**Ceasefire Now! A Global Analysis of War Termination and Recurrence**

**Abstract**

While the study of ceasefires has received growing scholarly attention, ceasefires that pass the “fragility window” - lasting at least one year without violations and consequently becoming a war termination outcome - remain largely unexamined in the war recurrence literature. In the meantime, existing war recurrence research has frequently misclassified ceasefires under broader categories such as “negotiated settlements” or “peace agreements,” overlooking their distinct characteristics. This conflation has led to an incomplete understanding of how different war termination outcomes shape the likelihood of renewed conflict. This study addresses these gaps by systematically analyzing ceasefires as a distinct category of war termination and assessing their impact on war recurrence. We argue that ceasefires create unstable post-war environments by allowing combatants to rearm, form alliances, and engage in nationalist mobilization—dynamics not typically present in wars ending through military victories or negotiated peace agreements. Using a mixed-methods approach, we categorize war termination into six mutually exclusive types and apply survival-based machine learning and causal inference techniques to evaluate their effects on war recurrence. Our findings reveal that ceasefires are significantly more prone to failure than other war termination outcomes. This study advances war recurrence literature by refining theoretical models of ceasefire instability, incorporating machine learning techniques into conflict studies, and offering policy insights for designing more durable post-war arrangements.

The ongoing Russian occupation of Ukraine has reignited debates over the effectiveness of ceasefires in conflict resolution. Some policymakers advocate for ceasefires as a means to freeze hostilities and prevent further loss of life, arguing that even temporary pauses in fighting can create opportunities for diplomacy and humanitarian relief. Others counter that military assistance to Ukraine is necessary for a decisive victory, warning that ceasefires risk prolonging the conflict by allowing Russia to regroup and rearm. They emphasize that between 2014 and 2022, Ukraine engaged in dozens of negotiations with Russia and reached multiple ceasefire agreements, yet none prevented Putin from launching the full-scale invasion under the guise of a “special military operation.” These past failures illustrate a broader concern: Do ceasefires reduce the likelihood of war recurrence, or do they merely serve as temporary pauses that prolong conflicts and embolden aggressors?

Despite increasing scholarly attention to ceasefires, significant gaps remain in the literature (Clayton et al. 2023; Clayton and Stitcher 2021).[[1]](#footnote-1) First, ceasefires that pass a “fragility window,” meaning they last at least one year without violations, remain understudied. Many ceasefires are short-lived and prone to violations, often failing to hold long enough to constitute a meaningful step toward lasting peace. However, those that endure beyond a year represent a distinct category of ceasefire and are viewed as war termination outcome, as war recurrence, by definition, requires a full year without conflict before renewed hostilities can be classified as a recurrence. Understanding the conditions under which long-term ceasefires persist and whether they contribute to sustainable peace is crucial. This study focuses exclusively on these durable ceasefires as a war termination outcome, contributing to the broader literature on war recurrence by examining ceasefires as a separate and significant form of conflict resolution.

Second, ceasefires have been largely overlooked in war recurrence research. Most studies focus on two primary outcomes: military victories and negotiated settlements (Wagner 1993; Licklider 1995; Pearson et al. 2006; Doyle and Sambanis 2006)[[2]](#footnote-2). The prevailing scholarly consensus holds that military victories reduce the likelihood of war recurrence by incapacitating the losing side, whereas negotiated settlements rely on the continued goodwill of warring parties (Zeigler, 2016). However, many conflicts do not end through either of these means. Ceasefires are among the most common war endings, yet they have often been subsumed under broader categories such as “peace agreements” (Zeigler 2016, 31; Cunningham et al. 2009; Kreutz 2010, 247) or “negotiated settlements” (Licklider 1995, 688-689).[[3]](#footnote-3) This categorization overlooks the fundamental differences between ceasefires and other forms of war termination. Unlike peace agreements, ceasefires typically lack enforcement mechanisms such as power-sharing arrangements, third-party guarantees, or institutionalized conflict resolution processes. As a result, ceasefires neither eliminate the combatants’ ability to resume hostilities nor necessarily address the root causes of the conflict.

This research seeks to fill these gaps by systematically examining ceasefires as a distinct war termination outcome and assessing their impact on war recurrence compared to other forms of civil war endings. To our knowledge, this is the first quantitative study to comprehensively analyze all possible war termination outcomes and evaluate their effectiveness in preventing war recurrence. We categorize war endings into six mutually exclusive types and investigate how each shapes the post-war environment, particularly in terms of incentives for renewed conflict. Our core hypothesis is that civil wars ending in ceasefires are particularly prone to recurrence. We argue that ceasefires create a post-war environment in which unresolved tensions persist, fostering security dilemmas and strong incentives for both parties to prepare for renewed warfare.

We propose three primary mechanisms through which ceasefires may increase the likelihood of war recurrence. First, ceasefires provide combatants with opportunities to “recover, regroup, rebuild and rearm” (Mahieu 2007, 2010). Unlike military victories, which often result in the total defeat and demobilization of the losing side, ceasefires allow both parties to rebuild their forces, potentially intensifying future conflicts (Luttwak 2004 267; Zartman 1995, 337; Clark 1995, 61; Crocker 2004, 158). This dynamic suggests that ceasefires may serve as temporary respites rather than durable peace settlements. Second, ceasefire periods often encourage factions to strengthen their positions by forming new alliances, frequently without external monitoring or oversight. In contrast, military victories and peace agreements—through mechanisms like disarmament programs and governance reforms—reduce the incentives and opportunities for such alliance-building. Ceasefires, however, create strategic windows in which warring parties may use diplomatic and military maneuvering to consolidate their power and prepare for renewed conflict. Third, during ceasefires, political leaders may engage in exclusionary nationalism and state-building efforts to maintain public support and sustain momentum. Governments may reinforce national identity for collective mobilization, portraying the ceasefire as a strategic pause rather than an end to the war. Rebel groups, on the other hand, may use ceasefires to establish political control over territory, deepen governance structures, and rally support for future confrontations. In contrast, peace agreements typically involve joint disarmament measures and governance frameworks that reduce the incentives for continued mobilization.

To test these hypotheses, we adopt a mixed-methods approach that integrates both quantitative and qualitative analyses. Our quantitative analysis compares ceasefires to other war termination outcomes, with a focus on causal inference and predictive modeling[[4]](#footnote-4). We estimate a Cox proportional hazards model to assess the duration of post-conflict peace and use Random Survival Forests (RSF) to determine variable importance. RSFs are particularly effective for forecasting survival probabilities in datasets with censored observations, making them well-suited for conflict studies. For causal inference, we employ matching, stabilized inverse propensity weighting (stab-IPW), and entropy balancing (Ebal) to ensure covariate balance, improving the robustness of our findings.

Our study draws on data from the Uppsala Conflict Data Program (UCDP) Armed Conflict and Conflict Termination datasets, which track war termination types and war recurrence for over 200 civil wars from 1946 to 2022. This extensive dataset allows for a rigorous empirical examination of ceasefires and their long-term implications for peace. Additionally, our qualitative analysis is based on original interviews with elites, experts, and ethnic minorities, as well as primary source documents from the Nagorno-Karabakh conflict, a protracted dispute that has experienced multiple ceasefires over the past 35 years[[5]](#footnote-5). These qualitative insights help contextualize our quantitative findings and shed light on the mechanisms that drive ceasefire instability.

This study makes three key contributions to the field of conflict studies and war recurrence research. First, by disaggregating war termination types, we develop a theoretical framework that explains why certain civil war outcomes create post-war environments more or less conducive to war recurrence. We identify three specific causal mechanisms that drive ceasefire instability and assess them using original interviews and primary sources. By systematically examining ceasefires as a distinct category of war termination and evaluating their implications for war recurrence, this study seeks to provide a more nuanced understanding of how conflicts end and, crucially, how they persist. Second, while previous research has applied machine learning techniques to study peace agreements and power-sharing arrangements (e.g., Whetten et al., 2021), this is the first study to use survival-based machine learning to systematically analyze civil war recurrence across all termination types. Third, by identifying when and why ceasefires are prone to war recurrence, this study provides insights for policymakers and conflict resolution practitioners seeking to design more durable post-conflict arrangements. The findings have offer new insights into the conditions under which ceasefires may serve as stepping stones to peace - or as mere pauses before the next war begins.

The article proceeds as follows. First, we review the existing literature on war termination and war recurrence, highlighting the gaps in the study of ceasefires. Next, we outline our theoretical argument, discussing the hypothesized mechanisms and empirical implications. We then describe our research design, data sources, and methodology before presenting our quantitative findings. Using primary sources and semi-structured interviews from the Nagorno-Karabakh conflict, we explore the qualitative dimensions of ceasefire instability. Finally, we conclude by considering the policy implications of our findings and suggesting directions for future research on conflict management.

**What We (Don’t) Know About War Recurrence**

Most scholars have argued that civil wars are less likely to resume when they end with a military victory, which destroys the organizational capability and support base of the defeated side, rendering one side incapable of resorting to war and the other side without reason (Wagner 1993, 255; Licklider 1995).[[6]](#footnote-6) Luttwak (1999, 36) argued, for example, that war settles political conflicts and brings peace when “all belligerents become exhausted or when one wins decisively”.[[7]](#footnote-7) Other scholars have pushed the “Wagner hypothesis” – also known as “peace through victory” - even further by adding certain conditions that could render it more effective. Mukherjee (2006), for example, emphasized the role of power-sharing mechanisms in military victories and showed that a decisive insurgent or government victory reduced incentives for reverting to fighting when the winning side offered power-sharing concessions to the defeated side.[[8]](#footnote-8)

After negotiated settlements, by comparison, there is a mutual understanding that both parties would benefit from a “sucker’s outcome” during the disarmament and demobilization stages.[[9]](#footnote-9) Knowledge of this potential advantage, and recognition that the adversary harbors the same motive to ‘defect’, naturally erodes the fragile trust between the parties, casting doubt on their pledges in the settlement agreement (Walter 2002: 34-37). Some scholars have suggested, however, that when peace agreements and negotiated settlements include provisions on a power-sharing mechanism (Hartzell and Hoddie 2003), third-party security guarantees for commitment problems (Walter 2002), and a larger governing coalition (Joshi and Mason 2011), then they can help prevent war from recurring. When agreements and settlements fail to include such measures, they produce commitment problems, which cause uncertainties about the other side’s pledge to demobilization and disarmament, making war more likely to recur. Walter (2002) suggests that third party security guarantees can solve the commitment problem. Hartzell and Hoddie (2003) show that power-sharing instruments can help overcome the commitment problem by mitigating the security concerns of the warring sides and achieving a fair allocation of both economic and political power. Joshi and Mason (2011) find that larger governing coalitions can also reduce the probability of war recurrence.

Missing from this literature on war termination and recurrence is a consideration of one of the most common but most understudied ways in which wars end—ceasefires. Ceasefires are rarely treated as a distinct category (for exceptions, see Clayton et al 2023), but are typically subsumed under “peace agreements” (Cunningham et al. 2009; Zeigler 2016; Cox 2020) or under “negotiated settlements” (Joshi and Mason 2011, 399; Kreutz 2010).[[10]](#footnote-10) We contend that ceasefires produce distinct post-conflict situations and merit more attention.[[11]](#footnote-11) To detect and estimate the distinct effects of war termination outcomes on war recurrence, it is necessary to disaggregate war outcomes into mutually exclusive categories for each conflict episode, and to theorize more systematically how the post-war environments fostered by each outcome generate incentives for and against renewed fighting.

In the next section, we theorize why civil wars that end with ceasefires are particularly prone to recurrence compared to other war outcomes.

**Ceasefires and War Recurrence**

Based on previous civil war termination categorization, we study ceasefires as a civil war termination outcome (Kreutz 2010).[[12]](#footnote-12) Compared to other war termination outcomes, we demonstrate that ceasefires are distinct in that they leave most of the “fundamental political, economic, and social issues” unaddressed (Mahieu 2007, 212). While ceasefires can save lives in the short run and provide temporary relief from the humanitarian crisis, we hypothesize that they tend to make the conflict more likely to recur, thereby prolonging it and resulting in more casualties and destruction (Mahiou 2007, 210). Ceasefires prioritize the immediate end of hostilities over addressing actual military realities on the groups. As a result, we conjecture that they tend to fail, especially if they come about as a result of third-party pressure (Werner and Yuen 2005).[[13]](#footnote-13)

Since ceasefires also provide relief from the exhaustion and pain caused by war, the opposing sides lose some motivation to make necessary concessions towards a peaceful resolution (Touval 1995, 334; Luttwak 2004, 265–267; Sisk 2002). By removing the immediate threats of defeat and loss, the urgency to negotiate peace diminishes (Mahieu 2007). Not only can ceasefires potentially discourage concessions, but they may also foster “cheating and muscle-flexing on both sides” (Crocker 2004, 158). This tends to generate further mistrust, which makes finding a mutually beneficial resolution more challenging (Akebo 2016). Ceasefires can provide spoilers with time to consolidate their power, reorganize, or regroup their forces without the immediate threat of military action (Stedman 1997). This period can be used to strengthen their bargaining position in future negotiations and to solidify territorial control, empowering factions that oppose a peace settlement. Clapham (1998, 205), for example, demonstrated that the loss of territorial control by the Rwandan Patriotic Front (RPF) during the ceasefire allowed extremist factions linked to the regime to organize and prepare for the genocides while the Arusha negotiations were underway.

Lacking any political arrangement, ceasefires are inherently fragile and prone to collapse. Although ceasefire agreements can halt the immediate violence, they typically do not address the underlying issues (Clayton et al. 2019; Akebo 2016, 5), which means peace remains elusive. Given that both parties aim to negotiate from a position of strength, any truce is likely to be temporary, leading to rearmament on both sides, followed by a demonstration of force. When they fail, renewed fighting can yield higher causalities than would have occurred if the conflict had been allowed to continue until a definitive settlement was reached (Touval 1995, 335). Paradoxically, ceasefires may cause more human suffering by protracting conflicts and rendering them chronic (Mahieu 2007, 211).

We identify three specific mechanisms through which ceasefires make the resumption of intense fighting more likely in the post-war environment relative to other civil war outcomes: 1) rearmament and reorganization, 2) alliance formation and 3) nation-state building. Rather than encouraging long-term reconstruction, reconciliation and development, ceasefires incentivizes both sides to pursue strategies during the ceasefire to increase their chances of winning the conflict. We discuss these mechanisms in turn.

***Rearmament and Reorganization***

Relative to other outcomes, ceasefires provide the warring sides with stronger incentives and opportunities to “recover, regroup, rebuild, and rearm” (Mahieu 2007, 2010), which tends to increase the intensity and to prolong the duration of the conflict (Luttwak 2004, 267; Zartman 1995, 337; Clark 1995, 61; Crocker 2004, 158). The inherent uncertainties and unresolved issues, such as territorial disputes, political power struggles, and ethnic tensions, remain active under the surface during ceasefires. As a means of safeguarding themselves against potential attacks from the opposing side and to prepare for the possibility of renewed conflict, both sides tend to use these periods to enhance their military capabilities by acquiring new weapons and upgrading military technologies (Akebo 2016). Previous research demonstrates that rearmament – especially with new military technologies – can change the military balance, which increases the likelihood of war recurring (Glaser and Kaufmann 1998). Both the Assad regime and opposition groups in Syria, for example, used the UN-brokered ceasefire to secure additional armaments and to restructure their forces, which then escalated into a renewal of more intense hostilities (Yuen 2020, 299).[[14]](#footnote-14)

Compared to other war outcomes, ceasefires provide more incentives to rearm and reorganize against one’s adversaries. Government and rebel victories often result in the total defeat and demobilization of the losing side, significantly diminishing its capacity to rearm or reorganize (Wagner 1993, 255). Such decisive outcomes either integrate the defeated parties into a new political framework or eliminate their military presence. The comprehensive defeat of the LTTE in Sri Lanka by government forces is a prominent illustration (De Silva 2012). Peace agreements often include demobilization efforts and power-sharing agreements, which decrease the need for immediate rearmament and reorganization. Peace agreements also frequently come with international monitoring, which helps ensure compliance and prevent violations, diminishing the likelihood of conflict recurrence.[[15]](#footnote-15) Compared to ceasefires, each of these other war outcomes helps establish a more stable and lasting peace by removing the immediate capabilities and the urgency for rearmament and reorganization.

***Alliance Formation***

Ceasefires also encourage the warring parties to form or reinvigorate alliances aimed at augmenting their capabilities to achieve an eventual victory in the conflict once it resumes. Ceasefire periods often provide a critical window for warring parties to build alliances and secure external support, which can significantly shift the balance of power in a conflict. Just as states have formed alliances to use military force against outsiders (Snyder 1997,4), rebel groups also engage in alliance formation (Balcells et al. 2022); and both do it for the same reason: “to augment and enhance their overall fighting capacity” (Zeigler 2016, 26).[[16]](#footnote-16) The formation of new alliances often shifts the wartime military balance and increases uncertainty about relative military capabilities. Each party, feeling emboldened by their enhanced but imperfectly observed capabilities and alliances, may seek to test the waters by seizing smaller territories or through larger military offensives. The warring parties in Syria, for instance, have frequently used ceasefires to realign with external supporters and other local groups (Borshchevskaya et al. 2016; Yuen 2020, 299).

While ceasefires might seem to indicate a willingness to de-escalate, previous research shows that they often represent a pause driven by an immediate lack of external support, which limits the ability of both sides to sustain prolonged violence (Clayton et al. 2023). External support, such as military aid, supplies, or financial resources, plays a pivotal role in enhancing the capacity of conflict parties to impose costs on their adversaries (Wood et al, 2012). For non-state actors, who are often under-resourced and poorly equipped compared to state forces, securing external support during a ceasefire is essential to strengthening their military capacity, reducing the power imbalance, and increasing their ability to challenge the state (Cunningham, 2010; Salehyan et al, 2014). Similarly, states may use ceasefires to consolidate alliances and prepare for future confrontations once the lack of support that prompted the ceasefire is resolved. As soon as the rationale for the ceasefire fades and sufficient support is secured, both sides are likely to return to active fighting. As a result, rather than guaranteeing lasting peace, these ceasefires often set the stage for renewed conflict, with both sides better equipped to sustain violence.

Before a ceasefire, conflict parties often struggle to secure external support due to the uncertainties and risks of active fighting. Non-state actors face logistical, communication, and organizational barriers that can prevent them from establishing and maintaining relationships with potential supporters. Their immediate focus tends to be on survival and resource acquisition, which leave them with little capacity for the strategic networking and diplomacy required to attract external allies. Potential supporters may also hesitate to intervene during active conflict, wary of the reputational, financial, or political costs of backing a party whose military prospects are uncertain. Even state actors, despite their better access to resources, may find their efforts to secure support hindered by the demands of ongoing operations, as external supporters often prefer more stable and predictable conditions for providing aid.

Ceasefires create a temporary reprieve from the pressures of war that allow both sides to prioritize alliance-building and external engagement. Once fighting is paused, non-state groups can redirect their efforts toward negotiating with potential allies, securing resources, and demonstrating their viability as partners. Supporters, in turn, are more inclined to help during ceasefires, as the absence of active fighting lowers the risks and costs associated with intervention. Hence, while external support may be difficult to secure during active fighting, ceasefires create critical opportunities for capacity-building and alliance formation, ultimately making renewed hostilities more likely once both sides are better prepared to sustain them. Thus, once the lack of external support that pushed the sides into ceasefire is no longer an issue, the sides renew violence (Clayton et al. 2023).

Compared to ceasefires, peace agreements typically involve comprehensive negotiations and compromises. The peace agreement provides a framework that addresses the key grievances and demands of all parties, diminishing the immediate need for alliances. Victory similarly lessens the need for external alliances. When rebels secure a decisive victory, they reduce their reliance on external support and seek to consolidate power swiftly. Similarly, government victories lead to a relative reduction in the need for external alliances. Finally, when one of the conflict parties disappears (or integrates) into the broader political or international structures, the alliance picture changes completely. Without distinct factions vying for power, there is no incentive to form alliances. Compared to ceasefires, these other war outcomes reduce the incentives and opportunities to form alliances.

***Nation-State Building***

Nation-state building in the post-conflict period focuses on creating a cohesive, loyal citizenry and a functional state that can effectively mobilize citizens to fight. After ceasefires, political leaders are prone to adopt exclusionary forms of nationalism to strengthen national identity and state institutions against rebel groups and opposition groups within the government. Similarly, rebel groups tend to use ceasefires to consolidate political control over territory and establish governance mechanisms, often using nationalism. For instance, the ceasefire signed between the Indian government and the National Socialist Council of Nagaland (NSCN-IM) in 2007 facilitated the establishment of safe havens in designated camps, enabling NSCN-IM to broaden their territorial influence and enhance their “taxation” activities in adjacent regions (Kolås 2011, 282).

After ceasefires, political leaders are more likely to promote nationalistic narratives that emphasize the centrality of the disputed territory to their nation and its people, along with historical, cultural, or religious claims to the territory. Leaders deploy various tools - media, education, and culture - to construct accounts that raise nationalist consciousness about the contested territory (Goddard 2010). The aim is to create a sense of national unity and to portray leaders as the defender of national interests and territorial integrity. The construction of ‘a body of people who feel that they are a nation’ (Emerson 1960) is critical for nation-building, ‘the process through which … majorities are constructed’ (Mylonas 2012, 17). Nationalism is deployed as a tool for legitimizing the government’s authority in a disputed incompatibility or control over the disputed territory by crafting a more cohesive society, which will be more willing to fight the “enemy” and better able to withstand the challenges of conflict. Ceasefires afford leaders with a window of opportunity to exploit the still raw nationalist sentiments in the wake of war to mobilize the population to stay the course ([Sosnowski 2020](javascript:;)).

Studies demonstrate that people “become willing to fight harder for the territory that they understand to be part of their national homeland and less willing to fight for other territories” (Glaser and Kaufmann 1998, 10). Historical documents suggest that many Confederate soldiers fought in the Army of Northern Virginia, for instance, because “they felt that they were fighting to defend Virginia’s soil, not to invade the North” (Catton 1951, 252). Once this sentiment was no longer prominent, many soldiers deserted the Army. President Putin’s initial unwillingness to declare a full mobilization during the initial period of Russia’s ‘special operation’ in Ukraine may have been partly due to his concern about the willingness of ordinary Russian people to fight in foreign lands. Many Russian citizens fled to neighboring countries (Reevell 2022). By contrast, many Ukrainians rushed home to defend their country when Ukraine was attacked. Likewise, numerous young Azerbaijani men voluntarily joined the Army when the 44-Day War started (BBC 2020). Nationalism—a strong feeling that one is defending the nation, restoring national pride and fighting for justice—led some citizens to join their armies with zeal.

Compared to ceasefires, government victories engender control over the disputed territory and its populace. This allows the government to promote a more positive version of nationalism that fosters unity and reconciliation rather than division. For example, after the Civil War in the United States, Reconstruction aimed to reintegrate the Southern states and rebuild them rather than subjugate and dominate them. Likewise, peace agreements and the disappearance of one of the warring parties create conditions less conducive to nationalism. Peace accords typically involve joint commitments to disarmament, monitored by international bodies, and seek to address some of the root causes of conflict—such as inequitable resource distribution and cultural rights—thereby diminishing the grievances that fuel nationalist fervor. Similarly, the disappearance of a party often leads to reduced factionalism, enabling the integration of former combatants into civilian life and allowing the remaining government to promote a unified national development agenda.

By contrast, ceasefires perpetuate the presence of uncertainties and unresolved issues where each side tends to suspect the other of preparing for renewed conflict. Since the root causes of the conflict remain unaddressed, ceasefires rarely represent real steps towards a lasting peace. In sum, ceasefires allow combatants to regroup, rearm, form alliances and engage in nation-state-building, with the goal of defeating their opponents and achieving their preferred terms through military victory. Failing to resolve the core issues that initiated the conflict increases the chances that hostilities will erupt “again and again, each time with increasing intensity” (Mahieu 2007, 212), thereby significantly postponing the attainment of peace (Doyle and Sambanis 2000; Crocker 2001, 235; Gates, Gleditsch, and Hegre 2004, 4; Weinstein 2005). This leads to our core hypothesis.

*H1: Civil wars that end with a ceasefire are more likely to recur sooner than civil wars ending with other outcomes (e.g., military victories and peace agreements).*

**Data and Models**

This study combines two main datasets to assess the core hypothesis. First, to create the universe of relevant conflicts, we used the Armed Conflict Dataset (ACD) from the Uppsala Conflict Data Program / Peace Research Institute Oslo (UCDP/PRIO),[[17]](#footnote-17) which covers all intrastate and internationalized intrastate conflicts from 1946 until 2022. Each conflict has one or more episodes, depending on how many times active fighting has resumed in each conflict. Second, to measure war outcomes, we relied on the UCDP Conflict Termination data, and then matched it to each non-censored conflict episode. These data indicate how each conflict episode ended using one of six conflict termination types. Each episode is represented as a single row in our data, and the unit of analysis is the conflict episode-year. Our qualitative data are drawn from primary source documents and original interviews that we conducted with local citizens, security experts and political elites about the recurring Nagorno Karabakh conflict.[[18]](#footnote-18)

***Dependent variables***

We analyzed two dependent variables that measure war recurrence. The first defines war recurrence as a new episode of fighting in each conflict that previously terminated, based on the ‘conflict id’ in the UCDP’s ACD dataset. In total, using this definition, there were 226 unique conflicts in 109 countries.[[19]](#footnote-19) There were 455 total conflict *episodes*: 287 of these conflicts recurred, and 168 did not. The second dependent variable addresses the issue of “sufficient linkage” in the UCDP ACD data, which means that the *exact* same parties to the first conflict episode must have also participated in the next episode.[[20]](#footnote-20) Based on this second, more stringent definition of war recurrence, only 227 (rather than 287) recurred, whereas 228 (instead of 168) did not recur. We present both sets of results: the first measure of the war recurrence is version A and the second measure in version B of each figure. The time between episodes is based on the start and end dates in the UCDP ACD data. Non-recurring conflict episodes are the right censored as of December 31, 2022.

Figure 1 displays the number of conflict episodes that started each year from 1946 until 2022.[[21]](#footnote-21) As expected, the linkage-based measure produces slightly fewer episodes of recurrence than the ID-based measure.

***Independent variables***

Our main independent variable captures the war termination type for each conflict episode. This fully disaggregated set of civil war termination outcomes, derived from the UCDP Conflict Termination data,[[22]](#footnote-22) codes six types of war termination: (1) peace agreement, (2) ceasefire agreement, (3) government victory, (4) rebel victory (5), low activity, and (6) actor ceases to exist.[[23]](#footnote-23) The ‘cease to exist’ category implies either that a non-state actor voluntarily joins another group, is forcefully subsumed by another group or disbands. For instance, in November 2014, Ansar Bayt al-Maqdis in Egypt pledged allegiance to Islamic State (IS) and formally became part of it. However, the conflict based on the UCDP conflict ID continued in Egypt, this time as another actor, Harakit Sawa'id Misr, in conflict with the Egyptian government. Figure 2 displays the frequency distribution of these war termination outcomes. After war termination due to government victory and low-level activity (below 25 battle deaths per year), ceasefires are the most common ways in which wars end.

**Figure 1: Number of Conflict Episodes Started over Years**

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Our analysis also accounts for the most prominent explanations of war recurrence found in the literature. We include indicators for peacekeeping missions[[24]](#footnote-24), conflict duration[[25]](#footnote-25), the number of veto players[[26]](#footnote-26), the type of incompatibility[[27]](#footnote-27), the degree of ethnic fractionalization[[28]](#footnote-28), democracy[[29]](#footnote-29), GDP per capita[[30]](#footnote-30), coalition size[[31]](#footnote-31), population size[[32]](#footnote-32), power-sharing[[33]](#footnote-33), religion fractionalization[[34]](#footnote-34), religious fractionalization[[35]](#footnote-35), and a period indicator for the Cold War.[[36]](#footnote-36)

**Figure 2: Frequency of War Termination Outcomes**

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***Causal Identification, Covariate Balance and Modeling Strategy***

We use matching, stabilized inverse propensity weights (stab IPW), and entropy balancing (Ebal) to address confounding and to ensure covariate balance. Matching reweights treated and control units to make their covariate distributions comparable, which is needed to estimate the Average Treatment Effect on the Treated (ATT). Stabilized IPW further adjusts for differences in treatment assignment by reweighting observations to create a pseudo-population where treatment is independent of covariates, thereby enhancing robustness and minimizing bias.[[37]](#footnote-37) However, perfect covariate balance is rarely achievable, even after matching or weighting. To address this, Ebal explicitly adjusts weights to achieve exact balance as a robustness check.[[38]](#footnote-38) Together, these methods provide a systematic approach to reduce bias and improve the reliability of causal estimates in our observational study.

We first estimate a Cox hazard model and then a Random Survival Forest.[[39]](#footnote-39) The Cox approach allows us to generate comparable results that converse with previous studies, while the Random Survival Forests (RSF) relax the proportional hazards assumption and enables us to ensure that statistically significant predictors in the Cox model also meaningfully improve the model’s ability to forecast civil war recurrence. Statistically significant covariates can sometimes degrade a model’s predictive quality (Ward, Greenhill, and Bakke 2010), and the practice of selecting covariates based on p-values has been shown to create misleading models with significant coefficients for potentially random associations (Freedman 1983). Random Survival Forests also complement the Cox model by accounting for complex, non-linear interactions in identifying important variables.[[40]](#footnote-40) By leveraging classical inference techniques and algorithmic modeling, we aim to generate more robust, generalizable inferences about war recurrence. In all Cox and RSF models, whether using stab IPW weights, Ebal weights (for robustness checks), or no weights (for robustness checks), clustering by conflict ID was applied.

**Discussion of Results**

Figure 3 displays the descriptive statistics, while Figures 4a-b show the Kaplan-Meier survival curves, for the six war termination outcomes.[[41]](#footnote-41) In Figure 3, we can see the empirical record of war recurrence for each war termination type from 1946-2022. The pattern is clear: war recurrence has been more common after ceasefires than after peace agreements or after military victory (by the government or the rebels). Around 70 percent of conflict episodes that ended with ceasefires recurred later.[[42]](#footnote-42)

Figure 4a-b shows the Kaplan-Meier survivalcurves based on how the previous conflict episode ended. Each curve represents a separate war termination outcome. The y-axis denotes the survival probability – the likelihood that a conflict episode has *not* recurred (i.e., survived) at a given time point. The x-axis indicates the time in years since the previous conflict episode concluded. The curves illustrate that there are significant differences in survival probabilities across war outcomes. The survival probability for ceasefires drops around 40 percent within the first two and half years, whereas the drop for other outcomes (except low activity) is only between 0 and 25 percent. Within the first five years, the survival curve for ceasefires drops around 50 percent, whereas for other outcomes it declines much more gradually.

**Figure 3: War Recurrence Propensity Based on War Termination Type**

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Figure 5a-b presents the estimation results of the full Cox models using coefficient plots with robust standard errors clustered by conflict id.[[43]](#footnote-43) Peace agreements serve as the reference category. Consistent with the core hypothesis, civil wars appear much more likely to recur after they end with ceasefires compared to other war outcomes. Moreover, unlike some previous research, we do *not* find that the effect of government victory or rebel victory is statistically distinguishable from the effect of peace agreements in sustaining peace. However, we do find support for some other theorized factors. Consistent with Cunningham (2013), for example, we find that both ethnic fractionalization and the number of veto powers significantly increase the probability of war recurrence. In line with Fortna (2008, 125), we find that peacekeeping missions tend to decrease the likelihood of war recurrence. Finally, civil wars appear more likely to recur – and to do so sooner – since the end of the Cold war, which underscores the increasing relevance of the problem.

**Figure 4a and 4b: Kaplan-Meier Survival Curves for Various Outcomes**

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**Figure 5a and 5b: Factors Influencing War Recurrence Based on UCDP Conflict ID**

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Figure 6a-b shows the survival probabilities over time for each war outcome while holding all other variables at their mean or mode. The results demonstrate the critical differences across war outcomes in terms of their effects on sustaining peace. Among these outcomes, peace agreements and government victories stand out as slightly more effective at maintaining long-term peace. Initially, ceasefires display survival probabilities like peace agreements, but within the first 5 years, the survival probability for ceasefires drops by around 50 percent whereas other outcomes (except low activity) drop by half as much or less. After 10 years, the survival probability continues to decline, indicating that ceasefires are even less effective in sustaining *long-term* peace.

**Figure 6a and 6b: Survival Rates for Different War Termination Outcomes**

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***Variable Importance and Predictive Performance***

Having explored core hypothesis, we now investigate models ability to generalize and predict future recurrences of war. Specifically, we evaluate how much each covariate individually improves the model’s overall accuracy. Permutation-based variable importance measures from Random Survival Forests randomly shuffle (permute) the values of each predictor while keeping the rest of the data unchanged. This process breaks the association between the predictor and the response and allows us to quantify the ‘importance’ of each predictor.[[44]](#footnote-44) A large positive variable importance indicates that it has high predictive ability, whereas zero or negative values suggest that the variable adds nothing in terms of prediction and may even detract from the model’s forecasting accuracy. Figure 7a-b provides the ranked variable importance. After ‘low activity’, ceasefires are the most important war termination predictor, and much more important than either peace agreements or rebel victory in forecasting war recurrence.

**Figure 7a and 7b: Permutation Variable Importance of Predictors from RSF**

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To complement permutation-based importance metric, we also examine survival probabilities from the RSF (Figure 8a and 8b). Survival probabilities from RSF are particularly important as they provide a detailed temporal trajectory of the risk of recurrence. This makes RSF valuable for understanding not just whether recurrence occurs, but when it is most likely to happen, offering more actionable insights for conflict management and resolution strategy. RSF shows that conflicts that end in a ceasefire exhibit a marked decrease in their survival probabilities (i.e., a higher likelihood of recurrence) almost immediately, and is below 50 percent within the first five years, quickly becoming the least stable solutions to ending civil wars.

To gauge robustness, we conducted identical analyses using entropy balancing (ebal) and without covariate balancing. The results from ebal are presented in Appendix E, and those without covariate balancing are included in Appendix F. Across all methods, the findings consistently indicate that ceasefire outcomes lead to war recurrence more than out war termination types. This underscores the reliability of the observed relationship, suggesting that policymakers and conflict resolution mediators should be careful when considering ceasefires not to trade off political expediency for real security and stability. In the next subsection, we qualitatively explore the specific mechanisms through which we theorized that ceasefires can prolong conflicts.

***Exploring Mechanisms***

To explore the theorized mechanism by which ceasefires may lead to the resumption of active fighting, we examined primary sources and conducted interviews with elites, experts, and ethnic groups in the region.[[45]](#footnote-45) Our analysis of the Nagorno-Karabakh conflict—which has seen several major ceasefire agreements following the First Nagorno-Karabakh War (1991-1994), the 2016 4-Day War, and the 2020 44-Day War—sheds light on how the three mechanisms connect ceasefires to war recurrence.

During ceasefire periods, Azerbaijan made significant investments in reorganizing and rearming its military forces. It doubled its military budget, reaching $3.1 billion within just three years from 2009 to 2011 (ICG 2011), and secured billion-dollar deals with Ukraine, Russia, and Israel. It purchased 30 MIG-25 aircraft and 12 long-range Smerch rockets from Ukraine, S-300 SAM systems and T-90 tanks from Russia, and Heron and Searcher UAVs from Israel (IISS 2021). Azerbaijan invested billions of dollars in its defense industry (Vahabov 2019), becoming the second-largest importer of major weapons in Europe (Kucera 2015). These military advancements convinced political leaders to resolve the conflict through force.

**Figure 8a and 8b: Survival Probabilities from RSF for Termination Outcomes**A graph of different colored lines

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Meanwhile, breakaway Nagorno-Karabakh region also focused on reorganizing its troops and military equipment along the lines of contact, fortifying its defenses with multiple layers. The construction of these defensive lines reinforced the belief among Nagorno-Karabakh leaders that they were strong enough to withstand Azerbaijani attacks. Thus, while various ceasefire agreements were signed, both sides used these periods to strengthen their military positions rather than working towards a lasting peace.

Our interviews with elites and experts highlight the significant impact of rearmament and reorganization during the ceasefire periods on the recurrence of the Nagorno-Karabakh conflict. All interviewees emphasized that these changes in Azerbaijan’s military capabilities played a “very important” role in the renewed hostilities, noting Azerbaijan’s consistent armament efforts during the ceasefire periods. One interviewee affirmed that “Azerbaijan used its oil revenues to purchase advanced weaponry, especially drone technology” and “[as a consequence] Azerbaijan was militarily and economically much more prepared” (Georgian expert in Georgia). Another interviewee observed that “strategic preparations during the ceasefire allowed Azerbaijan to cut through Armenian defensive lines” (Azerbaijani expert in Azerbaijan). Overall, the interviewees pointed to substantial military investments made during the ceasefire periods. They also noted that Azerbaijan first tested some new weapons during the 4-Day War in 2016, and gathered useful information on strategic maneuvering for future operations. The experience and insights gained during the 4-Day War were analyzed during the subsequent ceasefire and effectively applied when Azerbaijani troops advanced into Karabakh during the 2020 44-Day War from the southwest, while Armenian troops expected Azerbaijani military advances from the west.

Second, during the ceasefire periods, both sides actively engaged in alliance-building. While breakaway Nagorno-Karabakh region, due to its unrecognized status, was unable to forge direct alliances with other countries, it sought support from other unrecognized entities around the world. Azerbaijan, for its part, strengthened military collaboration with Turkey, Israel, and Russia. During the ceasefire periods, Azerbaijan developed significant military and economic ties with Russia, culminating in a billion-dollar military deal, including S-300 PMU-2 long-range surface-to-air missile systems, Mi 35M helicopters, T-90 new-generation tanks, and other advanced technologies (Shiriyev 2019, 13). Azerbaijan also reassured Moscow that Baku would respect Russia’s geopolitical interests. To counterbalance Russia’s support for Armenia, Azerbaijani officials employed all diplomatic means to position Azerbaijan as a reliable partner for Russia and joined various collaborative initiatives with Russia. Simultaneously, Azerbaijan also deepened its military partnerships with Turkey and Israel, whose military supplies, particularly drone technology, played a crucial role in Azerbaijan’s victory in the 44-Day War (Bekdil 2020).

Most of the interviewees highlighted a shift in balance of power due to changes in alliances. One interviewee noted that “after the Karabakh War in the 1990s, Azerbaijan was able to change the balance in the region [South Caucasus] by pursuing a balanced foreign policy and partnering with Russia” (Azerbaijani expert located in Azerbaijan). Other interviewees emphasized the personal collaboration and strong communication between Azerbaijani and Russian presidents, pointing out that both leaders share authoritarian tendencies (Armenian scholar/expert located in a US university; Azerbaijani Political Party Leader). Nearly everyone mentioned Turkey’s support for Azerbaijan, with one interviewee (Georgian expert located in Georgia) averring that “most importantly, Azerbaijan had strong and resolute support from Turkey”. The interviewees specifically underscored the use of Turkish drones during the war. One interviewee remarked that “Hulusi Akar [the Minister of National Defense of Turkey] played a crucial role in supporting Azerbaijan” (Turkish expert in a US university), while another mentioned that “Turkey was ready to do more for Azerbaijan than before” (Georgian expert in Georgia). Overall, 90 percent of the interviewees indicated that alliances played either an “important” or “very important” role in the recurrence of the war.

Third, both sides used the ceasefire periods for nation-state building. Nagorno-Karabakh leveraged the ceasefire periods to strengthen its state-building efforts, aimed at securing its autonomy and future independence. This involved institutionalizing governance structures and consolidating the “Artsakh” national identity. It held elections and developed institutions to position itself as an internationally recognized nation-state. Azerbaijan used ceasefire periods to develop civic national identity and commenced extensive state-building efforts to restore its territorial integrity in peripheral regions, which eliminated separatist movements and provided greater internal stability (Siroky and Mahmudlu, 2016). Azerbaijani President Heydar Aliyev declared “Azerbaijanism” as the state ideology, and his administration attempted to unify various ethnic minorities under Azerbaijani civic identity and to counter religious radicalism (Bedford et al, 2021). The government rebranded the nation’s language and identity from “Turkic” to “Azerbaijani” to include non-Turkic ethnic groups. It also adopted a new constitution that defined “people of Azerbaijan” as citizens of the Azerbaijan Republic living within and outside its territory (Chapter 1, Article 1). Azerbaijanism aimed to unite all ethnic groups under the common interests of the Azerbaijani Republic (Mehdiyev 2007) with an ideology emphasizing shared territory (Mehdiyev 2006, 27-28). President Ilham Aliyev later adopted a more proactive approach, integrating certain ethnic symbols, particularly cultural and historical heritages, into official state policy. This top-down strategy aimed to integrate the country’s diverse groups under a single civic identity, which could then be harnessed to achieve victory in the ongoing conflict over Karabakh.

Our interviews with ethnic groups allowed us to assess whether, and if so to what extent, the implementation of this civic identity policy fostered national solidarity among ethnic minority groups in Azerbaijan, and potentially increased their willingness to fight in Nagorno-Karabakh. Overall, we found that members of two main ethnic minority groups in Azerbaijan—Talysh and Lezgin—exhibited strong solidarity with Azerbaijani state and a readiness to fight in Nagorno-Karabakh. Nearly all respondents demonstrated proficiency in Azerbaijani language, a crucial element of civic identity, and viewed the loss of Nagorno-Karabakh as a shared tragedy for all citizens of Azerbaijan. Some Talysh respondents emphasized that many Talysh individuals had fought and died for Azerbaijan’s territorial integrity. One male Talysh respondent from Lerik stated, “If the war starts today, I am ready to voluntarily join and fight for the liberation of Azerbaijan’s occupied territories” (Rahmanov 2016). A female Talysh respondent from Baku expressed her loyalty by saying, “I really love Azerbaijan. If war is renewed in Karabakh, I will support the fight against our enemies without any doubt. This is my loyalty to Azerbaijan” (Rasulova 2016).

Our findings indicate that Lezgin’s civic identity strengthened. A male respondent of Lezgin origin from Guba remarked, “It is not right to exacerbate ethnic issues in Azerbaijan. Those who do so directly threaten national security of Azerbaijani Republic” (Samedov 2016). Another male Lezgin respondent from Guba stated, “During the Soviet era, we had an ideology. An ideology is very important for consolidating the state. The absence of ideology leads to anarchy. In our case, we need to care about our Azerbaijan, and Azerbaijanism is a good ideology” (Mammedov 2016). In sum, our interviews indicate that the civic identity policy was effective in creating solidarity and noticeably increased willingness among ethnic minorities, to fight against a common enemy to protect a shared homeland.

**Conclusion**

Ceasefires represent one of the most common ways in which civil wars end yet remain one of the most understudied. More than half of all civil wars that end will later reignite, but the proportion is much higher for civil wars that end with ceasefires. This research provides novel insights on the problem of civil war recurrence by unpacking the underexplored effects of ceasefires with systematic data and rigorous methods. It advances our understanding of civil war termination and recurrence by providing a novel, systematic approach that adjudicates between competing theories. To be the best of our knowledge, this is the first quantitative study to account for all possible war termination outcomes and assess their efficacy in promoting peace by preventing war recurrence. Integrating statistical inference with predictive modeling, it demonstrates that civil wars ending in ceasefires are particularly prone to recurrence. We conjecture that this is because ceasefires create a fragile post-war environment where unresolved issues persist, encouraging the sides to rearm, reorganize, build alliances and increase social mobilization, resulting in cyclical patterns of conflict.

Historically, much of the literature has suggested that military victories are more effective at preventing recurrence due to the complete defeat of the losing side, while negotiated settlements are often viewed as more fragile. Our findings shed new light on the civil war recurrence literature by expanding the traditional emphasis on military victories and negotiated settlements as the primary determinants of whether a conflict will reignite. This study emphasizes the significance of ceasefires, one of the most common but understudied forms of civil war termination and shows that they severely increase the risk of conflict recurrence. Our results also suggest that the end of the Cold war has made the problem of war recurrence even more pronounced, in general and for ceasefires in particular.

This article underscores the need for a more nuanced perspective on how different civil war termination outcomes influence the prospects for renewed conflict. Policymakers need to recognize the unique challenges posed by ceasefires and to implement strategies that prevent combatants from using these periods to prepare for future hostilities and that encourage conciliation. Examining more than 200 civil wars from 1946 to 2022, our study highlights the urgency of developing robust models that can inform decision-making and help promote long-term peace. The analysis suggests that policymakers should view ceasefires less as solutions to war and more as critical junctures that require active intervention to prevent re-escalation.

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**APPENDIX**

***Table of Contents***

Appendix A: Conflicts in UCDP Conflict Termination Data

Appendix B: Updated Civil War Termination Outcomes

Appendix C: Cross Tabulation of War Termination Outcomes and War Recurrence

Appendix D: Factors Influencing War Recurrence (Cox Hazard Proportional)

Appendix E: Results with Entropy Balancing

Appendix F: Results without Covariate Balancing

Appendix G: Descriptive Statistics about Respondents

**Appendix A: Conflicts in UCDP Conflict Termination**

|  |  |
| --- | --- |
| **Country Name** | **Conflict ID by Number of Episodes** |
| Afghanistan | 333-1, 13637-1 |
| Algeria | 386-2, 13721-1 |
| Angola | 327-2, 387-8 |
| Argentina | 247-3 |
| Azerbaijan | 388-7, 396-2 |
| Bangladesh | 322-1, 11350-1, 13674-1 |
| Benin | 15256-1 |
| Bolivia | 200-4 |
| Bosnia and Herzegovina | 389-1, 397-1, 398-1 |
| Burkina Faso | 360-2, 13840-1 |
| Burundi | 287-6 |
| Cambodia | 300-2 |
| Cameroon | 353-5, 13638-3, 14129-1 |
| Central African Republic | 416-4, 15283-1 |
| Chad | 288-8, 13640-2 |
| Chile | 321-1 |
| China | 202-1, 217-1, 236-3, 11349-1 |
| Colombia | 289-2 |
| Comoros | 362-1, 407-1 |
| Congo (Democratic) | 265-3, 266-1, 283-7, 429-3, 14692-1 |
| Congo (the) | 408-4 |
| Costa Rica | 225-1 |
| Croatia | 390-1 |
| Cuba | 242-3 |
| C√¥te d'Ivoire | 419-2 |
| Djibouti | 379-2 |
| Dominican Republic | 290-1 |
| Egypt | 391-3, 13648-1 |
| El Salvador | 316-2 |
| Eritrea | 326-3 |
| Ethiopia | 267-3, 275-1, 329-5, 363-2, 413-7, 436-1, 437-2, 11447-1, 14935-1 |
| France | 270-1 |
| Gabon | 284-1 |
| Gambia | 344-1 |
| Georgia | 380-1, 392-1, 393-3 |
| Ghana | 295-3 |
| Greece | 203-1 |
| Guatemala | 233-4 |
| Guinea | 307-1 |
| Guinea-Bissau | 410-1 |
| Haiti | 381-3 |
| India | 227-4, 251-4, 296-1, 335-4, 347-4, 351-1, 364-1, 365-2, 421-6, 434-1, 11342-2, 11884-1, 13653-1 |
| Indonesia | 237-1, 243-2, 291-7, 330-3, 366-2 |
| Iran | 205-8, 206-1, 338-8, 339-1, 14268-1 |
| Iraq | 259-6, 271-3 |
| Israel | 234-5, 426-2 |
| Jordan | 13886-1 |
| Kenya | 348-1, 13646-1 |
| Lao People's Republic | 262-3 |
| Lebanon | 260-4, 13675-2 |
| Lesotho | 411-1 |
| Liberia | 341-3 |
| Libya | 11346-4, 13694-1 |
| Madagascar | 310-1 |
| Malaysia | 261-3, 280-1, 11487-1 |
| Mali | 372-5, 11347-2, 13611-1, 14113-1 |
| Mauritania | 428-1, 442-1 |
| Mexico | 400-2 |
| Moldova | 394-1 |
| Morocco | 311-1, 331-1 |
| Mozambique | 332-4, 14845-1 |
| Myanmar | 221-6, 222-6, 223-6, 224-3, 231-4, 253-6, 264-7, 422-1, 423-1, 439-4, 440-1, 11475-4 |
| Nepal | 269-2 |
| Nicaragua | 336-2 |
| Niger (the) | 373-1, 406-1, 430-4, 13639-1 |
| Nigeria | 297-3, 303-2, 424-1, 425-1, 13641-1 |
| North Macedonia | 417-1 |
| Oman | 258-1, 317-1 |
| Pakistan | 312-1, 325-5, 404-3, 13936-2 |
| Panama | 367-1 |
| Papua New Guinea | 369-2 |
| Paraguay | 220-3 |
| Peru | 292-3 |
| Philippines | 209-4, 308-2, 14275-1 |
| Romania | 370-1 |
| Russia | 399-1, 401-2, 414-1, 432-1, 13588-1 |
| Rwanda | 374-5 |
| Saudi Arabia | 340-1 |
| Senegal | 375-7 |
| Serbia and Montenegro | 412-1 |
| Sierra Leone | 382-1 |
| Somalia | 337-4, 14074-1, 14197-1 |
| South Africa | 298-1, 345-2 |
| South Sudan | 11345-1 |
| Spain | 342-3 |
| Sri Lanka | 313-2, 352-3 |
| Sudan | 282-1, 309-4, 11344-1 |
| Suriname | 357-1 |
| Syrian Arab Republic | 299-3, 13042-1, 13604-1, 13809-2 |
| Tajikistan | 395-3 |
| Tanzania | 15183-1 |
| Thailand | 240-2 |
| Togo | 358-2 |
| Trinidad and Tobago | 378-1 |
| Tunisia | 343-2, 14333-1 |
| Turkey | 354-2, 383-4, 13902-1 |
| USSR | 210-1, 211-1, 212-1, 213-1, 376-1, 377-1 |
| Uganda | 314-5, 15438-1 |
| Ukraine | 13219-1, 13246-1, 13247-1, 13306-1 |
| United Kingdom | 315-2 |
| United States | 418-2 |
| Uruguay | 319-1 |
| Uzbekistan | 415-2 |
| Venezuela | 277-3 |
| Vietnam, South | 249-1 |
| Yemen | 230-4, 402-1, 13645-3 |
| Yemen Democratic | 359-1 |
| Yugoslavia | 384-1, 385-1 |
| Zimbabwe | 318-2 |

**Appendix B: Updated Civil War Termination Outcomes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| N | ID | Start | End | Side A | Side B | Outcome |
|  | 223 | 2016 | 2020 | Government of Myanmar (Burma) | ULA | Ceasefire |
|  | 265 | 2020 | 2020 | Government of DR Congo (Zaire) | Kata Katanga | Low Activity |
|  | 308 | 1993 | 2020 | Government of Philippines | ASG | Low Activity |
|  | 343 | 2013 | 2015 | Government of Tunisia | AQIM, JAK-T | Low Activity |
|  | 353 | 2020 | 2020 | Government of Cameroon | Jama'atu Ahlis Sunna Lidda'awati wal-Jihad | Low Activity |
|  | 374 | 2019 | 2020 | Government of Rwanda | CNRD, FDLR, FDLR-RUD | Low Activity |
|  | 383 | 2000 | 2000 | Government of Turkey | TKP-ML | Government Victory |
|  | 386 | 2020 | 2020 | Government of Algeria | AQIM | Low Activity |
|  | 387 | 2019 | 2020 | Government of Angola | FLEC-FAC-TN | Ceasefire |
|  | 429 | 2020 | 2020 | Government of DR Congo (Zaire) | BDK | Low Activity |
|  | 11346 | 2019 | 2020 | Government of Libya | Forces of the House of Representatives | Ceasefire |
|  | 13588 | 2015 | 2020 | Government of Russia (Soviet Union) | IS | Government Victory |
|  | 13645 | 2020 | 2020 | Government of Yemen (North Yemen) | IS | Low Activity |
|  | 15183 | 2020 | 2020 | Government of Tanzania | IS | Low Activity |
|  | 15283 | 2015 | 2015 | Government of Central African Republic | FPRC | Rebel Victory |

**Appendix C: Cross Tabulation of War Termination Outcomes and War Recurrence**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes | UCDP-based Recurred | | Total | Recur % |
| No | Yes |
| Low Activity | 57 | 144 | 201 | 72 |
| Ceasefire | 16 | 40 | 56 | 71 |
| Rebel Victory | 14 | 23 | 37 | 62 |
| Government Victory | 46 | 51 | 97 | 53 |
| Peace Agreements | 22 | 23 | 45 | 51 |
| Actor ceases to exist | 13 | 6 | 19 | 32 |
| Total | 168 | 287 | 455 | 63 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes | Link-based Recurred | | Total | Recur % |
| No | Yes |
| Low Activity | 67 | 134 | 201 | 67 |
| Ceasefire | 19 | 37 | 56 | 66 |
| Peace Agreements | 26 | 19 | 45 | 42 |
| Actor ceases to exist | 14 | 5 | 19 | 26 |
| Government Victory | 73 | 24 | 97 | 25 |
| Rebel Victory | 29 | 8 | 37 | 22 |
| Total | 228 | 227 | 455 | 50 |

**Appendix D: Factors Influencing War Recurrence**

**Table 1: Factors Influencing War Recurrence - Stabilized Inverse Propensity Weighing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
|  | Dependent variable: | | | |
|  |  | | | |
|  | UCDP ID-Based War Recurrence | | UCDP ID-Based War Recurrence | |
|  | (1) | (2) | (3) | (4) |
|  | | | | |
| Ceasefire | 1.074\*\*\* | 1.158\*\* | 1.046\*\*\* | 1.096\*\*\* |
|  | (0.297) | (0.368) | (0.315) | (0.380) |
|  |  |  |  |  |
| Actor Ceases | 0.102 | 0.340 | 0.014 | 0.087 |
|  | (0.507) | (0.562) | (0.556) | (0.610) |
|  |  |  |  |  |
| Government Victory | -0.024 | 0.148 | -0.748\*\* | -0.706 |
|  | (0.301) | (0.380) | (0.366) | (0.451) |
|  |  |  |  |  |
| Rebel Victory | 0.490 | 0.746 | -0.353 | -0.384 |
|  | (0.376) | (0.448) | (0.506) | (0.579) |
|  |  |  |  |  |
| Low Activity | 1.013\*\*\* | 1.166\*\*\* | 1.011\*\*\* | 1.019\*\* |
|  | (0.267) | (0.339) | (0.284) | (0.359) |
|  |  |  |  |  |
| Peacekeeping Missions |  | -0.642\*\* |  | -0.528\* |
|  |  | (0.286) |  | (0.308) |
|  |  |  |  |  |
| Log(Duration) |  | 0.045 |  | -0.024 |
|  |  | (0.029) |  | (0.032) |
|  |  |  |  |  |
| Cold War |  | -0.416\* |  | -0.707\*\* |
|  |  | (0.175) |  | (0.206) |
|  |  |  |  |  |
| Log(GDP per Capita) |  | -0.041 |  | -0.055 |
|  |  | (0.056) |  | (0.063) |
|  |  |  |  |  |
| War over Territory |  | -0.106 |  | 0.243 |
|  |  | (0.164) |  | (0.177) |
|  |  |  |  |  |
| Democracy |  | 0.175 |  | -0.045 |
|  |  | (0.257) |  | (0.286) |
|  |  |  |  |  |
| Ethnic Fractionalization |  | 0.586 |  | 0.829\* |
|  |  | (0.372) |  | (0.427) |
|  |  |  |  |  |
| Number of Veto Players |  | 0.283\*\* |  | 0.242\*\* |
|  |  | (0.084) |  | (0.088) |
|  |  |  |  |  |
| Log(Population) |  | -0.023 |  | -0.096 |
|  |  | (0.056) |  | (0.064) |
|  |  |  |  |  |
| Religious Fractionalization |  | 0.321 |  | 0.080 |
|  |  | (0.360) |  | (0.396) |
|  |  |  |  |  |
| Coalition Size |  | -0.805 |  | -0.263 |
|  |  | (0.500) |  | (0.564) |
|  |  |  |  |  |
| Power-Sharing |  | 0.095 |  | -0.081 |
|  |  | (0.255) |  | (0.277) |
|  |  |  |  |  |
|  | | | | |
| Observations | 329 | 329 | 329 | 329 |
| R2 | 0.137 | 0.218 | 0.215 | 0.290 |
| Max. Possible R2 | 0.999 | 0.999 | 0.997 | 0.997 |
| Log Likelihood | -1,136.873 | -1,120.678 | -924.022 | -907.667 |
| Wald Test | 41.030\*\*\* (df = 5) | 94.910\*\*\* (df = 17) | 77.160\*\*\* (df = 5) | 95.840\*\*\* (df = 17) |
| LR Test | 48.602\*\*\* (df = 5) | 80.993\*\*\* (df = 17) | 79.759\*\*\* (df = 5) | 112.468\*\*\* (df = 17) |
| Score (Logrank) Test | 47.189\*\*\* (df = 5) | 80.604\*\*\* (df = 17) | 73.767\*\*\* (df = 5) | 105.956\*\*\* (df = 17) |
|  | | | | |
| Note: | \*p\*\*p\*\*\*p<0.01 | | | |

Robust standard errors clustered by conflict ID.

**Table 2: Factors Influencing War Recurrence – Entropy Balancing**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
|  | Dependent variable: | | | |
|  |  | | | |
|  | UCDP ID-Based War Recurrence | | UCDP ID-Based War Recurrence | |
|  | (1) | (2) | (3) | (4) |
|  | | | | |
| Ceasefire | 0.915\*\* | 1.043\*\* | 0.989\*\*\* | 1.042\*\* |
|  | (0.301) | (0.365) | (0.319) | (0.392) |
|  |  |  |  |  |
| Actor Ceases | -0.020 | 0.133 | -0.169 | -0.084 |
|  | (0.549) | (0.599) | (0.617) | (0.669) |
|  |  |  |  |  |
| Government Victory | -0.030 | 0.138 | -0.705\* | -0.571 |
|  | (0.301) | (0.378) | (0.363) | (0.449) |
|  |  |  |  |  |
| Rebel Victory | 0.451 | 0.680 | -0.361 | -0.303 |
|  | (0.380) | (0.449) | (0.510) | (0.584) |
|  |  |  |  |  |
| Low Activity | 1.011\*\*\* | 1.123\*\*\* | 1.011\*\*\* | 1.051\*\* |
|  | (0.267) | (0.337) | (0.284) | (0.362) |
|  |  |  |  |  |
| Peacekeeping Missions |  | -0.669\*\* |  | -0.495 |
|  |  | (0.288) |  | (0.311) |
|  |  |  |  |  |
| Log(Duration) |  | 0.061\* |  | -0.005 |
|  |  | (0.029) |  | (0.032) |
|  |  |  |  |  |
| Cold War |  | -0.518\*\* |  | -0.749\*\* |
|  |  | (0.178) |  | (0.208) |
|  |  |  |  |  |
| Log(GDP per Capita) |  | -0.056 |  | -0.060 |
|  |  | (0.056) |  | (0.063) |
|  |  |  |  |  |
| War over Territory |  | -0.168 |  | 0.192 |
|  |  | (0.160) |  | (0.175) |
|  |  |  |  |  |
| Democracy |  | 0.018 |  | -0.209 |
|  |  | (0.260) |  | (0.292) |
|  |  |  |  |  |
| Ethnic Fractionalization |  | 0.734\* |  | 0.992\* |
|  |  | (0.376) |  | (0.432) |
|  |  |  |  |  |
| Number of Veto Players |  | 0.233\*\* |  | 0.208\* |
|  |  | (0.087) |  | (0.093) |
|  |  |  |  |  |
| Log (Population) |  | -0.023 |  | -0.092 |
|  |  | (0.057) |  | (0.065) |
|  |  |  |  |  |
| Religious Fractionalization |  | 0.210 |  | -0.090 |
|  |  | (0.356) |  | (0.398) |
|  |  |  |  |  |
| Coalition Size |  | -0.736 |  | -0.126 |
|  |  | (0.507) |  | (0.572) |
|  |  |  |  |  |
| Power-Sharing |  | 0.024 |  | -0.086 |
|  |  | (0.250) |  | (0.272) |
|  |  |  |  |  |
|  | | | | |
| Observations | 329 | 329 | 329 | 329 |
| R2 | 0.129 | 0.218 | 0.206 | 0.280 |
| Max. Possible R2 | 0.999 | 0.999 | 0.997 | 0.997 |
| Log Likelihood | -1,119.696 | -1,102.039 | -912.937 | -896.865 |
| Wald Test | 39.350\*\*\* (df = 5) | 97.830\*\*\* (df = 17) | 72.810\*\*\* (df = 5) | 95.860\*\*\* (df = 17) |
| LR Test | 45.433\*\*\* (df = 5) | 80.747\*\*\* (df = 17) | 76.059\*\*\* (df = 5) | 108.204\*\*\* (df = 17) |
| Score (Logrank) Test | 44.053\*\*\* (df = 5) | 80.416\*\*\* (df = 17) | 70.508\*\*\* (df = 5) | 101.576\*\*\* (df = 17) |
|  | | | | |
| Note: | \*p\*\*p\*\*\*p<0.01 | | | |

Robust standard errors clustered by conflict ID.

**Table 3: Factors Influencing War Recurrence – No Weighting Applied**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
|  | Dependent variable: | | | |
|  |  | | | |
|  | UCDP ID-Based War Recurrence | | UCDP ID-Based War Recurrence | |
|  | (1) | (2) | (3) | (4) |
|  | | | | |
| Ceasefire | 0.937\*\*\* | 1.149\*\*\* | 0.825\*\*\* | 0.896\*\* |
|  | (0.304) | (0.367) | (0.323) | (0.384) |
|  |  |  |  |  |
| Actor Ceases | -0.053 | 0.166 | -0.241 | -0.121 |
|  | (0.560) | (0.607) | (0.637) | (0.683) |
|  |  |  |  |  |
| Government Victory | -0.058 | 0.237 | -0.780\*\* | -0.455 |
|  | (0.299) | (0.375) | (0.362) | (0.444) |
|  |  |  |  |  |
| Rebel Victory | 0.414 | 0.779 | -0.560 | -0.280 |
|  | (0.374) | (0.442) | (0.521) | (0.590) |
|  |  |  |  |  |
| Low Activity | 0.981\*\*\* | 1.165\*\*\* | 0.995\*\*\* | 1.086\*\*\* |
|  | (0.268) | (0.335) | (0.285) | (0.358) |
|  |  |  |  |  |
| Peacekeeping Missions |  | -0.519\* |  | -0.388 |
|  |  | (0.280) |  | (0.305) |
|  |  |  |  |  |
| Log(Duration) |  | 0.056\* |  | -0.005 |
|  |  | (0.029) |  | (0.032) |
|  |  |  |  |  |
| Cold War |  | -0.466\*\*\* |  | -0.808\*\*\* |
|  |  | (0.173) |  | (0.208) |
|  |  |  |  |  |
| Log(GDP per Capita) |  | -0.058 |  | -0.064 |
|  |  | (0.056) |  | (0.062) |
|  |  |  |  |  |
| War over Territory |  | -0.133 |  | 0.328\* |
|  |  | (0.163) |  | (0.182) |
|  |  |  |  |  |
| Democracy |  | 0.047 |  | -0.212 |
|  |  | (0.256) |  | (0.285) |
|  |  |  |  |  |
| Ethnic Fractionalization |  | 0.631 |  | 0.761 |
|  |  | (0.369) |  | (0.428) |
|  |  |  |  |  |
| Number of Veto Players |  | 0.216\*\* |  | 0.164\*\* |
|  |  | (0.087) |  | (0.093) |
|  |  |  |  |  |
| Log(Population) |  | 0.002 |  | -0.067 |
|  |  | (0.055) |  | (0.065) |
|  |  |  |  |  |
| Religious Fractionalization |  | 0.032 |  | -0.210 |
|  |  | (0.356) |  | (0.396) |
|  |  |  |  |  |
| Coalition Size |  | -0.630 |  | 0.181 |
|  |  | (0.492) |  | (0.576) |
|  |  |  |  |  |
| Power-Sharing |  | 0.144 |  | 0.056 |
|  |  | (0.244) |  | (0.269) |
|  |  |  |  |  |
|  | | | | |
| Observations | 329 | 329 | 329 | 329 |
| R2 | 0.131 | 0.197 | 0.215 | 0.283 |
| Max. Possible R2 | 0.999 | 0.999 | 0.997 | 0.997 |
| Log Likelihood | -1,129.744 | -1,116.611 | -901.361 | -886.398 |
| Wald Test | 38.090\*\*\* (df = 5) | 100.590\*\*\* (df = 17) | 70.990\*\*\* (df = 5) | 82.750\*\*\* (df = 17) |
| LR Test | 46.011\*\*\* (df = 5) | 72.277\*\*\* (df = 17) | 79.578\*\*\* (df = 5) | 109.504\*\*\* (df = 17) |
| Score (Logrank) Test | 44.796\*\*\* (df = 5) | 71.535\*\*\* (df = 17) | 74.284\*\*\* (df = 5) | 102.775\*\*\* (df = 17) |
|  | | | | |
| Note: | \*p\*\*p\*\*\*p<0.01 | | | |

Robust standard errors clustered by conflict ID.

**Appendix E: All Results with Entropy Balancing**

**Figure 4a and 4b: Kaplan-Meier Survival Curves for Various Outcomes**

**A graph with numbers and a number on it

Description automatically generated** **A graph of cancer patients

Description automatically generated**

**Figure 5a and 5b: Factors Influencing War Recurrence Based on UCDP Conflict ID**

A graph with blue and black lines

Description automatically generated A graph with blue and black lines

Description automatically generated

**Figure 6a and 6b: Survival Rates for Different War Termination Outcomes**

A graph of different colored lines

Description automatically generatedA graph of a number of people

Description automatically generated with medium confidence

**Figure 7a and 7b: Permutation Variable Importance of Predictors from RSF**

**A graph with blue and white bars

Description automatically generated** **A graph with blue and white bars

Description automatically generated**

**Figure 8a and 8b: Survival Probabilities from RSF for Termination Outcomes**

A graph of a graph

Description automatically generated A graph of different colored lines

Description automatically generated

**Appendix E: All Results with Entropy Balancing**

**Figure 4a and 4b: Kaplan-Meier Survival Curves for Various Outcomes**

A graph of a number of patients

Description automatically generatedA graph of cancer patients

Description automatically generated

**Figure 5a and 5b: Factors Influencing War Recurrence Based on UCDP Conflict ID**

A graph with black and blue lines and dots

Description automatically generatedA graph with blue and black lines

Description automatically generated

**Figure 6a and 6b: Survival Rates for Different War Termination Outcomes**

A graph of different colored lines

Description automatically generatedA graph of different colored lines

Description automatically generated

**Figure 7a and 7b: Permutation Variable Importance of Predictors from RSF**

**A graph with blue and white bars

Description automatically generatedA graph with blue and white bars

Description automatically generated**

**Figure 8a and 8b: Survival Probabilities from RSF for Termination Outcomes**

**A graph of different colored lines

Description automatically generatedA graph of different colored lines

Description automatically generated**

**Appendix G. Descriptive Statistics about Respondents**

We obtained informed and voluntary consent at the beginning of each interview. Consent for interviews with elites and experts was documented as part of the university’s Institutional Review Board (IRB) process, and the IRB determined that the protocol was considered exempt under Federal Regulations 45CFR46 (2) on 11/25/2020. Consent for interviews with ethnic minorities was documented as part of the Institutional Review process at the National Academy of Sciences in Azerbaijan on 10/01/2015. Our approach to ethical issues is consistent with the APSA Principles and Guidance. No exceptions were made from these principles in our study. Full university details will be provided after anonymity is removed. The nature of the research and the careful design of the interview process ensured that participants were treated with respect and dignity throughout the study. Participants were not paid to participate in our interviews. We selected experts and elites for their professional knowledge of the relevant aspects of the conflict. We chose to interview members of the Talysh and Lezgin ethnic groups due to their involvement in separatist movements and their later support for the Azerbaijani government’s war in Karabakh. The selection was aimed at exploring whether civic national identity building during the ceasefire period played a role in the recurrence of war in Karabakh. Our research did not include participants who should be considered members of vulnerable or marginalized groups. The focus on individuals and groups involved in significant historical and political events was driven by the research objectives rather than any considerations of vulnerability. The research did not differentially benefit or harm any particular groups.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Region | N | Gender | | Education | | N of Ethnic group | |
| F | M | Higher | Other | Talysh | Lezgin |
| Lenkeran | 12 | 4 | 8 | 6 | 6 | 12 | 0 |
| Lerik | 11 | 3 | 8 | 8 | 3 | 11 | 0 |
| Guba | 10 | 4 | 6 | 7 | 3 | 0 | 10 |
| Gusar | 7 | 1 | 6 | 4 | 3 | 0 | 7 |
| Baku | 30 | 18 | 12 | 16 | 14 | 17 | 13 |
| Total | 70 | 30 | 40 | 41 | 29 | 40 | 30 |

1. For recent studies of ceasefires in civil conflicts, especially what leads to ceasefires, see Clayton and Sticher 2021; Clayton et.al 2025; Clayton et. al 2023a; Clayton et. al 2023b; Bara and Clayton 2023; Clayton et. al 2023c; Bara et.al 2021; Clayton et.al 2021; Åkebo 2021; Lundgren et al. 2023. [↑](#footnote-ref-1)
2. Decisive military victories are also linked to enhanced economic reconstruction (Toft 2010). Scholars have suggested that negotiated settlements can deter war recurrence when specific conditions are satisfied (i.e., post-conflict power-sharing, larger governing coalition, etc.). See: Joshi and Mason 2011; Walter 2002; Hartzell and Hoddie 2003. [↑](#footnote-ref-2)
3. For instance, both Lebanon 1958-1958 and Lebanon 1975-1976 are given as negotiated settlement in Licklider (1995, 688), while the first is given as peace agreement and the second as ceasefire in UCDP Conflict Termination Dataset. [↑](#footnote-ref-3)
4. While the NHST approach is useful for theory-testing, previous research on civil wars suggests that it is potentially misleading (Hill and Jones 2014; Muchlinski et al 2016). Since statistical significance does not necessarily equate to an improved predictive capacity or generalizability, and may even degrade it (Ward, Greenhill, and Bakke 2010), we utilize and compare both approaches. [↑](#footnote-ref-4)
5. On IRB approval, see Appendix D. [↑](#footnote-ref-5)
6. While the study of war recurrence grew out of research on civil war onset, the primary debate in the civil war recurrence literature has been about the role of war termination (Wagner 1993; Licklider 1995; Pearson et al. 2006; Doyle and Sambanis 2006). Many early findings identified factors that appeared to increase the likelihood of post-conflict violence, including the absence of economic reconstruction (Stedman et al., 2002), ineffective leadership in committing to post-war peace (Flores and Nooruddin, 2009), difficulty in achieving economic recovery in war-torn regions (Kang et al., 2005), ethnic polarization (Ellingsen, 2000), and ethnic fractionalization (Mason et al. 2011, 171). [↑](#footnote-ref-6)
7. Licklider (1995, 681) referred to this argument as the Wagner hypothesis. His analysis of 91 post-1945 civil wars found general support for this hypothesis but only in “identity civil wars”. Quinn et al. (2007) modify it by arguing that peace is much more likely when rebel groups forces achieve victory than when the government’s forces win. [↑](#footnote-ref-7)
8. The government “offer of a political power-sharing agreement reduces the degree of support that insurgent leaders get from their civilian supporters”, increasing fighting costs for the rebels” (Mukherjee 2006, 479). [↑](#footnote-ref-8)
9. This entails “tricking” the opposition into disarming while secretly maintaining sufficient military strength to overpower them and attack once they have disarmed. [↑](#footnote-ref-9)
10. Ceasefires have also been described as “peace truces” or “armistices” (Morriss 1995, 801), and more recently, as “humanitarian pauses” (Slemrod 2017) and “cessations of hostilities” (Clayton and Sticher 2021). Recent studies have conceptualized ceasefires as asymmetric “arrangements that include a statement by at least one conflict party to stop violence temporarily or permanently from a specific point in time” (Clayton et al. 2022; Clayton and Sticher 2021, 3; Clayton et al. 2021, 1434; Karakus and Svensson 2020, 684). While the approach in these articles provides an incredibly rich analysis of ceasefires, this study uses the definition of *ceasefires as outcomes of conflict episodes* as operationalized in UCDP Armed Conflict Dataset and the UCDP Conflict Termination Dataset, where ceasefires are regarded as outcomes of armed conflicts when violence halts, measured by the reduction in battle-related casualties (Åkebo 2021; Kreutz 2010). [↑](#footnote-ref-10)
11. Likewise, the outcome of “low-level activity”, the most frequent war outcome and the most likely to lead to resumption of hostilities - has either been omitted as a category in the study of war termination (Quinn et al. 2007) or coded under either “military victory” or “negotiated settlement” (Kreutz 2010, 247). Treating low level activity as an outcome in its own right is crucial for studying civil war termination, since it is the most common way in which civil conflict episodes end. Rather than excluding it or classifying it as either a peace agreement or military victory (Kreutz 2010, 247), low-level activity is worthy of more analysis. [↑](#footnote-ref-11)
12. Typically, one or both of the sides agree to halt fighting, possibly with occasional low-level clashes and low-caliber weapons that do not meet the UCDP threshold of 25 battle-deaths. [↑](#footnote-ref-12)
13. Ceasefires are sometimes forged under substantial third-party pressure to alleviate public outrage, amplified by television broadcasts showing the horrors of war. The media prompt their audiences to pressure leaders to quickly end massacres rather than negotiating lasting solutions to the conflict (Touval 1995, 333; Crocker 2004, 157; Luttwak 2004, 265) or achieving victory. [↑](#footnote-ref-13)
14. In another well-known case, the British government signed a ceasefire agreement with the Provisional IRA in 1975, hoping to “divide and weaken the Provisionals” (cited in [Dochartaigh](javascript:;) 2021, 118), but it ended up “with a younger, more militant, and Northern-based Irish republican leadership” (White 2010, 213). [↑](#footnote-ref-14)
15. Finally, the disappearance of one of the conflict parties evidently reduces the capacity and need for rearmament and reorganization. [↑](#footnote-ref-15)
16. Rebel coalitions developed during conflicts can cause commitment problems once conflicts end, leading to resumption of war (Zeigler 2016). [↑](#footnote-ref-16)
17. We use 23.1 version of the UCDP/PRIO Armed Conflict Dataset. [↑](#footnote-ref-17)
18. The ETH/PRIO Civil Conflict CeaseFire (CF) dataset (Clayton et al. 2023) is an excellent new resource for studying ceasefires, but unfortunately it is not suitable for this study for two main reasons. First, it focuses exclusively on ceasefires, whereas this research examines ceasefires in comparison to other war termination outcomes. Second, the documentation of ceasefires in the UCDP Conflict Termination dataset is based on the conflict episode framework in UCDP’s ACD dataset, which defines an episode as ending only if there are fewer than 25 battle-related deaths in the following year. In this study, we investigate ceasefires as war termination outcomes using UCDP criteria. [↑](#footnote-ref-18)
19. All conflicts, the number of episodes within each conflict, and their locations, are given in Appendix A. [↑](#footnote-ref-19)
20. This implies a continuity of organizational structure, personnel, or leadership in anti-government groups that bridges between the two episodes. Conflicts with different episodes and different actors in each episode in the same country can have identical conflict identification number, and this measure adjusts the determination of whether it is the same conflict based on the criteria of “sufficient linkage” (Zeigler 2015, 7). [↑](#footnote-ref-20)
21. The highest number of conflict episodes started in 1991 followed by 1994. [↑](#footnote-ref-21)
22. We use version 3 of UCDP Conflict Termination. [↑](#footnote-ref-22)
23. The UCDP Conflict Termination covers conflicts until 2020. For conflicts ending after 2020, we relied on multiple mainstream internet sources to update these 15 observations. Appendix B provides details. [↑](#footnote-ref-23)
24. We merged this variable from Zeigler (2015) and updated with the UCDP Peace Agreement Dataset that indicates which peace agreements provided for the deployment of a peacekeeping operation. [↑](#footnote-ref-24)
25. To capture the idea of ‘conflict trap’, we added a logged duration variable. [↑](#footnote-ref-25)
26. This variable aligns with Cunningham's (2006) veto players covariate, which accounts for the total number of parties with veto power involved in a conflict. Conflict becomes harder to resolve, and war becomes more likely to recur, when there are more conflicting parties with veto powers. [↑](#footnote-ref-26)
27. Taken from UCDP ACD, which shows whether conflict is over government, territory, or both. Three binary variables are established, and ‘both’ is the reference. [↑](#footnote-ref-27)
28. Ethnic fractionalization is from 2003 and is assumed time-invariant. [↑](#footnote-ref-28)
29. Marshall & Gurr (2020). [↑](#footnote-ref-29)
30. Logged GDP pc (current USD) from World Bank. (2022). World development indicators. https://databank.worldbank.org/source/vworld-development-indicators [↑](#footnote-ref-30)
31. Bueno de Mesquita & Smith (2022). [↑](#footnote-ref-31)
32. World development indicators by World Bank [↑](#footnote-ref-32)
33. Hartzell & Hoddie (2003); Walsh & Neudorfer(2023). [↑](#footnote-ref-33)
34. Alesina et al (2003). [↑](#footnote-ref-34)
35. Alesina, A., et al (2011). [↑](#footnote-ref-35)
36. Kalyvas & Balcells (2010). [↑](#footnote-ref-36)
37. Stabilized inverse propensity weights (stab IPW) were developed after performing matching. Propensity scores, calculated during the matching process and referred to as distance, were used as the foundation for generating stab IPW. The weights were constructed to account for the prevalence of treated and control units, ensuring that the reweighted dataset reflects the original treatment proportions. After generating stab IPW, any weights above 10 were trimmed to prevent extreme values from distorting the analysis. Only one observation had a weight exceeding this threshold, at a value of 13. This resulted in an effective sample size of 244.49 compared to original dataset’s 329 observations. [↑](#footnote-ref-37)
38. While stab IPW helps to achieve covariate balance, it does not ensure perfect balancing. Imbalances can persist even after weighting. Ebal explicitly adjusts weights to achieve exact balance. Ebal helps verify that the results are not overly sensitive to any residual imbalance. The findings are supported by both approaches. [↑](#footnote-ref-38)
39. Random Survival Forests (RSF), an extension of Random Forest (RF) algorithm, is designed to handle right-censored survival data. RSF follow several steps. First, survival trees are grown using bootstrapped data. Second, random feature selection is used when splitting tree nodes. Third, the trees are grown deeply. Finally, the RSF ensemble is calculated by averaging the statistics of terminal nodes (Ishwaran et al. 2021). [↑](#footnote-ref-39)
40. We utilized the 'randomForestSRC' package in R to fit the model using the function rfsrc. We use 5-fold cross validation to obtain variable permutation importance. [↑](#footnote-ref-40)
41. In all figures, version “a” presents results where the outcome variable, war recurrence, was measured using the UCDP Conflict ID, while version “b” presents results based on the sufficient linkage criterion for measuring war recurrence. [↑](#footnote-ref-41)
42. Appendix C illustrates cross tabulation of war termination outcomes and war recurrence based on both UCDP conflict ID and sufficient linkage. [↑](#footnote-ref-42)
43. Figure 5a and 5b shows results from full models 2 and 4 in Table 1 respectively in Appendix D. [↑](#footnote-ref-43)
44. The perturbed data is passed down the tree to predict the outcome, which generates the resulting OOB error. The difference between this ‘new error’ and the ‘original OOB error’ for the tree is taken as the tree importance for that variable. It captures the increase in prediction error in terms of the out-of-sample (out-of-bag, OOB) error rate. [↑](#footnote-ref-44)
45. We interviewed members of Azerbaijan’s two ethnic groups, Talysh and Lezgin, two primary ethnic groups in Azerbaijan, who exhibited separatist tendencies during the early 1990s. The Talysh community is primarily settled in Azerbaijan’s southeastern districts, including Lenkeran, Astara, Masalli, Yardimli, and Lerik, with some members residing in larger cities like Baku and Sumgait. The Lezgins predominantly live in the north and northeastern regions of Azerbaijan, along the Russian border, particularly in Gusar and certain villages of Quba, Xacmaz, Gebele, and Sheki districts. In total, we conducted 70 in-depth interviews: 40 respondents were from the Talysh ethnic group, and the remaining 30 identified as Lezgins. The breakdown of the locations, education, gender and the ethnicity of all interviewees, see Appendix G. To connect with Talysh community members in Baku, we visited the suburban area of Bine, where this group is densely populated. Reaching the Lezgin community in Baku proved more challenging, as they are not concentrated in any specific area, leading us to use snowball sampling. Although we initially aimed for a gender-balanced sample, we faced difficulties interviewing female respondents in rural areas due to local customs that restrict direct communication between women and men. [↑](#footnote-ref-45)