the reference border, which makes the linear approximation more plausible, even in the presence of a concave utility function. I also consider several concave functional forms for utility from territorial control (Table D5). The direct effect of the border remains large and significant across all specifications. The jump discontinuity effect is also significant in all models except for the model that uses the restricted range; in that case, the magnitude is similar, but the estimate is less precise due to a smaller sample size.

Fith, I incorporate several bargain-level characteristics that may influence individual choices. These include strategic factors (control of the Black Sea, control of the River Dnipro, and the presence of a buffer zone along the internationally recognized Russian border), the share of the Russian-speaking population, geographical shape (the shape of the new border (Alesina et al., 2011) and the compactness of the acquired territories (Kaufman et al., 2021)), and control over major cities. None of these factors account for the border effect (Table D6). These results also provide further evidence that respondents

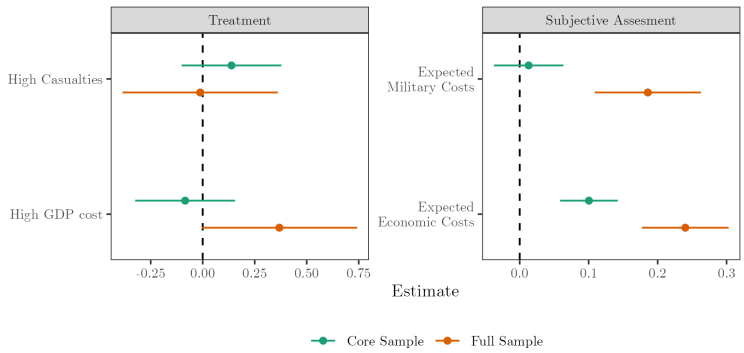
paid attention to the maps and considered the trade-offs involved. For instance, control of the Black Sea matters for individuals who prioritize economic concerns when evaluating border settlements. Moreover, the most desirable cities are Donetsk, Kharkiv, and Odesa - major cities viewed as the most pro-Russian regional centers, where separatist activity was relatively strong in 2014.

5.3 Costs of War

Informational treatments concerning the costs of war were introduced in the survey to allow for a more detailed interpretation of border effects in terms of marginal rates of substitution related to battlefield losses and economic downturns. I estimate a Mixed Effects Logit model to account for individual-level variability and to assess the impact of individual characteristics. This analysis is conducted on both the core and full samples. As shown in the left panel of Figure 11, the estimated effects do not reach the 5% level of statistical significance. The High GDP cost dummy approaches this threshold in the full sample ($p = 0.054$).

The next question is whether the information treatments failed to affect bargaining behavior or had no influence on individual beliefs regarding the costs of war. To examine the second possibility, a manipulation check was included in the survey. Respondents answered several questions, including their views on past and anticipated future consequences of the war for the Russian economy and for Russia in general, as well as their estimates of the size of casualties. The results indicate that the treatments produced no or only minimal changes in individual beliefs about the costs of the conflict (Figure D2). This finding is consistent with the results reported by Dill et al. (2023) and Manekin et al. (2019), who also observe that hypothetical cost treatments tend to produce weaker than one might expect effects in surveys conducted during active and ongoing conflicts.

Figure 11: Effects of War Costs



Note: Outcome variable - bargain acceptance. Model: mixed effects logit. All models include bargain characteristics and individual covariates.

However, this does not imply that Russians are generally tolerant of the costs of war. When the treatment dummies are replaced with subjective assessments of anticipated future costs (right panel in Figure 11), the estimates have the expected positive sign. This suggests that individuals' prior beliefs about the cost of war are associated with their resolve and willingness to continue the conflict.

5.4 Do Borders Produce Peace?

As previously argued, one of the main advantages of borders is their potential to promote peace and stability (Gibler and Tir, 2010; Carter and Goemans, 2014). This mechanism suggests that individuals may prefer peace agreements that align with administrative borders because they expect such agreements to be more durable and less likely to break down or lead to renewed conflict.

To directly test this mechanism, the survey implemented additional mechanism. After the fifth map, the last map that respondents saw (or the forth map, if the last one was changed due to nudging), was repeated accompanied with the following hypothetical scenario:

> The map you saw previously is before you. Imagine that regardless of your choice, the borders shown on the map will be established as a result of the agreement.
>
> In your opinion, how many years can such an agreement last and the borders remain unchanged? As your answer, enter the number of years. If you believe that the borders will remain unchanged forever as a result of such an agreement, select that option below.

I evaluate the hypothesis that borders produce expectations about stability of the new borders

using Cox Proportional Hazard (CPH) regression:

$$h(t \mid X_i) = h_0(t) \exp(\beta_0 + \beta_1 \texttt{Teritory}_{bi} + \beta_2 \texttt{Border Bargain}_{bi} + \beta_2 \texttt{Border Control}_{bi}) \quad (6)$$

I also ask respondents who they believe is most likely to break the peace - Russia, Ukraine, or Ukraine's allies (the United States, NATO, or the European Union) - which allows me to estimate actor-specific hazard rates $h_k(t \mid X_i)$. I use a Cox proportional hazards model with a competing risks specification. Additionally, I apply the Cumulative Incidence Function (CIF) approach, which directly models subdistribution hazards in the presence of competing risks (Fine and Gray, 1999).

Estimation results from these models are reported in Table 4.[7] A simple model estimated using Equation 6 shows that both a larger territorial transfer to Russia and the Border Bargain are associated with longer expected durations of peace between the two countries. This finding is consistent with theoretical expectations.

The analysis of competing risks reveals a more nuanced picture. Bargains that involve large territorial concessions to Russia decrease the perceived risk of war initiation by both Russia and Ukraine. The interpretation is straightforward: major territorial transfers are expected to satisfy Russia, reducing the likelihood of future claims. At the same time, Ukraine, having lost a significant portion of its territory, is perceived as a weakened state that is less capable of initiating conflict against Russia. The results also indicate that respondents do not believe Ukraine's Western allies place strong importance on Ukrainian territorial integrity; the estimated effect of Territory on the risk of war initiation by Western actors is essentially zero.

The alignment of a new border with existing administrative boundaries also has peace-promoting effects. While the estimated effect of the Border Bargain is not statistically significant for the risk of war initiation by Russia or Ukraine, it significantly reduces the perceived risk of future involvement by Ukraine's allies. In other words, respondents associate the Border Bargain with a higher likelihood

[7] The survey contained a design error: respondents were able to both enter the number of years and check that the border would be permanent. Forty-one respondents did both. I exclude these individuals from the main analysis due to ambiguity in their responses. However, the results are robust to their inclusion under alternative coding procedures using censoring and their peace duration estimates (Tables D9 and D10).

of international recognition and legitimacy, which they expect to reduce the probability of renewed conflict.[8] This result provides strong evidence that borders carry symbolic meaning associated with international rules and norms that (Huth et al., 2011; Prorok and Huth, 2015; Gibler and Tir, 2010; Zacher, 2001).

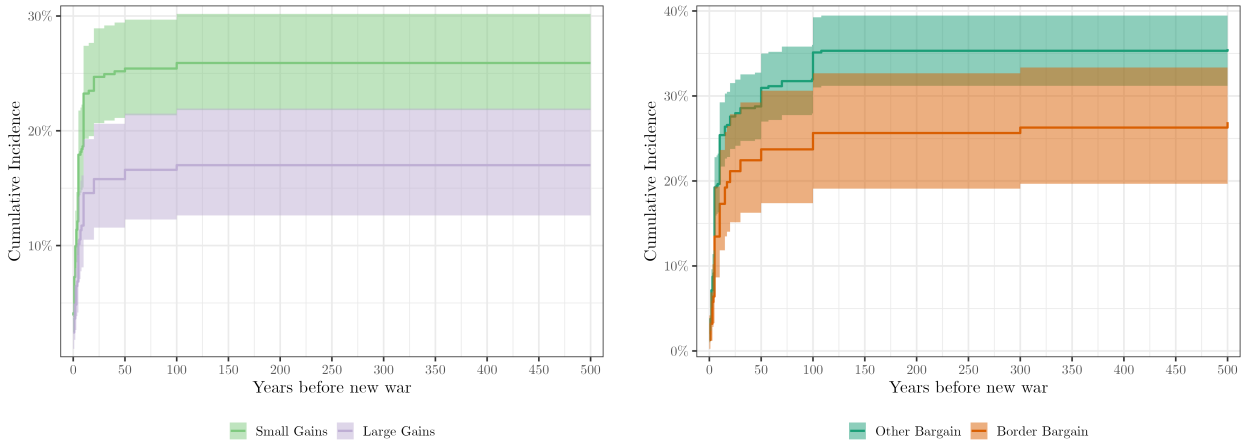
Table 4: Effects of borders and territory on peace duration

	Cox PH	Cox PH - Competing Risks			Fine & Gray - CIF		
	Overall Risk	Russia	Ukraine	Allies	Russia	Ukraine	Allies
Territory, %	−0.010**	−0.037**	−0.017**	−0.002	−0.034**	−0.014**	0.003
	(0.004)	(0.015)	(0.007)	(0.005)	(0.014)	(0.007)	(0.005)
Border Bargain	−0.223*	−0.093	0.129	−0.398**	−0.048	0.207	−0.364**
	(0.134)	(0.494)	(0.218)	(0.175)	(0.493)	(0.219)	(0.176)
Border under Control	0.007	0.339	0.024	−0.040	0.330	0.034	−0.067
	(0.170)	(0.582)	(0.319)	(0.199)	(0.580)	(0.319)	(0.202)
Num. obs.	660		660			660	

Note: Outcome variable is `Peace Duration`
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Figure 12 summarizes the results.

Figure 12: Probability of war



(a) Territory and Adversaries

(b) Borders and Allies

[8] These results are robust to the inclusion of individual-level covariates and to replacing the Border Bargain dummy with a continuous measure of border alignment (Tables D8 and D7 in the Appendix).

6 Conclusion

This paper presents a new framework for understanding individual preferences over territorial divisions in militarized conflicts. I develop a formal approach that incorporates the effects of territorial heterogeneity through discontinuities and changes in the marginal utility of territorial control in individual utility functions. I focus specifically on the role of internal administrative borders and argue that preferences for borders can be represented as a removable discontinuity—an isolated utility surplus that occurs when new borders align with pre-existing administrative lines. I implement this framework in a novel survey experiment that simulates a bargaining process between Russia and Ukraine and measures how Russian respondents evaluate different peace proposals.

The empirical results support the theoretical predictions. Respondents show strong and consistent preferences for territorial divisions that follow existing administrative lines, even when those lines do not reflect any historical or cultural distinctions. These divisions are associated with a significant utility surplus, equivalent to approximately 13 percentage points of territorial control. The effect is robust to a wide range of modeling assumptions. The study also identifies the mechanism behind these preferences: respondents expect that borders aligned with administrative divisions will lead to more durable peace agreements. This expectation is shaped by the belief that such borders are more likely to prevent future intervention by third parties—specifically, Ukraine's Western allies.

The broader implication of these findings is that individuals recognize and respond to administrative borders in ways that align with theoretical arguments about the institutional and symbolic roles of such lines. This provides micro-level evidence that complements existing macro-level research on the persistence and stability of border-based claims in international politics.

The framework developed here is not limited to administrative borders. It can be extended to capture other forms of territorial heterogeneity, including natural barriers, resource distributions, and ethnocultural divisions. Each of these features can be modeled as generating different types of discontinuities—removable, jump, or marginal—depending on their structural properties and how they are perceived by individuals. Future research can use this approach to analyze a broader class of

territorial disputes.

In addition, the framework offers a systematic way to test whether different forms of political communication or framing alter how individuals perceive borders and territory. These effects can be represented as changes in the structural parameters that define individual preferences. For example, does invoking historical claims or referencing legal norms increase the utility attached to a particular boundary? Does exposure to conflict-related narratives affect whether a given line is perceived as indivisible or negotiable? These questions are central to understanding both the dynamics of conflict and the design of stable peace agreements.

Ultimately, this paper shows that administrative borders matter—not only for states, but also for individuals making decisions about war and peace. Borders help structure how territorial claims are evaluated and accepted. Recognizing this pattern is essential for understanding why some settlements are seen as legitimate, feasible, or durable, while others are not.

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A Appendix

War in two dimensions

Suppose two states - 1 and 2 - bargain over territory. The land in question is a two-dimensional plain $S = \{(y_1, y_2) \in \mathbb{R}^2 \mid 0 \leq y_1 \leq 1 \text{ and } 0 \leq y_2 \leq 1\}$, i.e. it is described by a unit square. In status quo, State 2 controls the land and State 1 claims it for itself (State 1 is at $(0, 0)$). Further assume that some arbitrary internal boundary l (administrative border, beneficial defence line, boundary of an area where State 1 co-ethnics live, etc.) splits the territory. If bargaining fails, the war begins, and State 1 wins with the probability p and bears the cost c.

A unit square is introduced instead of an interval, as the latter does not provide enough flexibility to model the effects of internal boundaries. If the issue space is the territory, then the internal boundary is represented by a single point corresponding to a unique territorial division. Hence, if some division gives control over the point-defined boundary to State 1, all divisions giving more territory to State 1 also provide control over the boundary. Spatial models of crisis bargaining offer multidimensional setups with multiple issues at stake (Morgan, 1984; Morrow, 1986). They treat bargaining spaces as policy spaces with varying ideal points of the states. Preferences over a line in the policy space are not well defined. Besides, dimensions in spatial models often represent substantively different issues, while my approach concerns only land and ways of dividing it. The proposed approach simplifies to a familiar one-issue space where divisions can have different properties.

Territorial divisions and bargaining outcomes are assumed to take a rectangular shape. In general, the territory given to State 1 is determined by a mapping $g : S^n \to \mathcal{P}(S)$ where S^n is a tuple of n points in S and $\mathcal{P}(S)$ is the power set of S. For simplicity, I assume a rectangular division of the territory. In this case, S^n consists of one point (y_1', y_2') and the territory assigned to State 1 is defined as $D = \{(y_1, y_2) \in \mathbb{R}^2 \mid 0 \leq y_1 \leq y_1' \text{ and } 0 \leq y_2 \leq y_2'\}$. State 2, by contrast, receives the remaining territory, $S \setminus D$. To clarify, the division stemming from (y_1', y_2') assigns a rectangular area to State 1, with the top-right corner at (y_1', y_2') and the bottom-left corner at $(0, 0)$. This approach

produces divisions consisting of different subsets of S yet occupying the same amount of territory. For example, divisions $(0.5, 1)$ and $(1, 0.5)$ both transfer 50% of the territory of State 2 to State 1 but are not identical.

State 1 is indifferent to the direction of conquest as long as the land is homogeneous and no internal boundaries exist. In this case, its primary concern is the percentage of territory taken from State 2. This percentage, denoted by x, is a function of the territorial division D. Since each point in S generates a unique division, this function can be defined directly in terms of points within the space. For a unit square and a rectangular division, the percentage of territory acquired by State 1 is given by $x = f(y_1, y_2) = y_1 \cdot y_2$.

The internal boundary l lies within the territory of State 2 and consists of some points in S. Suppose, l is rectangular as well: the point (y_1^l, y_2^l) defines an internal boundary $l = \{(y_1, y_2) \in \mathbb{R}^2 \mid (y_1 = y_1^l \text{ and } y_2 \leq y_2^l) \text{ or } (y_1 \leq y_1^l \text{ and } y_2 = y_2^l)\}$. Substantive interpretation of l depends on the context of the conflict between adversaries. It can denote a fixed line, such as an administrative border or a defence line giving an advantage in combat. Alternatively, l might separate types of territory within S. For instance, co-ethnics of State 1 live within the area between the axis and l, or this land is rich in natural resources.

State 1 may be interested in controlling the internal boundary or the area determined by it. To quantify this control, several indicator functions are introduced. Division D is said to provide control over the internal boundary if $l \subset D$. It is straightforward that a division D' generated by a point (y_1', y_2') provides control $y_1^l \leq y_1'$ and $y_2^l \leq y_2'$. Control is a binary feature denoted by $d = d(y_1, y_2)$ such that:

$$d(y_1, y_2) = \begin{cases} 1, \text{ if } y_1^l \leq y_1 \text{ and } y_2^l \leq y_2 \\ 0 \text{ otherwise.} \end{cases}$$

Division providing *exact control* of the internal boundary is a subset of divisions providing control. Exact control is achieved when the boundary of the division D completely overlaps with l. Substantively, it means that the new border between State 1 and State 2 implied by a division is l. On a plain such division D^l is unique and is produced by the same points that define the internal boundary l, i.e.

(y_1^l, y_2^l) with rectangular conquest. The property of exact control is further referenced by $d^*(y_1, y_2)$ equal to 1 if $y_1^l = y_1$ and $y_2^l = y_2$

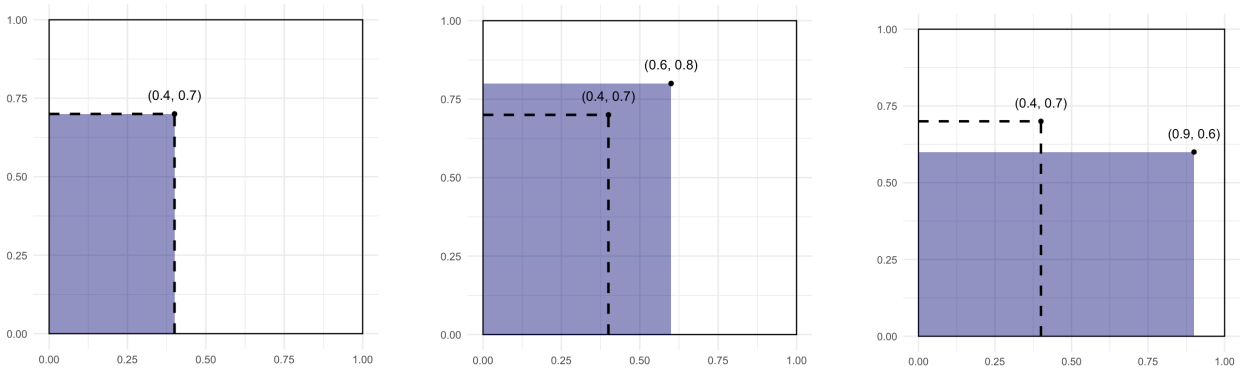
$$d^*(y_1, y_2) = \begin{cases} 1, \text{ if } y_1^l = y_1 \text{ and } y_2^l = y_2 \\ 0 \text{ otherwise.} \end{cases}$$

Finally, there are divisions that provide control but it is *not exact*. In a square space at least one coordinate of a division must be larger than the corresponding coordinate of the internal boundary while the second coordinate is larger or equal. Under the division D providing not-exact control, State 1 gets more territory than in division D^l, and the internal boundary l is in D. This characteristic of a bargain is $r(y_1, y_2)$ and is equal to 1 if $y_1^l \leq y_1$, $y_2^l \leq y_2$ and at least one of the inequalities holds with a strict sign. Clearly, the union of divisions with not-exact control and the division with exact control is a set of all divisions that provide control. Hence, $d = d^* + r$.

$$r(y_1, y_2) = \begin{cases} 1, \text{ if } \left(y_1 \geq y_1^l \text{ and } y_2 \geq y_2^l\right) \text{ and } \left(y_1 > y_1^l \text{ or } y_2 > y_2^l\right) \\ 0 \text{ otherwise.} \end{cases}$$

To sum up, each point in S produces a potential division (or bargain) that has three properties x, d^*, and r that are functions $f(y_1, y_2)$, $d^*(y_1, y_2)$, and $r(y_1, y_2)$ respectively. I will call these bargains $B = (x, d^*, r)$. Figure A1 illustrates the logic of conquest and divisions with different properties. The third bargain does not provide control over the boundary, but it gives more territory than both bargains, which exhibit different control properties.

Figure A1: Possible configurations of the parameters

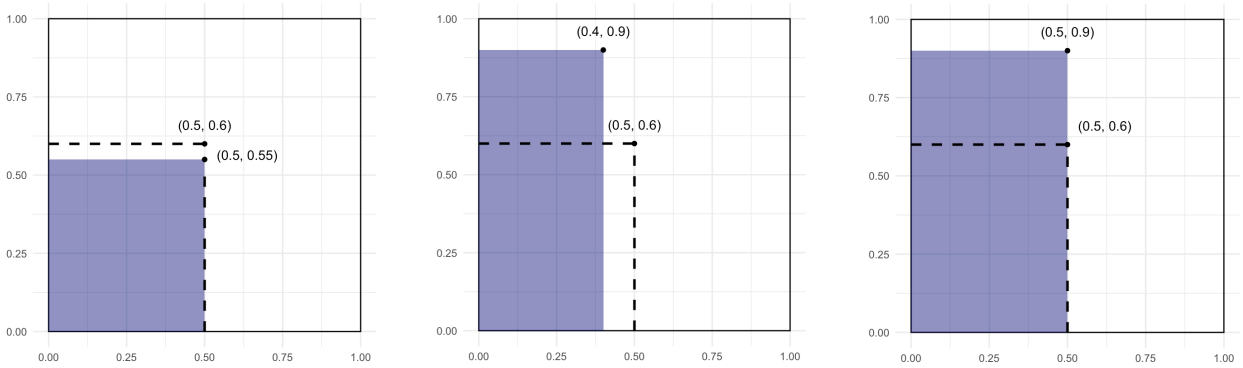


$x = 0.21, d^* = 1, r = 0$ $x = 0.48, d^* = 0, r = 1$ $x = 0.54, d^* = 0, r = 0$

Note: Dashed line is an internal boundary l produced by point $(0.4, 0.7)$. Shaded areas are bargains depicting territory given to State 1

The assumption that control of the internal boundary l is a binary feature might seem to be overly restrictive. Some divisions can provide *partial* exact or not exact control and be close to the internal boundary. Formally, it means that some proper subset of l is also a proper subset of division D. If this subset is on the edge of the division D, then part of l is part of a new border between State 1 and State 2. $\widetilde{d^*}$ is the proportion of l that is exactly controlled by D. $\widetilde{r^*}$ is defined in a similar manner as a proportion of l located inside a division. Figure A2 examines some examples of partial control in the context of a rectangular conquest.

Figure A2: Continuous measure of border alignment



$x = 0.275, \widetilde{d}^* = 0.48, \widetilde{r} = 0$ $x = 0.36, \widetilde{d}^* = 0, \widetilde{r} = 0.35$ $x = 0.45, \widetilde{d}^* = 0.55, \widetilde{r} = 0.45$

Note: Dashed line is an internal boundary l produced by point $(0.5, 0.6)$. Shaded areas are bargains depicting territory given to State 1

B Appendix

B.1 Border Bargain

The choice of the reference border is not arbitrary and is based on several considerations. First, the reference border has almost no overlap with the borders of the four Ukrainian regions claimed by Russia. In 2022, the Russian government organized illegal and illegitimate secession referendums in the territories of Luhansk, Donetsk, Kherson, and Zaporizhia regions and declared these areas part of Russia. The names of these four regions are included in the Russian constitution. As a result, some respondents may view these territories as already incorporated into Russia and may not perceive their borders as regional administrative boundaries, but rather as national borders. Respondents may then be more likely to choose a deal involving these borders, since they may consider them to represent the de jure status quo. Preferring borders because they define the territory of one's own country is conceptually distinct from supporting territorial expansion at the expense of the opposing side in a conflict.

The second reason for shifting the reference border concerns the sensitivity of the issue. Under Russian repressive laws, "denial of the integrity of the territory of the Russian Federation" is a criminal offense. Therefore, accepting divisions that assign parts of the Donetsk or Luhansk regions to Ukraine may be perceived by respondents as an action that could, in theory, be subject to prosecution. Some individuals may reject such deals and accept only those that fall "above" the line, due to preference falsification that occurs even in anonymous online surveys (Chapkovski and Schaub, 2022). When all proposals fall above the officially claimed Russian border, such individuals may choose to accept all of the deals and may later be excluded from the analysis. This also supports the decision to partially exclude the borders of these regions from the maps shown.

The territory transferred to Russia in the Border Bargain is structured in a way that avoids overlap with other factors that could influence preferences regarding control. The reference border does not correspond to areas where the ethnic Russian or Russian-speaking population of Ukraine lived

before the war (Figure B1). Russian authorities frequently justified the war in Ukraine by claiming the need to protect Russian or Russian-speaking communities. Before the conflict, the eastern regions of Ukraine included a significant number of individuals who identified as Russian or used Russian as their primary language. When making decisions, respondents might consider the presence of these populations rather than focusing on borders. The selected reference border does not divide areas based on the concentration of Russian-identifying populations. For instance, Mykolaiv and Odesa—regions with sizeable Russian minorities—are assigned to Ukraine in the reference border arrangement. At the same time, Sumy and Kherson, which have a relatively small share of self-identified Russians, are assigned to Russia. In Russian propaganda, references to "pro-Russian" areas of Ukraine often involve the term "South-Eastern Ukraine," which excludes Sumy and Dnipro but includes Mykolaiv and Odesa (Figure B2).

The proposed border also does not correspond to the boundaries of former state entities. Sumy and the northern part of Kharkiv oblast became part of the Tsardom of Moscow in the mid-17th century, when Ukrainian hetmans recognized the sovereignty of the tsar. Parts of Dnipro and Zaporizhia oblasts were established within the Russian Empire after the abolition of the Zaporozhian Sich in 1775. Luhansk and Donetsk were gradually settled during the 18th century. Kherson was taken from the Ottomans and the Crimean Khanate in the late 18th century. The closest historical entity associated with these territories was the Donetsk–Krivoy Rog Soviet Republic, a self-declared semi-autonomous republic that existed on paper for one month in 1918, following the collapse of the Russian Empire. It was not recognized even by Soviet Russia, did not function as a real state, was disbanded, and its territory formally became part of Soviet Ukraine (Soldatenko, 2011). Even on paper, its borders differed from those of contemporary Ukrainian administrative units. Besides, the dominant narrative of the Russian propaganda rejects the idea of Ukrainian sovereignty, claiming that Ukraine is an artificial state assembled from different pieces (Figure B3b).

Finally, the reference border does not offer any military advantage and is not beneficial from a defense standpoint. Ukraine consists primarily of flat terrain. The only significant geographic feature that provides a notable defensive advantage is the Dnipro River. The reference border crosses the

Dnipro and does not align with it.

B.2 Examples of Bargains

Figure B4: Similar territory, different border control properties

$\texttt{Territory} = 21.4\%, \texttt{Border Under Control}\ (r) = 1$

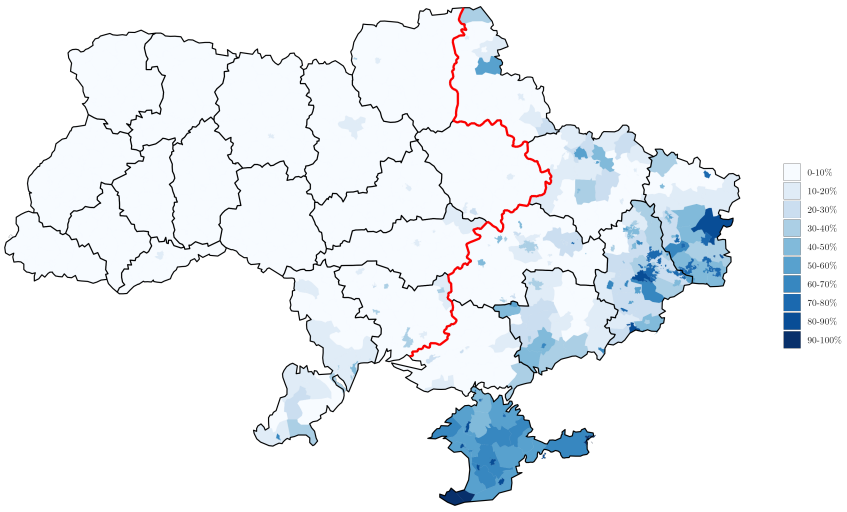
$\texttt{Territory} = 22.7\%, \texttt{Border Under Control}\ (r) = 0$

Figure B5: Similar territory, different alignment

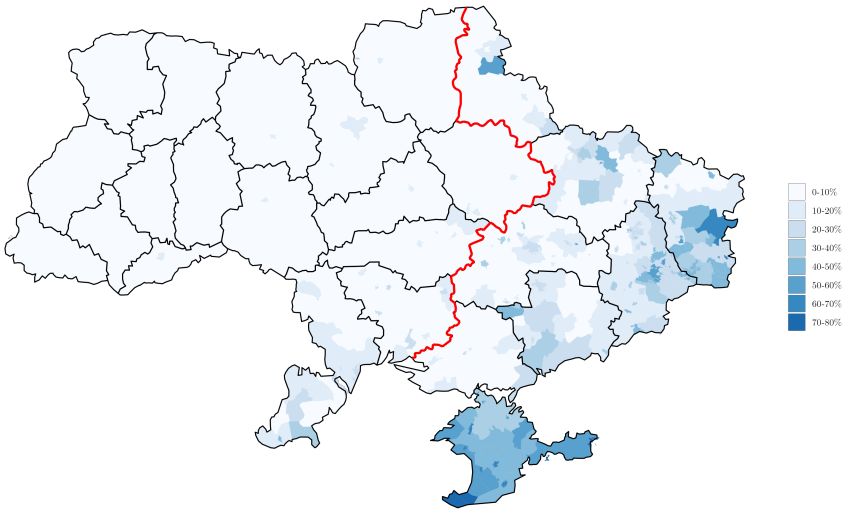
$\texttt{Territory} = 36.1\%, \texttt{Border Alignment} = 10.1\%$

$\texttt{Territory} = 37.1\%, \texttt{Border Alignment} = 63.5\%$

Figure B1: Distribution of Russia-related identities in Ukraine (2001 Census, second-order administrative units)



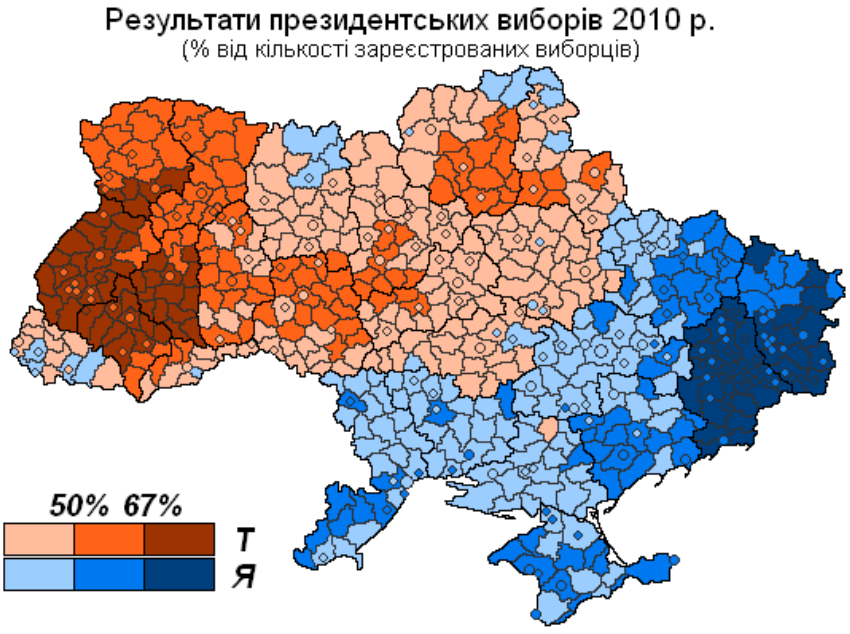
(a) Russian as native language



(b) Russian as a self-identified ethnicity

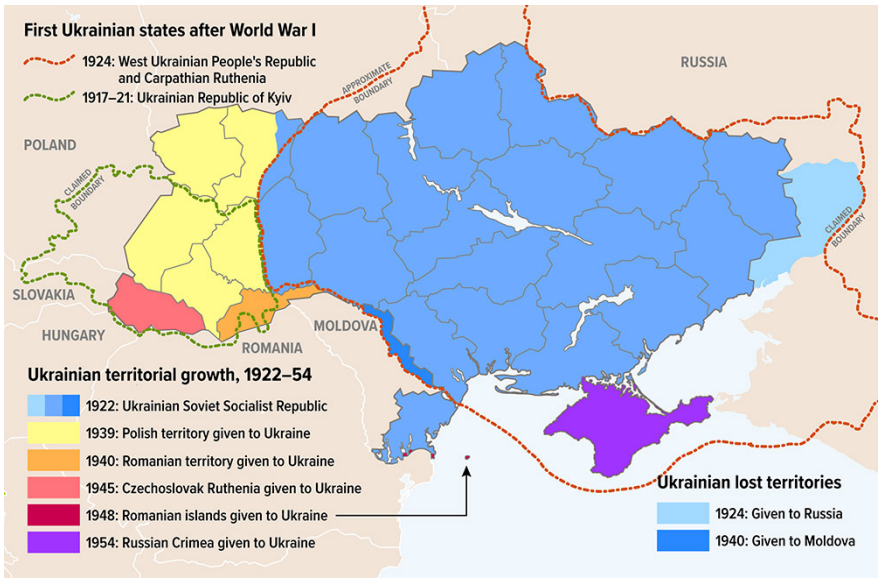
Figure B2: Ukrainian political divisions in 2000s

(a) Poster Distributed by Pro-Russian Political Forces in Ukraine Prior to 2004 Elections



(b) 2010 Presidential Elections

Figure B3: History of Ukrainian Territorial Changes



(a) History of Ukrainian Territorial Changes in the 20th century

(b) History of Ukrainian territories according to Russian Propaganda

C Appendix

Table C1: Sample Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Age	1,135	45.340	13.483	18	78
Female	1,135	0.493	0.500	0	1
Income	1,135	3.594	1.106	0	6
Education	1,135	5.033	1.226	0	7
Community Size	1,135	3.296	1.389	0	5
Warzone proximity	1,135	1.763	0.925	0	3
Prob. Ukraine lose	1,135	81.329	25.642	0	100
Prob. Peace talks	1,135	71.342	27.805	0	100
Trust TV	1,135	3.013	1.327	1	5
Trust Youtube	1,135	2.669	1.195	1	5
Militant Assertiveness	1,135	2.172	0.956	0.000	4.000
Cancel War in the Past	1,135	2.153	1.538	0	4
Mobilization support	1,135	1.314	1.245	0	4
Sanctions Harmed	1,135	1.314	0.945	0	3
Post-USSR borders fairness	1,135	1.385	0.881	0	3
Geopolitical Knowledge	1,135	1.931	0.998	0	3

Table C2: Randomization

	High GDP cost	High casualties	Border Bargain order	Nudge	Territory % range
Age	−0.001	0.001	−0.006	0.002	0.012
	(0.001)	(0.001)	(0.004)	(0.001)	(0.021)
Female	0.003	0.015	0.028	−0.062**	−0.097
	(0.032)	(0.032)	(0.091)	(0.030)	(0.510)
Income	−0.000	0.009	−0.010	0.001	0.119
	(0.015)	(0.015)	(0.042)	(0.014)	(0.244)
Education	−0.012	0.000	0.045	0.004	−0.343
	(0.013)	(0.014)	(0.038)	(0.012)	(0.212)
Community Size	0.007	−0.016	−0.003	−0.014	−0.086
	(0.011)	(0.011)	(0.031)	(0.011)	(0.188)
Warzone proximity	−0.001	−0.018	−0.045	−0.000	−0.049
	(0.016)	(0.016)	(0.047)	(0.015)	(0.259)
Prob. Ukraine lose	0.000	0.000	0.001	0.000	−0.006
	(0.001)	(0.001)	(0.002)	(0.001)	(0.012)
Prob. peace talks	−0.000	−0.001	−0.002	−0.002***	−0.023**
	(0.001)	(0.001)	(0.002)	(0.001)	(0.009)
Trust TV	−0.018	−0.003	−0.005	−0.016	−0.078
	(0.013)	(0.014)	(0.038)	(0.013)	(0.216)
Trust Youtube	0.021	−0.010	−0.004	0.003	−0.044
	(0.014)	(0.014)	(0.038)	(0.013)	(0.220)
Cancel War in the Past	−0.000	0.000	−0.055	−0.008	0.134
	(0.014)	(0.014)	(0.042)	(0.013)	(0.226)
Mobilization support	−0.003	0.012	0.105**	−0.009	−0.322
	(0.015)	(0.015)	(0.044)	(0.015)	(0.242)
Sanctions Harmed	0.009	−0.002	−0.011	0.026	−0.380
	(0.019)	(0.019)	(0.053)	(0.018)	(0.302)
Post-USSR borders fairness	−0.001	−0.004	0.014	−0.011	−0.055
	(0.018)	(0.018)	(0.051)	(0.017)	(0.285)
Geopolitical Knowledge	0.032*	−0.012	0.013	−0.016	0.514*
	(0.017)	(0.017)	(0.049)	(0.017)	(0.287)
Num. obs.	1135	1135	1135	1135	1135
R^2	0.011	0.007	0.010	0.024	0.017

OLS estimates. `High GDP cost` and `High casualties` are dummies for high conflict costs. `Border Bargain order` indicates the order in which the Border Bargain was shown. `Nudge` is a dummy for individuals who experienced map change. `Territory % range'` is a difference between maximal and minimal bargains for each individual.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

C.1 Individuals Not Participating in Bargaining

Significant fractions of individuals in the sample did not display bargaining behavior when evaluating the agreements and either rejected or accepted all deals. A valid question is whether these individuals (39% of the initial sample) differ meaningfully from those who engaged in bargaining, or whether their behavior is explained by the location of their bargaining ranges outside the interval used in the study. To address this question, I classify individuals into three categories: "Bargainers" (accepted 1–4 deals), "Always Reject" (rejected all deals), and "Always Accept" (accepted all deals). I estimate an individual-level multinomial regression using a broad set of covariates. Since the "Always Reject" subsample may include individuals whose bargaining range starts above the most generous bargains used in the experiment, I estimate binary logistic regressions in two subsamples to allow more precise comparisons. I compare the "Always Accept" group to respondents who rejected only one bargain from the Low Gains group. I contrast the "Always Reject" group with respondents who accepted only one bargain from the High Gains subset. In theory, the individuals in each pair should be close if they differ only in the position of their bargaining range.

Social and demographic characteristics, with the exception of gender, are not correlated with the intensity of demands. Female respondents are more likely to fall into the "Always Accept" group and are less likely to reject all proposals they reviewed.

The main differences are found in the set of dispositional characteristics. These variables are stronger predictors in the "Bargainer" vs. "Always Accept" contrast and perform poorly when predicting who rejects all bargains. Trust TV and Trust YouTube[9] measure trust in these sources as news providers. Low trust in government-controlled television and high trust in YouTube are correlated with a higher probability of accepting all deals.

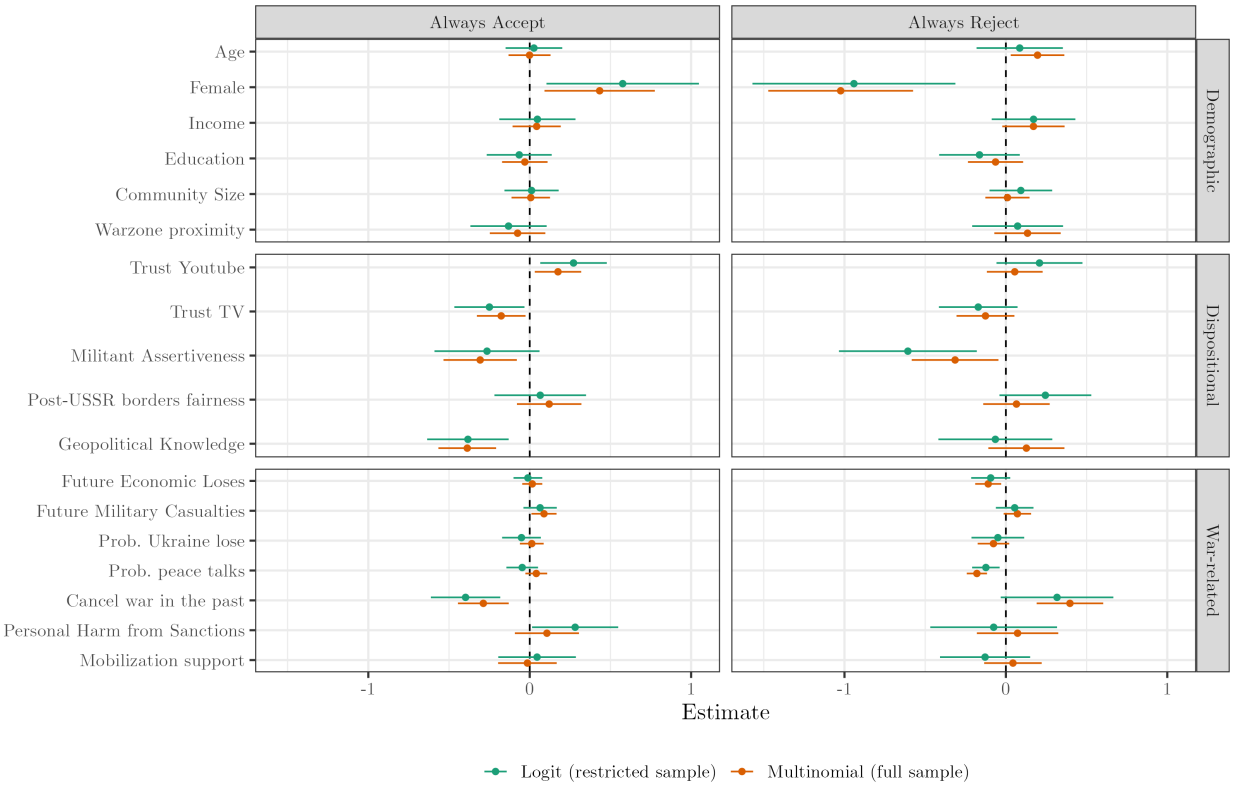
Directly asking individuals about their support of the war might not produce adequate results due to preference falsification (Chapkovski and Schaub, 2022). Instead, I use an indirect question and

[9] After the start of the war, YouTube removed many pro-Russian and government-affiliated channels. At the same time, Russian independent media outlets were banned in Russia, and access to their websites was restricted. YouTube became a platform for many independent news sources. As a result, differences in levels of trust toward television and YouTube likely indicate political leanings of respondents.

ask respondents whether they would have preferred to cancel the start of the war in 2022 or rather supported it. Those who preferred avoiding the war in the past tend to accept any bargain presented in the survey. Finally, individuals willing to accept almost nothing tend to have lower levels of geopolitical knowledge.[10]

The "Always Reject" behavior is also correlated with a set of characteristics that suggest rejection of the bargaining paradigm. The strongest predictor of this behavior is a low reported probability that the war will end with peace talks. These individuals tend to believe that the war can be resolved through military means rather than through negotiation. The bargaining protocol assumes willingness to negotiate.

Figure C1: Differences between respondents



Note: baseline category - individuals who accepted or rejected at least one agreement.

[10] An index based on three factual questions related to Russian political geography and history.

D Appendix

Table D1: Effects of Borders and Territory on Bargain Acceptance

	Accept	
	Full Sample	Alignment < 100
Territory, %	0.081***	0.084***
	(0.006)	(0.006)
Border alignment, %	0.013***	0.009**
	(0.002)	(0.005)
Num. obs.	3505	2668
Num. respondents	701	667

Standard errors are clustered at the individual level. All models control for nudging.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Figure D1: Border Effect

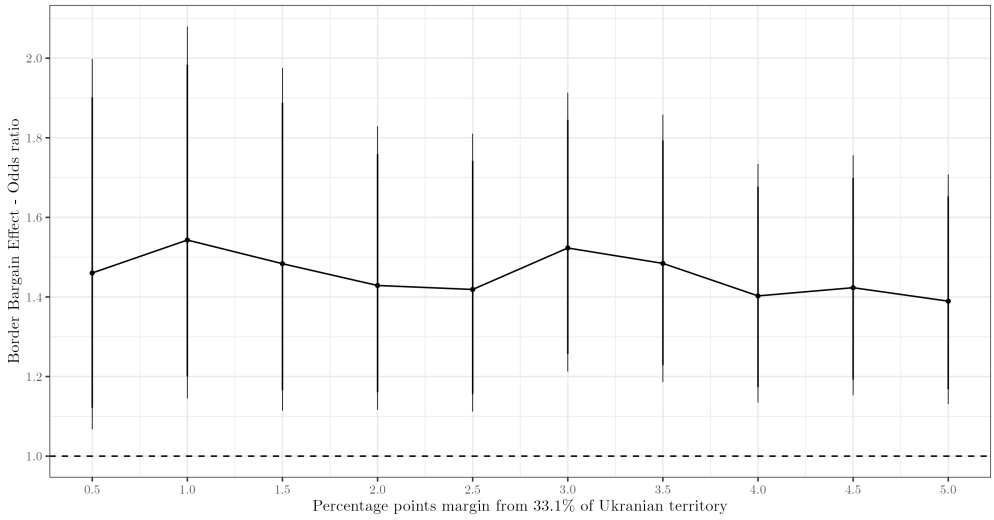


Table D2: Effects of borders and territory on choice duration

	Decision duration (in seconds)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Territory, %	0.047**	0.050*	0.051**	0.047*	0.044	0.048*
	(0.023)	(0.026)	(0.025)	(0.024)	(0.028)	(0.026)
Border	−1.186	−0.806	−0.444			
	(0.740)	(0.985)	(0.898)			
Border alignment, %				−0.012	0.002	0.000
				(0.010)	(0.013)	(0.012)
Border under Control	−1.188	−1.033	−0.544	−1.006	−0.642	−0.349
	(1.170)	(1.560)	(1.472)	(1.193)	(1.580)	(1.498)
Map Order			−5.152***			−5.154***
			(0.291)			(0.292)
Respondent FE	Yes	Yes	Yes	Yes	Yes	Yes
Num. obs.	5675	3505	3505	5675	3505	3505
Num. respondents	1135	701	701	1135	701	701
R^2	0.345	0.294	0.381	0.345	0.294	0.381

Standard errors are clustered at the individual level. All models control for nudging.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D3: Effects of borders and territory on bargain acceptance

	LPM			Lgoit			Random Intercept Logit					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Territory, %	0.011***	0.011***	0.011***	0.050***	0.047***	0.046***	0.062***	0.058***	0.057***	0.060***	0.056***	0.056***
	(0.000)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
Border	0.125***	0.137***	0.137***	0.520***	0.569***	0.574***	0.646***	0.713***	0.719***	0.665***	0.741***	0.745***
	(0.016)	(0.017)	(0.017)	(0.074)	(0.080)	(0.079)	(0.103)	(0.108)	(0.108)	(0.103)	(0.109)	(0.109)
West of Border		0.052**	0.046		0.218*	−0.307		0.290**	−0.328		0.316**	−0.102
		(0.024)	(0.095)		(0.128)	(0.502)		(0.142)	(0.574)		(0.143)	(0.565)
Territory × West of Border			0.000			0.011			0.013			0.008
			(0.002)			(0.010)			(0.012)			(0.011)
Covariates				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE	Yes	Yes	Yes									
RE							Yes	Yes	Yes	Yes	Yes	Yes
Num. obs.	3505	3505	3505	3505	3505	3505	3505	3505	3505	5675	5675	5675
Num. groups: rid	701	701	701				701	701	701	1135	1135	1135
R^2	0.467	0.468	0.468									
Pseudo R^2				0.140	0.140	0.140						
Var: rid (Intercept)							1.042	1.052	1.053	5.354	5.387	5.393

Standard errors are clustered at the individual level. All models control for nudging.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D4: Effects of borders and territory on bargain acceptance

	Accept			
	No nudge control	2 or 3 Accepts	No nudge obs.	2 or 3 Accepts & No nudge obs
Territory, %	0.087***	0.059***	0.079***	0.059***
	(0.006)	(0.007)	(0.006)	(0.007)
Border Bargain	1.016***	1.455***	1.011***	1.459***
	(0.140)	(0.201)	(0.142)	(0.202)
Border under Control	0.479**	0.832***	0.412*	0.828***
	(0.199)	(0.255)	(0.211)	(0.267)
Respondent FE	Yes	Yes	Yes	Yes
Num. obs.	3505	1205	2914	1181
Num. respondents	701	241	591	241

Standard errors are clustered at the individual level.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D5: Strictly Concave Utility

	Accept			
	Territory $\in [21, 41]$	Quadratic	Log	Square root
Territory, %	0.118***	0.104***	1.504***	0.768***
	(0.042)	(0.015)	(0.139)	(0.060)
Territory^2		−0.000*		
		(0.000)		
Border Bargain	1.485***	0.914***	0.780***	0.857***
	(0.312)	(0.144)	(0.135)	(0.139)
Border under Control	0.798	0.561***	1.033***	0.674***
	(0.586)	(0.204)	(0.192)	(0.197)
Respondent FE	Yes	Yes	Yes	Yes
Num. obs.	525	3505	3505	3505
Num. respondents	201	701	701	701

Standard errors are clustered at the individual level. All models control for nudging.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Figure D2: Costs of Fighting: manipulation check

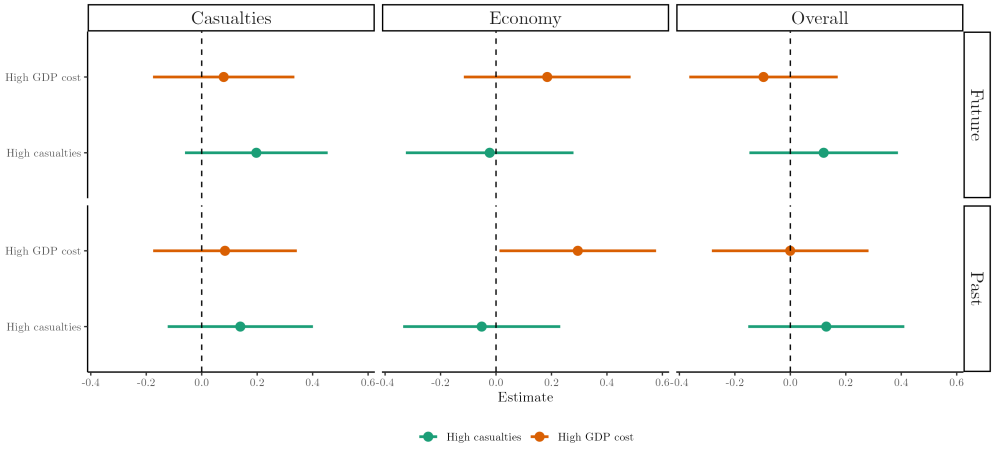


Table D6: Effects of borders and territory on bargain acceptance - Bargain Characteristics

	Accept				
	Strategic	Language	Shape	Cities	All
Territory, %	0.072***	0.080***	0.079***	0.055***	0.026
	(0.006)	(0.014)	(0.009)	(0.013)	(0.027)
Border Bargain	1.138***	1.029***	0.988***	0.617***	0.758***
	(0.147)	(0.143)	(0.166)	(0.191)	(0.210)
Border under Control	0.561***	0.480**	0.601***	0.354*	0.502**
	(0.208)	(0.205)	(0.209)	(0.203)	(0.219)
River Dnipro	−0.438				0.539
	(0.501)				(0.577)
Black Sea	1.072***				0.987**
	(0.343)				(0.468)
Russian-speaking, %		0.398			−1.129
		(2.126)			(2.675)
Fractal Dimension			−10.856		−8.993
			(6.670)		(7.519)
Polsby-Popper			−2.829		−1.846
			(2.339)		(3.055)
Convex Hull Ratio			0.233		3.451**
			(1.134)		(1.455)
Bounding Circle Ratio			0.281		0.122
			(1.187)		(1.855)
Kharkiv				1.087***	1.361***
				(0.220)	(0.261)
Odesa				0.875***	0.740*
				(0.315)	(0.439)
Donetsk				1.097***	1.562***
				(0.425)	(0.474)
Kyiv				−0.279	−0.063
				(0.280)	(0.348)
Luhansk				−0.367	−0.658
				(0.563)	(0.616)
Mykolaiv				0.415**	0.432**
				(0.196)	(0.203)
Dnipropetrovsk				−0.105	−0.183
				(0.231)	(0.272)
Poltava				−0.471**	−0.490*
				(0.231)	(0.267)
Respondent FE	Yes	Yes	Yes	Yes	Yes
Num. obs.	3505	3505	3505	3505	3505
Num. respondents	701	701	701	701	701
Pseudo R^2	0.146	0.142	0.143	0.156	0.158

Standard errors are clustered at the individual level. All models control for nudging.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D7: Effects of borders and territory on peace duration - continuous measure of Border Alignment

	Cox PH	Cox PH - Competing Risks			Fine & Gray - CIF		
	Overall Risk	Russia	Ukraine	Allies	Russia	Ukraine	Allies
Territory, %	−0.008**	−0.028**	−0.016**	−0.001	−0.025*	−0.013*	0.003
	(0.004)	(0.013)	(0.007)	(0.005)	(0.013)	(0.007)	(0.005)
Border alignment, %	−0.004**	−0.009	0.000	−0.005**	−0.008	0.001	−0.004*
	(0.002)	(0.008)	(0.003)	(0.002)	(0.007)	(0.003)	(0.002)
Border under Control	−0.023	0.068	−0.046	−0.027	0.077	−0.029	−0.044
	(0.168)	(0.503)	(0.301)	(0.201)	(0.501)	(0.301)	(0.206)
Num. obs.	660		660			660	

Note: Outcome variable is `Peace Duration`
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D8: Effects of borders and territory on peace duration - Individual Controls

	Cox PH	Cox PH - Competing Risks			Fine & Gray - CIF		
	Overall Risk	Russia	Ukraine	Allies	Russia	Ukraine	Allies
Territory, %	−0.009**	−0.030*	−0.015**	−0.002	−0.031**	−0.014**	0.003
	(0.004)	(0.016)	(0.007)	(0.005)	(0.015)	(0.007)	(0.005)
Border Bargain	−0.252*	−0.505	0.212	−0.459**	−0.354	0.302	−0.441**
	(0.137)	(0.454)	(0.221)	(0.181)	(0.461)	(0.224)	(0.181)
Border under Control	−0.020	−0.207	0.021	−0.104	−0.106	0.063	−0.131
	(0.173)	(0.665)	(0.323)	(0.205)	(0.665)	(0.326)	(0.206)
Num. obs.	660		660			660	

Note: Outcome variable is `Peace Duration`
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D9: Effects of borders and territory on peace duration - Duration for Double Checkers

	Cox PH	Cox PH - Competing Risks			Fine & Gray - CIF		
	Overall Risk	Russia	Ukraine	Allies	Russia	Ukraine	Allies
Territory, %	−0.007**	−0.031*	−0.011	−0.001	−0.032**	−0.009	0.002
	(0.004)	(0.016)	(0.007)	(0.005)	(0.015)	(0.007)	(0.005)
Border Bargain	−0.238*	−0.481	0.085	−0.367**	−0.324	0.148	−0.318*
	(0.129)	(0.455)	(0.213)	(0.171)	(0.467)	(0.215)	(0.170)
Border under Control	−0.073	−0.164	−0.075	−0.134	−0.053	−0.036	−0.112
	(0.162)	(0.661)	(0.304)	(0.190)	(0.671)	(0.308)	(0.192)
Num. obs.	701		701			701	

Note: Outcome variable is `Peace Duration`
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table D10: Effects of borders and territory on peace duration - Censor Double Checkers

	Cox PH	Cox PH - Competing Risks			Fine & Gray - CIF		
	Overall Risk	Russia	Ukraine	Allies	Russia	Ukraine	Allies
Territory, %	−0.010**	−0.031*	−0.016**	−0.002	−0.032**	−0.014**	0.003
	(0.004)	(0.016)	(0.007)	(0.005)	(0.015)	(0.007)	(0.005)
Border Bargain	−0.212	−0.481	0.251	−0.419**	−0.337	0.332	−0.406**
	(0.137)	(0.455)	(0.221)	(0.181)	(0.462)	(0.224)	(0.181)
Border under Control	−0.001	−0.164	0.049	−0.087	−0.066	0.089	−0.115
	(0.172)	(0.661)	(0.320)	(0.202)	(0.662)	(0.323)	(0.203)
Num. obs.	701		701			701	

Note: Outcome variable is `Peace Duration`
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.