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Persistent Friends, Persistent Conflicts? Analysing the Effects of External Support Types on Conflict Recurrence

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Abstract

This study examines how different types of external support provided during intrastate conflicts influence the likelihood of conflict recurrence. Building on existing literature, it proposes that external support types associated with direct military capabilities - such as troop deployments, weapons, and ammunition - are more likely to facilitate remobilisation and heighten expectations of renewed support, thereby increasing the risk of conflict recurrence in the short term. To test this hypothesis, the study employs a Cox proportional hazards model. The analysis is conducted on a dataset capturing 6,027 dyad peace-year observations from 1975 to 2015. It examines eight types of external support provided to governments and rebel groups. The findings of this study are inconclusive, as the analysis does not yield statistically significant effects for the main variables of interest. The study contributes to the literature through theory development and addresses a critical research gap regarding the effects of different external support types. The inconclusive result highlights the need for more nuanced data and comprehensive analytical frameworks to deepen our understanding of how external interventions shape the prospects for sustainable peace.

Keywords: external support, conflict recurrence, intrastate conflict

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1. Introduction

The recurrence of conflict remains a persistent issue, as cycles of violence undermine peace and development across the globe. Although extensive research has addressed the drivers of conflict recurrence, the specific role of biased third-party external support - particularly the diverse forms it takes - is less fully understood. External support from allied groups or third-party states can significantly influence the trajectory of conflicts by providing resources that alter power dynamics and sustain prolonged fighting. Consider the role of Western support in the Russia-Ukraine War (Charap and Priebe, 2023, p. 10, 18) or how Russian external support bolstered the Assad regime through troop deployments, missile systems, arms, and military advisors (Borshchevskaya, 2022, p. 69–70, 73–74, 82–84). Previous studies, such as those by Niklas Karlén (2017), have laid the groundwork by exploring how the occurrence of external support impacts the likelihood of renewed conflict. However, the literature has not yet disaggregated how different types of external support - including troop assistance, intelligence sharing, logistical aid, and financial backing - contribute to promoting or reducing the resurgence of conflict. This raises a critical question: How do different types of external support affect the likelihood of conflict recurrence?

This study examines the role of external actors in intrastate conflicts and suggests how their involvement affects the likelihood of renewed conflict. It builds upon previous findings, indicating that the occurrence of external support during conflicts increases the likelihood of conflict recurrence (Karlén, 2017). By employing granular data containing eight different types of external support, the study aims to offer more precise indications of when external support is prone to increase the likelihood of renewed conflict and when it is not. The paper theorises that the previous provisioning of external support types associated with an immediate improvement in combat capabilities increases the anticipation of renewed support and facilitates remobilisation efforts. This is argued to increase the likelihood of renewed conflict. As such, this paper provides empirical and theoretical contributions by developing Karlén's (2017) theory to account for variations in external support types and by analysing their effects on the likelihood of conflict recurrence.

In this thesis, I focus on external support, which is a phenomenon distinct from other types of foreign interventions like peacekeeping, humanitarian assistance, or military aid. Research on external support focuses specifically on the phenomenon of biased third-party interventions to

a warring party through direct military involvement or indirect assistance by the provisioning of resources like weapons, ammunition, money, or expertise. In contrast to interventions through peacekeeping efforts, which aim to promote political settlements and cease hostilities, external support is conducted by foreign actors to favour one side in a conflict with the intent to alter power dynamics, weaken mutual adversaries, and shape conflict outcomes (Karlén, 2016, p. 117).

To study how different types of external support influence the likelihood of conflict recurrence, this study employs a Cox proportional hazards model to estimate their relative risk of renewing conflict. The analysis is primarily based on two UCDP global datasets measuring external support in active dyad years and instances of conflict recurrences between 1975 and 2015. In this context, external support refers to a unilateral intervention by a third-party state or armed group in an intrastate conflict, assisting either the government or the rebel group involved. Conflict recurrence concerns the outbreak of a new conflict episode between the same actors in a dyad. Moreover, the study conceptualises conflicts through conflict episodes, which denotes consecutive years where a conflict between a government and a rebel group reaches the UCDP's minimum threshold of 25 battle-related deaths per calendar year (Kreutz, 2010, p. 224). This approach allows the study to address how conflicts often involve multiple actors engaging in combat at various points in time while also capturing conflicts with repeated recurrences.

The result of this paper may provide important insights for academia and policymakers alike, as it aims to identify how certain types of external support may later serve as spoilers for sustainable peace. Hence, such results contribute to our understanding of the conditions needed for more enduring and resilient peace and factors associated with the re-escalation of violence. This may be of high value to countries directly affected by conflict, but also to maintain peace, stability, and security in the international system.

The paper begins by situating my research question within the existing literature on external support and conflict recurrence - two phenomena that frequently occur but have rarely been studied together. This is followed by a presentation of my theory, which posits that certain types of external support are more prudent in causing conflict recurrence than others. Next, the research design of this study is presented. Subsequently, the results are revealed and subjected to robustness tests, before the paper is concluded with a discussion of its methodological and theoretical strengths and weaknesses. Finally, I highlight avenues for future research.

2. Literature review

This literature review starts by exploring how previous research has studied the diverse impacts of external support on a range of conflict dynamics. It then delves into the most common types of external support and analyses how they influence conflicts in different ways. Next, I explore the prevalence of conflict recurrences and review its domestic and foreign triggers. I then combine the two research domains and examine their limited ability to explain how external support affects conflict resurgence. Finally, I argue that previous research has yet to examine how various types of external support differently affect the likelihood of conflict recurrence and explore the implications of this gap.

2.1 The role and impact of external support in conflicts

Third-party biased external support refers to assistance provided by external actors, such as states or armed groups, to one party in a conflict. Unlike neutral interventions aimed at mediation or peacekeeping, biased external support explicitly favours one actor in a conflict (Hazen, 2013, p. 45; Karlén, 2016, p. 117). This assistance can be provided directly by deploying troops, or indirectly by providing various tangible assets, intelligence or services (Hazen, 2013, p. 44–46; Mumford, 2013, p. 61–69). The support itself can be highly overt to publicly endorse a warring party or covert to provide plausible deniability for both the supporter and receiver (Carson, 2018; Rauta, 2021, p. 13). Moreover, external support to governments and rebel groups is widespread, as 80% of all intrastate conflicts experienced at least one occurrence of external support between 1975 and 2017 (Meier et al., 2023, p. 548). A plethora of external support types have been identified in previous research. Typically, studies tend to include the allocation of troops, heavy and light weaponry, ammunition, materiel, logistics, financial aid, access to safe havens, training, intelligence and military expertise as the most prominent ways external actors assist a warring party (Byman et al., 2001, p. 84–97; Hazen, 2013, p. 53–57; San-Akca, 2016, p. 1–2; Rauta, 2021; Wiger and Atwell, 2023, p. 25–26).

Previous studies have highlighted that external support can significantly affect conflict dynamics. Several papers indicate that conflicts which receive external support last longer than those that do not (Regan, 2002; Sawyer, Cunningham and Reed, 2017; Karlén, 2023). This is argued to result from the influx of external resources, which lowers the costs of fighting and strengthens the resolve of warring parties. Consequently, mutually hurting stalemates become less likely to materialise when external support is present, and is therefore believed to reduce the likelihood of negotiated settlements (Cunningham, 2010; Hazen, 2013; McKibben and

Skoll, 2021; Karlén, 2023; Mumford, 2023). Moreover, conflicts receiving external support are more likely to escalate into internationalised conflicts and tend to be deadlier than those that do not receive external resources (Lacina, 2006; Gleditsch, Salehyan and Schultz, 2008).

In addition to emphasising the general impact of external support on core conflict dynamics, some studies have disaggregated the effects of specific external support types on conflict trajectories. A core argument in these studies is that specific types of external support carry greater weight than others in shaping specific conflict dynamics. For example, Roberts (2019) finds that offensive support types, comprising troops, weapons, and ammunition provided to rebel groups, are more central in affecting conflict intensity and duration than defensive types, such as safe havens. Moreover, Sawyer, Cunningham and Reed (2017) find that provisioning of more fungible resources creates increased uncertainty about a rebel group's combat capabilities, which amplifies information gaps and leads to longer conflict durations. Thus, these studies pinpoint that external support does not have one uniform effect on conflict dynamics, but that distinct external support types have unique effects on specific conflict mechanisms.

In sum, previous research indicates that the provisioning of external support has profound effects on conflict outcomes, durations and levels of intensity. Moreover, studies also highlight how conditional the effects of external support tend to be, based on the types provided and the provisioning circumstances.

2.2 The causes of conflict recurrence

Conflict recurrence is a significant concern for global peace and security. One study indicates that approximately half of all conflict episodes have recurred, with nearly 35% of all dyads experiencing renewed conflict (Jarland et al., 2020). Moreover, instances of conflict recurrence have been on the rise since. Between 1989 and 2018, nearly half of all conflicts were recurrent rather than new conflicts arising from previously peaceful countries (International Institute for Strategic Studies, 2021, p. 23–24). Hence, conflict recurrence is an increasingly prominent phenomenon that is almost as frequent as the outbreak of new conflicts.

Given how often conflicts tend to reignite, previous research has highlighted a multitude of peace spoilers that function as potential triggers for conflict recurrence. These stem from both domestic and foreign sources. First, research on domestic factors focuses on how numerous

national characteristics in pre-conflict societies may set the stage for later conflict recurrence. Here, research claims that the presence of weak governance capacity (Hegre, Havard and Nygard, 2015; Walter, 2015) and limited economic development (Fearon and Laitin, 2003; Collier and Hoeffler, 2004) before the outbreak of a conflict likely transcends into the post-conflict phase.

Other researchers have moved beyond the societal pre-conditions and argue that specific dynamics and characteristics of the previous conflict affect the likelihood of conflict recurrence. The presence of ethnic divisions (Tarr, 2022), higher levels of conflict intensity and longer durations are all found to serve as spoilers in later peace processes (Hartzell, Hoddie and Rothchild, 2001; Quinn, Mason and Gurses, 2007). Moreover, the conflict termination process has also been found to affect the resilience of peace. Decisive military victories are associated with more durable peace than negotiated settlements (Licklider, 1995; Wagner, 1995, p. 255). Finally, negotiated settlements and power-sharing agreements are more inclined to endure when peacekeeping missions are present (Collier, Hoeffler and Söderbom, 2008; Hegre, Håvard, Nygård and Ræder, 2017).

While considerable attention has been devoted to the domestic factors of conflict recurrence, research has also identified that foreign interventions affect the likelihood of renewed conflict. Previous research indicates that the effects of peacekeeping on peace duration and conflict recurrence are highly context dependent. Numerous papers identify a positive relationship between the presence of peacekeeping and more durable peace (Fortna, 2004; Jo, 2006; Gilligan and Sergenti, 2008). However, by utilising georeferenced data, Ruggeri and colleagues (2017) do not find a statistically significant relationship between the presence of peacekeepers and conflict recurrence. Nonetheless, research generally finds that peacekeeping tends to lower the probability of conflict recurrence (Kroeker and Ruggeri, 2022).

2.3 Does external support affect the likelihood of recurrence?

While external support is a widespread phenomenon that prolongs and intensifies interstate conflict, limited research has been conducted on how the provision of external resources affects the likelihood of conflict recurrence. In fact, only one paper, Karlén (2017), directly addresses the question of external support's effects on conflict recurrence.

Karlén (2017) conducts a survival analysis on a global dataset measuring the occurrence of external support in active dyad episodes between 1975 and 2009 and years of peace after conflict terminations. The occurrence of external support is operationalised by a binary aggregate of ten different types of external support. He theorises that former warring actors who received external support in the previous conflict, and therefore possess what he calls an 'external support structure', should find the cost of renewing conflict lower than actors who did not receive external support. Karlén attributes this to two interconnected mechanisms caused by accessing external support structures: (1) The structures' ability to facilitate remobilisation and (2) how former support structures increase anticipation of renewed support. First, the involvement of an external supporter facilitates and simplifies the remobilisation process. Actors with access to foreign supporters can be significantly better positioned to challenge the status quo than actors who operate in isolation and are limited to their domestic resource market. External support can substantially alter the domestic balance of power and influence the challenger's strategic calculations. Those who can secure key resources from a foreign patron will likely estimate a higher chance of future success, leading them to anticipate lower costs for re-engaging in conflict. The second mechanism posits that external support structures increase the anticipation of renewed support. As past experiences inform future expectations, a group dissatisfied with the current situation is likely to believe that external support will be forthcoming if it was provided before. Consequently, material resources from foreign states do not need to be actively supplied at the time of conflict recurrence; the legacy of previous support alone can heighten the risk of renewed conflict. This anticipation of future external support alters the calculations of former combatants, making it more attractive to oppose the established status quo. Hence, anticipating renewed external support lowers an actor's cost of conflict recurrence (Karlén, 2017, p. 502–503).

The findings of Karlén (2017) suggest that external support to rebel groups increases the short-term risk of conflict recurrence. However, external support to governments did not affect the probability of conflict relapse. Karlén's (2017) results are significant as they address the overlooked role of external support in conflict recurrence, complementing previous research focused on domestic factors. By demonstrating how biased interventions, particularly in support of rebel groups, increase the likelihood of renewed hostilities, Karlén challenges the assumption that third-party involvement stabilises conflicts.

2.4 Research gap

Karlén (2017) provides valuable insights into whether third-party involvement in intrastate conflicts increases the likelihood of conflict recurrence. However, significant research gaps persist regarding the conditions under which external support increases the likelihood of conflict recurrence, and when it does not. As indicated by previous research, I argue that one such condition likely stems from the types of external support that were provided during a prior conflict episode. Previous research indicates that specific types of external support have distinct effects on conflict dynamics such as duration and intensity (Sawyer, Cunningham and Reed, 2017; Roberts, 2019). Consequently, some types of external support should be more likely than others to increase the anticipation of renewed support and facilitate remobilisation, thereby affecting the likelihood of conflict recurrence. For example, is it reasonable to assume that actors who received materiel aid and intelligence find conflict recurrence equally rational as those supplied with troops and weapons? The aggregation level of Karlén's (2017) study does not capture the diverging effects different external support types have on the anticipation and facilitation of renewed support as it aggregates all forms of external support into a single variable. Thus, a conflict-year where intelligence is provided is treated identically to one where direct troop support is supplied. By applying a binary variable that solely captures whether external support is present, the nuances of how different external support types affect conflict recurrence remain unexplored. This gap leads us to the research question of this paper: How do different types of external support affect the likelihood of conflict recurrence?

To address this research gap, my study examines the role of external actors in intrastate conflicts and identifies when and how their involvement is likely to affect the prospects of conflict recurrence. Specifically, this paper builds upon previous research by distinguishing between eight different types of external support originating from state and non-state actors. By employing more granular data that captures the nuances of external support provisioning, the study aims to offer more precise insights into the complexities of when external support is likely to increase the probability of renewed fighting and when it is not. Thus, this paper provides empirical and theoretical contributions by developing Karlén's (2017) theory using a novel dataset with more nuanced operationalisations of external support types and analysing their effects on the likelihood of conflict recurrence.

3. Theory

Conflict recurrence remains a pressing issue in international security, as post-conflict societies often struggle to sustain long-term peace. Previous research indicates that external support to non-state armed groups is a critical factor influencing whether conflicts reignite (Karlén, 2017). While various forms of external support exist, I argue that not all types influence the likelihood of conflict recurrence equally. This study theorises that troop support and the provisioning of weapons and ammunition have a greater effect on the resurgence of conflict than other forms of support. My rationale is twofold and builds upon Karlén's (2017) proposed mechanisms of anticipation and facilitation: troops, weapons and ammunition signify a higher commitment level from previous external actors and have more immediate impacts on armed groups' warfighting capabilities. Jointly, this creates improved conditions for an actor to remobilise and reinitiate a conflict, which increases instances of recurrence.

3.1 Signalling higher commitment levels

First, I argue that the provisioning of troops and weapons represents a substantial investment by external actors, signalling a deep commitment to the supported group's objectives. Deploying troops to another country entails substantial political and economic costs, as it often subjects the supporting actor to domestic and international scrutiny over expenses, casualties, and accusations of meddling in a foreign conflict (Mumford, 2013, p. 41; Carson, 2018, p. 4). Similarly, supplying weapons, especially advanced or sophisticated armaments, requires supporters to allocate considerable resources to a foreign cause. This high level of commitment can embolden armed groups (McKibben and Skoll, 2021, p. 486), reinforcing their resolve to resume hostilities. Knowing they have substantial backing through dedicated external support structures, groups that received troops, weapons and ammunition may perceive a greater likelihood of achieving their aims through renewed conflict. In contrast, support types like financial aid or access to safe havens, while beneficial, may not convey the same depth of commitment (McKibben and Skoll, 2021, p. 486), signalling a relatively weaker external support structure. They are less costly for the supporter and may be provided with relatively lower risk, thus offering less assurance to the recipient about sustained backing in a protracted conflict. Hence, I theorise that actors who receive external support through troop support, weapons or ammunition experience higher anticipation of renewed support from their former external support structures than actors who received foreign assistance through other means.

3.2 Enhanced and accelerated facilitation for remobilisation

Secondly, I argue that direct troop support, weapons and ammunition have the most facilitating and direct effect on remobilisation and warfighting capabilities, compared to other types of external support. Troop support and weapon deliveries have an immediate and tangible impact on an armed group's operational effectiveness, directly enhancing their warfighting capabilities and accelerating the remobilisation process. Additional troops can fill manpower gaps, bring specialised skills, and swiftly enhance combat readiness. Weapons and ammunition supplies equip a group without the delays associated with black-market purchases or domestic production (Byman et al., 2001, p. 91–92, 93–97). This immediate boost enables armed groups to reinitiate hostilities more quickly and effectively. These enhancements swiftly alter the balance of power on the ground, making the possibility of returning to conflict a more viable and attractive option.

In contrast, other support types, like financial aid, training, logistical assistance, access to safe havens, intelligence, and expertise, typically have a more delayed effect on warfighting capabilities and the remobilisation process. Financial resources may take time to convert into tangible military assets and improved fighting capabilities. Training improves skills over time but does not immediately enhance the capabilities of an armed group. Logistical support facilitates operations but does not instantly strengthen combat capabilities. Access to safe havens offers strategic breathing room but does not directly contribute to force generation in the initial stages of a conflict. Intelligence and expertise enhance planning but are insufficient without the necessary personnel and equipment to execute operations. Therefore, while valuable, these support forms do not offer the instant boost to military strength that troops and weapons provide, nor do they expedite remobilisation as effectively.

By providing immediate enhancements to both combat capabilities and the speed of remobilisation, troop support and weapon deliveries play a disproportionately significant role in the likelihood of conflict recurrence. They lower the barriers to reinitiating hostilities and make renewed conflict a more accessible and appealing option for armed groups.

3.3 External support's limited temporal effect on conflict recurrence

Finally, I theorise that governments' and rebel groups' anticipation of renewed support from their former external support structures decreases in the years following conflict termination. Similarly to Karlén (2017, p. 504), I argue that the commitment of external supporters to assist

diminishes over time as their strategic incentives to remain involved with a non-active dyad dwindles. Consequently, governments' and rebel groups' expectation of renewed backing from their prior external support structures should decrease as time passes. As such, conflict recurrence is more likely in the first years after a conflict has ended, as this period is when governments and rebel groups have the highest anticipation of renewed support from their prior external support structures to facilitate remobilisation (Karlén, 2017, p. 503). The regression models of this study are designed to account for the theorised decreasing effect of external support on conflict recurrence over time.

3.4 Theoretical argument and hypothesis

By rapidly strengthening an armed group's capabilities, troop and weapon support are more inclined to promote conflict recurrence. They reduce the barriers to restarting hostilities and can shift the cost-benefit analysis in favour of conflict. The high level of external commitment they represent may also encourage risk-taking by the supported group under the assumption that their backers will provide renewed assistance. In contrast, other support forms do not have the same instantaneous effect on an armed group's readiness for conflict. They may contribute to long-term capacity building but are less likely to trigger immediate conflict resurgence.

I argue that previous provisioning of troop support, weapons, and ammunition has a disproportionately larger effect on the likelihood of renewed hostilities due to their ability to rapidly enhance warfighting capabilities and signal strong external commitment. Moreover, the effect of previous external support decreases with time as previous external support structures dwindle. Based on this theory, I propose the following hypothesis:

H1: The previous provisioning of troop support, weapons and ammunition leads to more conflict recurrence in the first years after a conflict, compared to other types of external support.

4. Research design

This section outlines the research design of this paper, beginning with an explanation and justification of its methodological approach. Subsequently, I introduce survival analysis and the Cox proportional hazard model as the method deemed to be the most suitable for assessing the effects of external support types on conflict recurrence. Following this, I outline the selection process of the study's primary data sources and explain how they are combined to address the research question at hand and meet the structural requirements of a survival analysis. I then present the operationalisations of my variables and scrutinise their validity and reliability. Finally, the scope conditions are outlined.

4.1 Methodological approach - prioritising generalisability

Employing a quantitative research design offers a distinct advantage when addressing the research question of this study - generalisability. While a qualitative research design generally excels in developing and verifying the occurrence of a theoretical mechanism through, for example, process tracing, it does not facilitate hypothesis testing on a large sample of cases. This limits the generalisability of the results drawn from qualitative studies. Whereas quantitative approaches tend to simply utilise an inferred theoretical mechanism as a guiding explanation, they do so by testing a theory based on the statistical association between two phenomena and isolating their relationship on a substantially larger sample of cases. This results in a research design with comparatively higher external validity (Brancati, 2018, p. 294–295). Even though small-N qualitative approaches and their distinct methods would provide more detailed and context-specific explanations on how variations in external support types affect conflict recurrence, generalising these results to the broader population of dyads will likely fall victim to sampling biases. That is to say; qualitative results can reveal if, how, and why certain external support types lead to conflict recurrence but may miss broader patterns in the unobserved population. However, a quantitative approach provides this study with the analytical horsepower needed to assess the broader pattern of if and how external support types affect conflict recurrence by testing the hypothesis on a substantially larger sample. Hence, a quantitative approach is more aligned with the broad research question of this paper as it produces improved external validity.

4.2 Statistical model selection

This study employs a survival analysis to investigate how various types of external support influence conflict recurrence. Survival analyses are a family of regression models specifically

tailored to assess how one or several independent variables affect the duration until an event occurs. As such, they calculate how long it takes until a 'death' or 'failure' event takes place across time in a dependent variable (Mills, 2011, p. 1–5). Therefore, a survival analysis enables this study to examine how the previous presence of external support types affects the duration of peace after a conflict, and, consequently, how external support types affect the likelihood of conflict recurrence.

A survival analysis is selected over other regression formulas due to several key advantages. First, a logistic regression model, which typically would have been selected to account for the binary dependent variable of conflict recurrence, does not consider the time it takes for an event to occur. Thus, a logistic model will provide a result that simply denotes which types of external support increased or decreased the odds of conflict recurrence. It treats all observations equally and calculates an independent variable's average effect on a binary dependent variable. However, by utilising time-to-event data, survival analyses implicitly account for time by assessing how one or several predictor variables affect the duration of an event to occur (Mills, 2011, p. 9–11). A second advantage is the survival function's ability to account for truncation and censoring. As such, dyad-peace episodes that are right-censored beyond 2015 are still accounted for (Mills, 2011, p. 4–8).

More specifically, the study employs a Cox proportional hazards model. Compared to other non-parametric functions, like the Kaplan-Meier model, the Cox model accounts for the effects of more than one predictor on the risk of an event to occur over time (Mills, 2011, p. 95). This is important for two main reasons. First, this study assesses how various external support types affect conflict recurrence. Thus, the regression formula must accommodate several independent variables at the same time. Secondly, accounting for multiple independent variables helps reduce omitted variable bias. This is done by controlling for other factors linked to conflict recurrence. Although it is impossible to isolate a proposed causal relationship completely, the Cox model's ability to include several predictor variables allows the study to account for other theoretically grounded factors affecting conflict recurrence. This reduces the likelihood of a spurious result (Kellstedt and Whitten, 2018, p. 67).

Similarly to other regression models, the Cox model offers two methodological benefits when addressing the four causal criteria. First, regression models can provide strong empirical evidence for covariation between two phenomena. Regression models enable assessments of

the statistical association between two phenomena by evaluating if a change in the independent variable occurs consistently with a change in the dependent variable (Kellstedt and Whitten, 2018, p. 60–64). Similarly, the Cox model evaluates covariation by modelling how changes in independent variables influence the time until an event occurs. This is modelled by estimating hazard ratios that quantify the association between covariates and the hazard rate of an event (Mills, 2011, p. 88–89). Secondly, regression models and survival analyses can estimate covariation across a theoretically limitless number of observations. The Cox model thus serves as a suitable instrument to assess if the proposed relationship exists and behaves in a theoretically expected manner across a large sample of cases, as it accounts for covariation and provides the statistical horsepower to yield generalisable results (Kellstedt and Whitten, 2018). As previously discussed, large-scale covariation assessments are central prerequisites to this paper's research design, as they enable the study to suggest general patterns of how different types of external support affect the likelihood of conflict recurrence.

However, the Cox model mirrors other regression models' inability to pass several causal hurdles. First, Cox models cannot by default account for reverse causality. However, one may argue that the research design of this study alleviates some concerns regarding retro-causality, as the independent variable inherently occurs before the dependent variable (Kellstedt and Whitten, 2018, p. 90). In this case, it is illogical that conflict recurrences can affect the prior provisioning of external support, as the provisioning took place before the conflict episode itself ended.

Additionally, while survival analyses and other regression models offer strong empirical evidence of correlation, they are insufficient to make robust claims about causation due to endogeneity concerns. For example, although this study provides a theoretical reason for why certain types of external support should generally co-vary with more instances of conflict recurrence, it does not test whether or how this mechanism takes place. Small-N qualitative methods like process tracing are better equipped to pass this causal hurdle (Brancati, 2018, p. 100–101). Moreover, survival analyses and other regression analyses can produce spurious results due to omitted variable bias. Even though the Cox model can account for confounding variable bias by controlling for other phenomena that may influence both the independent and dependent variable, it is impossible to model every conceivable factor that can cause a change in an outcome variable (Kellstedt and Whitten, 2018, p. 68–69). Keeping the shortcomings of reverse causation, isolation and the verification of a proposed theoretical causal process in

mind, I argue that the Cox model's ability to statistically test for correlation and control for confounding variables on a large sample of cases makes it the optimal method for tackling the research question at hand.

4.3 Main data sources

Based on the statistical model employed, the data structure of this study must capture external support types, periods of sustained peace, and instances of conflict recurrence within a time-to-event framework. To achieve this, I base my data on two UCDP datasets measuring instances of external support during active years of conflict, along with instances of conflict termination and conflict recurrences. Fundamentally, my study is based on the actor-year version of the UCDP External Support Dataset (ESD) v 18.1 (Meier et al., 2023). It captures the provisioning of ten types of external support to each actor in a dyad during active years of armed conflict between 1975 and 2017. It contains all the independent variables of this study. The UCDP ESD is chosen to quantify external support because it offers several unique advantages over alternative datasets. Most importantly, the UCDP ESD is the only dataset that *concurrently* provides global coverage of various direct and indirect types of external support distributed to both governments and rebel groups. While other datasets provide improved leverage in single attributes, like an extended temporal coverage prior to 1975 (Regan, Frank and Aydin, 2009; Sullivan and Koch, 2009; Cunningham, Gleditsch and Salehyan, 2013; San-Akca, 2016) or include more categories of external support (Regan, 2002; Regan, Frank and Aydin, 2009; Regan and Meachum, 2014), they all fall short of simultaneously measuring a wide arrange of direct and indirect external support types over a longer and more recent time-frame provisioned to both governments and rebel groups. Additionally, some datasets utilise events or conflicts as the unit of analysis and do not account for time variation (Tillema, 1989; Pickering and Kisangani, 2009; Cunningham, Gleditsch and Salehyan, 2013). These are either incompatible with the formatting of available conflict recurrence data or hinder the systematic analysis of conflicts with multiple recurrences.

By itself, the UCDP ESD only includes observations of years that reaches the UCDP's active conflict threshold of 25 battle-related deaths per calendar year and their potential instances of external support. Hence, the dataset does not capture peaceful years within a dyad, referred to as 'peace episodes,' or instances where a peace episode reverts to conflict. To resolve this, I identified the first active year of each dyad. I then generated observations for every subsequent year that did not reach the UCDP's active conflict threshold until the dataset's right censoring

in 2017. By merging my extended version of the UCDP ESD dataset with the UCDP Conflict Termination Dataset's v 3-2021 (Kreutz, 2010) variables identifying conflict episodes for each dyad and their yearly instances of conflict termination and recurrences, I can determine if each added year is either an inactive conflict year or a year of peace within each dyad. The UCDP Conflict Termination Dataset is selected because it is, to the best of my knowledge, the only dataset that measures conflict termination and conflict recurrence on a dyad level. Similarly to the UCDP ESD, the UCDP Conflict Termination dataset is also built on the UCDP Dyadic Dataset v 21.1/18.1 (Harbom, Melander and Wallensteen, 2008; Pettersson, Therése and Eck, 2018; Pettersson, Therése et al., 2021). This allows close to seamless and systematic merging between the two datasets based on their shared UCDP dyad and actor identification numbers.

To summarise, I have created a time-to-event dataset by extending the UCDP ESD to include peaceful dyad years and merging them with the UCDP Conflict Termination Dataset's records of conflict terminations and recurrences. My dataset tracks the external support rebel groups and governments received during conflict episodes and records each dyad's instances of conflict recurrence during peace periods. Since it is based on the UCDP's dyad structure and inter-compatible actor identifiers, it can account for multiple conflict recurrences within a dyad. The dataset follows each actor in a dyad from the first year they reach 25 battle-related deaths, capturing external support provided during active conflict years, inactive conflict years, peace years, and conflict recurrences up to 2015. For more details on data handling, see Appendix A.

4.4 Operationalisation of main variables

The independent variables and the dependent variable of this study are all operationalised through the UCDP External Support Dataset (ESD) v 18.1 (Meier et al., 2023) and the UCDP Conflict Termination Dataset v 3-2021 (Kreutz, 2010) respectively. This subsection first presents each independent variable and assesses their combined validity in capturing the full range of external support types. This is followed by an explanation of how the study operationalises the expected diminishing impact of external support on conflict recurrence over time. Then, the operationalisation and validity of the dependent variable are discussed. Finally, the reliability of both the dependent and independent variables are scrutinised together, as UCDP data face similar limitations.

4.4.1 Operationalisation and validity of the independent variables

As previously discussed, this paper employs variables from the UCDP External Support Dataset (ESD) v 18.1 (Meier et al., 2023) to operationalise external support types that are frequently identified in previous research (Byman et al., 2001; San-Akca, 2016; Rauta, 2021; Wiger and Atwell, 2023). In total, this study analyses how eight external support types provided during active dyad years affect the probability of renewed conflict. Each variable is a binary measurement of whether or not a specific type of external support was provided during an active conflict year. Although the ESD dataset includes observations of external support during inactive years, this study excludes them to avoid bias. Including these observations could enhance the construct validity of this measurement, as support during inactive years likely influences conflict recurrence as well. However, the ESD only records instances of external support during inactive dyad years if they emerged from research on active years (Meier, 2022, p. 15). Hence, inactive years are not systematically captured by the dataset.

Direct troop support is the first type of external support readily mentioned in previous research. My operationalisation of troop support is based on three ESD variables denoting external troop support by third-party states or non-state groups. Two variables indicate different levels of foreign troop presence by state actors while the third variable denotes troop support from non-state actors. These variables include foot soldiers, special forces or expert personnel such as tank drivers or pilots. The variable denoting the provisioning of troop support by non-state actors to government or rebel groups, also includes instances of access to infrastructure and joint operations. The ESD splits the provisioning of troop support from states into two distinct variables and merges troop support from non-state troops with joint operations to ensure full compatibility with a legacy variable on secondary warring support in the UCDP Dyadic Dataset (Meier, 2022, p. 11, 17). Overall, the construct validity of troop support from state actors unproblematically fits the theoretical role of direct troop support as an external support type. However, the operationalisation of troop support from non-state actors reduces construct validity, as it also encompasses instances of access to infrastructure and joint operations.

A second type of external support often provided to warring parties is the allocation of weapons and ammunition. The provisioning of weapons and ammunition is operationalised by the single variable ‘weapons’ in the ESD. It denotes instances where “[an] external supporter provides weapons or ammunition to a warring party on conciliatory terms or through non-conventional channels” (Meier, 2022, p. 12). This includes donations, unreasonably cheap weaponry sales,

and arms embargo violations. The measurement arguably provides satisfactory construct validity as it includes all kinds of weapons and ammunition.

The three variables denoting different types of direct troop presence and the variable measuring the provisioning of weapons and ammunition are combined into one binary variable called 'hard types of external support', as they are deemed to have a theoretically distinct effect on conflict recurrence, compared to other types of external support.

The first prominent type of external support that I expect to have a relatively lower effect on conflict recurrence than troop support, weapons, and ammunition is the provisioning of materiel and logistics. These common types of external support are grouped into one variable by the ESD, which measures the provisioning of a wide array of non-weaponry military equipment and logistical aid. The variable captures materiel and logistics systems such as the provisioning of uniforms, food, communication equipment, medical supplies, surveillance drones, tents, vehicles and the building of military structures - just to name a few (Meier, 2022, p. 12–13).

The second external support type anticipated to have a lower effect on conflict recurrences is the provisioning of training and military expertise. The ESD variable captures instances where an external supporter provides training, sends military experts and makes technical know-how available to another foreign actor. For instance, it measures the provisioning of military specialists and planners who are not directly engaged in combat operations or the transferring of information on how to produce military equipment (Meier, 2022, p. 13).

Previous research also readily identifies external support through the provisioning of money. The ESD's variable denoting funding captures foreign states' allocation of military loans or grants directly connected to a conflict. It excludes instances where funding is converted into equipment or training before transfer, alongside humanitarian aid, development aid or financial support for peacekeeping operations (Meier, 2022, p. 12–13).

Second to last, intelligence is also recognised as a common external support type, and, in this context, is believed to have a relatively lower effect on the anticipation of renewed support and remobilisation capacity. It is operationalised by an ESD variable denoting if an external supporter provides a warring actor with information, such as enemy positions, satellite maps or information on troop capabilities (Meier, 2022, p. 12–13).

The provision of access to territory occurs when a foreign state or group actively permits an external actor engaged in war to use its territory as a sanctuary for rest, logistical support, or cross-border raids. Instances of access to territory are operationalised by the 'territory' variable in the ESD (Meier, 2022, p. 14). It excludes instances where warring actors have unauthorised access to foreign territory.

Together, the previous provisioning of materiel, logistics, training, expertise, funding, intelligence and access to territory are combined into one binary variable called 'soft external support, due to their theoretically distinct effects on lowering instances of conflict recurrence compared to 'hard' types of external support. This leaves the study with the two binary variables, 'hard' and 'soft' support, to differentiate the effects direct troop support, weapons and ammunition have on conflict recurrence, compared to other types.

Finally, the assumption of external support's diminishing effect on conflict recurrence over time is a critical aspect of my theory. To capture this, I incorporate a decay function with a half-life of two years on each variable denoting an external support type. This function reflects the idea that the anticipation of renewed support is strongest immediately after a conflict ends and diminishes over time as uncertainty grows. Each primary variable retains its original value in the first year following conflict termination. In practice, an actor who received weapons and ammunition during the previous conflict episode holds a value of 1 in its first observation in a peace episode. This value then decays for each passing year within the actor's peace episode. After two years, it holds a value of 0.5 and continues to decay with each yearly observation until the peace episode is ended by conflict recurrence or right censored after 2015. The decay rate used in the main models follows convention established in previous studies on conflict recurrence and external support (Karlén, 2017, p. 504).

I argue that the operationalisation of external support through the ESD provides this study with satisfactory content validity, as it captures the full range of external support types identified by previous research. Although the ESD provides strong validity in capturing a vast array of external support types, it demonstrates equally limited construct validity. These weaknesses are apparent in how each variable denotes a dichotomous measurement of external support. The lack of granularity in the binary variables simplifies the complexities of external support provisioning. As such, the ESD' captures an instance of financial external support of one

million dollars to a warring actor equally to another occurrence of one billion dollars. Similarly, the provisioning of 1000 and 10.000 troops, or 100 grenade launchers and 1000 ballistic missiles, are all treated equally, regardless of their quantity and quality. Hence, one cannot assume that each observation of an external support type has an equal effect on a previously warring actors' anticipation of renewed external support and its faciliatory effect on remobilisation capabilities. Additionally, omitting observations of external support during inactive years also reduces the validity of the operationalisation, as external support that is provided after a conflict would presumably have a high effect on an actor's anticipation of renewed support. While binary measurements and the exclusion of non-active observations restrict the precision and representation of my operationalisations, they are still the most nuanced and comprehensive data sources currently available on the provisioning of external support types. Previous research and alternative datasets on external support face identical or similar limitations (Testerman, 2015; Karlén, 2017, 2023; Roberts, 2019; Keels, Benson and Widmeier, 2021; McKibben and Skoll, 2021). Hence, this validity concern results from data limitations shared by all large-N studies on external support.

4.4.2 Operationalisation and validity of the dependent variable

The dependent variable of this study, which denotes instances of conflict recurrence, is operationalised through the UCDP Conflict Termination Dataset v 3-2021 (Kreutz, 2010). The variable 'recur' is a binary measurement indicating if a dyad experiences conflict recurrence after a period of peace or inactivity. While the variable aligns with the theoretical conceptualisation of conflict recurrence from peace episodes and inactivity, the measurement also captures elements that extend beyond the core theoretical interest of this study. Notably, the variable does not indicate which of the two actors in the dyad reignites hostilities. Therefore, it also measures instances where the opposing actor reinitiates conflict. Other studies on conflict recurrence using UCDP data face the same validity challenge due to the absence of data explicitly identifying the triggering actor. Moreover, previous research has justified this lack of nuance, given the significant empirical challenge of reliably establishing an initiating actor (Kreutz, 2012, p. 30–31; Karlén, 2017, p. 504). Blaming conflict initiation on the opposing party is a widespread phenomenon as it can be beneficial for military strategic narratives. To address this issue, I separate external support provided to either governments or rebel groups into distinct variables. This approach accounts for potential systematic differences in how frequently governments and rebel groups reignite conflicts (Karlén, 2017, p. 504).

4.4.3 Reliability of the independent and dependent variables

As all the independent and dependent variables in this study originate from the UCDP, they exhibit similar strengths and weaknesses regarding their reliability. While UCDP data is a cornerstone of empirical research in political science, it is not without criticism regarding its reliability. This is mainly due to potential biases caused by its use of news articles and reports from NGOs and international organisations (UCDP, 2024). Conflict-ridden societies often exhibit poor or biased reporting, stemming from propaganda, limited access, and selective documentation by involved parties or journalists (Höglund and Öberg, 2011). Furthermore, relying on third-party reports, such as news sources, can lead to uneven coverage, particularly in understudied or inaccessible regions. The news media tend to overrepresent high-profile conflicts while neglecting smaller or less publicised ones. Language barriers also cause a bias toward Western sources (Otto, 2013, p. 558–559). Considering these inherent weaknesses, the UCDP data is regarded as an industry standard for empirically measuring conflicts.

4.5 Operationalisations of control variables

There are numerous reasons why some conflicts are more prone to recurring than others. This study implements control variables to isolate the relationship between different types of external support and their effect on the likelihood of conflict recurrence. To reduce confounding bias, this study controls for eight variables that prior research suggests influence the likelihood of conflict recurrence.

The first control variable accounted for by this study measures the intensity of the previous conflict episode. *Conflict episode intensity* is included in the Cox model as previous studies indicate that higher levels of violence tend to create post-conflict environments that have decreased capacity to uphold order. They may also cause deeper grievances and incompatibilities in post-conflict societies (Karlén, 2017, p. 504). Hence, peace episodes with higher intensity levels in the prior conflict episode are expected to be more vulnerable to conflict recurrence. Conflict intensity in the prior dyad episode is operationalised by the UCDP Dyadic Dataset's (v 24.1) (Harbom, Melander and Wallensteen, 2008; Davies et al., 2024; Pettersson, Therese, 2024) binary measurement of conflict intensity. If a prior conflict episode has at least one year that reaches the UCDP's threshold of war, i.e. 1000 battle-related deaths, the conflict episode receives a 1-value. If the conflict episode remains between 25 and 999 battle-related deaths per year for the entire conflict episode, it contains a 0-value.

The second control variable considers the duration of the previous conflict episode. Conflicts may recur if the preceding conflict is too brief to fully expose the relative strengths of the combatants, leaving insufficient time for external states to offer support (Karlén, 2017, p. 504–505). *Conflict episode duration* is operationalised by creating a variable that subtracts the first yearly observation of a conflict episode from its last year value. It is based on data from the UCDP Conflict Termination Dataset v 3-2021 (Kreutz, 2010).

The third control variable indicates if there are other ongoing and active conflicts in the country where a dyad peace episode occurs. Even though a dyad might be in a period of no violence, the government might be involved in other active conflicts. Ongoing armed conflict within the same country should decrease governance capacity and thus increase the probability for a rebel group to re-engage in hostilities (Walter, 2015). *Country intensity level* is operationalised through the UCDP/PRIO Armed Conflict Dataset (v 24.1) (Harbom, Melander and Wallensteen, 2008; Davies et al., 2024; Pettersson, Therese, 2024). 0-values represent no active conflicts within the country of a dyad, while 1 and 2 signify armed conflict or civil war according to the above-stated UCDP thresholds (UCDP, 2024).

My fourth control variable considers whether the incompatibility of a dyad contains grievances over *territory*. Incompatibilities over territory are argued to be deeply rooted and more prone to recurrence (Quinn, Mason and Gurses, 2007, p. 180). The variable is operationalised by the UCDP Dyadic Dataset (v 24.1) (Harbom, Melander and Wallensteen, 2008; Davies et al., 2024; Pettersson, Therese, 2024). Originally, the variable denoted incompatibilities over 'government', 'territory' and 'government and territory'. My operationalisation merges 'territory' and 'territory and government' into one binary variable that indicates if grievances over territory are a component of a dyad's incompatibility.

The fifth control variable denotes whether a dyad is involved in a conflict divided along *ethnic dimensions*. When war erupts, ethnic identities and hostilities often become entrenched, further hindering the coexistence of different groups after a conflict. This deteriorates the conditions for sustainable peace and might therefore increase the likelihood of conflict recurrence (Tarr, 2022). Dyads along ethnic lines are operationalised by the ACD2EPR's (Wucherpfennig et al., 2012) variable measuring if the rebel group in a dyad has asserted a claim to represent and fight on behalf of a specified ethnic group. I have re-coded the variable by merging direct and indirect evidence for ethnic claims and transformed instances of no information into instances of no

claim. This results in a binary variable measuring if there is evidence of a rebel group making claims to represent the interests of at least one ethnic group or not. The ACD2EPR dataset was chosen over other data sources on ethnic dimensions in conflict due to its broad temporal scope and compatibility with UCDP actor identification numbers (Vogt et al., 2015, p. 6).

Moreover, the study also assesses how the previous dyad episode was terminated. Previous research indicates that variations in how a conflict is terminated affect conflict recurrence. Specifically, decisive military victories are associated with more durable peace than negotiated settlements (Licklider, 1995; Wagner, 1995, p. 255). To capture this, three binary variables *frozen*, *peace agreement* and *military victory* are created by dummy coding the UCDP Termination dataset's variable measuring the outcomes of each dyad episode (Kreutz, 2010). The reference category for the three dummy variables are instances of all other types of termination outcomes.

Second to last, I control for variations in the *state capacity* of the country each peace episode is situated in. Previous research has identified lower levels of state capacity as a prudent driver of conflict recurrence as it weakens the rule of law and impedes monopoly on violence (Hegre, Havard and Nygard, 2015; Walter, 2015). State capacity is operationalised through the 'State Capacity Index v. 1' (Hanson and Sigman, 2021; Teorell et al., 2024), which combines 21 indicators of a state's extractive, coercive and administrative capacities through a latent variable analysis. Higher values indicate higher levels of state capacity. The data source is selected due to its comprehensive measurement of key state capacities, such as the monopoly of the use of force and the rule of law, alongside its broad spatial and temporal reach.

Finally, I include two control variables to capture the presence of peacekeeping missions. Previous studies find that peacekeeping missions lower the intensity of ongoing conflicts. Moreover, peacekeeping missions reduce instances of conflict recurrence when deployed to a post-conflict environment (Kroeker and Ruggeri, 2022). This study operationalizes peacekeeping operations using two variables. These variables indicate the presence of a UN-mandated peacekeeping mission deployed to the country where a dyad resides, either during a conflict episode or a peace episode. The presence of peacekeeping in both periods is associated with a reduced likelihood of conflict recurrence. The data is drawn from the Third-Party Peacekeeping Missions Data Set, 1946-2022 v. 3.5 (Mullenbach, 2024).

4.6 Scope conditions

This study's theory, hypothesis, and empirical findings may not hold under certain conditions due to scope limitations set by data constraints or restrictions applied to ensure parity with previous research's theoretical and empirical underpinnings. First, it is important to remember that this study only includes instances of external support during active years of armed conflict. However, the provision of external support undoubtedly occurs regardless of whether a conflict reaches 25 battle-related deaths or not. Similarly, there is little preventing external support structures from continuing to aid a previously warring actor after a conflict is terminated (Hazen, 2013, p. 63; Meier, 2022). Even though the UCDP ESD contains some instances of external support provisioning during inactive years, making up 6,55% of the dataset, these observations are only added if they were exposed during research on active years (Meier, 2022). As such, the data on inactive conflict years have been omitted due to the inconsistent data collection and the likelihood of bias. Based on these data limitations, the study cannot assume that external support types provided during active and inactive years of conflict have an equal effect on conflict recurrence. Hence, the result of this study only reflects how the previous types of external support during active years of armed conflict affect conflict recurrence and not the effects of external support types provided during inactive years.

Secondly, this study's theory and empirical findings apply only to intrastate conflicts. Although the UCDP ESD includes instances of external support to interstate conflicts, making up 2,97% of the total observations (Meier, 2022), these cases have been excluded from the analysis. Interstate conflicts are excluded because the study's theoretical underpinnings and empirical evidence are specifically grounded in the unique dynamics of intrastate conflicts. Previous research points to the distinct power imbalances between the governments and rebel groups in terms of their access to resources, organisational capabilities, dissimilar interests in conflict outcomes and recurrence that makes intrastate conflict dynamics systematically distinct from conflicts between two states (Hazen, 2013; Karlén, 2017, 2023; Carson, 2018; McKibben and Skoll, 2021; Moghadam, Rauta and Wyss, 2023). Given these differences, it would be unwise to assume that various types of external support have the same impact on interstate conflict recurrence.

Third, although the study applies a global spatial scope, data limitations from the UCDP ESD restrict the temporal scope of this study to 1975 and onwards. The results do not apply to cases of conflict recurrence that occurred beyond this temporal limitation, as certain types of external

support may have been systematically more or less crucial in terms of facilitation and anticipation of renewed support in a pre-1975 world. Of course, the same can be said about conflicts occurring after 2015.

5. Empirical analysis

This section begins by presenting the descriptive statistics for the main models of this study. It then proceeds to analyse the results of the Cox proportional hazards models, which reveal that the effects of hard and soft external support types on conflict recurrence are statistically insignificant. Two robustness tests are then conducted: the first applies alternative decay functions, while the second disaggregates hard and soft external support into their original sub-types. The findings remain statistically insignificant across both robustness tests.

5.1 Descriptive statistics

After merging the UCDP ESD v 18.1 (Meier et al., 2023) with the UCDP Conflict Termination Dataset v 3-2021 (Kreutz, 2010) and generating additional data points for each dyad peace episode, the data frame of this study contains 6027 observations of dyad peace years globally between 1975 and 2015, as seen in Table 1. During these peace episodes, 181 instances of conflict recurrences are captured, which amounts to 3% of all observations. The study includes 166 conflicts across 359 dyads and 514 peace episodes. The average peace episode lasted 23 years with a standard deviation of 10 years, a minimum of 1 year and a maximum of 40 years. This indicates a relatively wide variation and spread of how long peace episodes last. The temporal scope of this paper is defined by the UCDP ESD's starting point in 1975 and extends up to the State Capacity Index's maximum coverage in 2015.

Each independent variable's mean and standard deviation provide further insights into the prevalence and spread of different external support types. The mean of each binary external support type is equivalent to the proportion of observations where the value 1 occurs and hence indicates how often they were provided in the previous conflict episode. Thus, a higher mean indicates they are commonly provided. On average, this dataset captures more instances of external support to governments in the previous conflict episode than to rebel groups. Additionally, the distribution of different types of external support varies between governments and rebel groups, as training and expertise, weapons and ammunition and materiel and logistics are the most common provisions for governments. Similarly, but in a slightly different order, instances of the previous provisioning of weapons and ammunition, training and expertise and materiel and logistics support are the most common among rebel groups in this dataset. For more details on the descriptive statistics of the data applied in this study, see Table 1.

Table 1: Summary statistics.

Variable	*Observations*	*Mean*	*Std. dev.*	*Min.*	*Max.*
Conflict recurrence	6027	0.03	0.17	0	1
Peace episode duration	6027	23	10	1	40
Hard external support to government*	6027	0.094	0.23	0	1
Soft external support to government*	6027	0.1	0.24	0	1
Hard external support to rebel group*	6027	0.069	0.21	0	1
Soft external support to government*	6027	0.081	0.22	0	1
Conflict episode intensity	6027	0.097	0.3	0	1
Conflict episode duration	6027	3.1	3.8	1	41
Country intensity level	6027	0.52	0.66	0	2
Territory	6027	0.32	0.47	0	1
Ethnic dimension	6027	0.51	0.5	0	1
Frozen	6027	0.37	0.48	0	1
Peace agreement	6027	0.16	0.37	0	1
Military victory	6027	0.36	0.48	0	1
State capacity	6027	-0.2	0.77	-2.3	2
Peacekeeping during conflict episode	6027	0.085	0.28	0	1
Peacekeeping during peace episode	6027	0.15	0.36	0	1

*Variables with decay functions.

5.2 Result

How do different types of external support affect the likelihood of conflict recurrence? I have argued that external support structures originating from the previous conflict episode lower the barriers to reinitiating hostilities. Specifically, I argue that the prior provisioning of direct troop support, weapons and ammunition, constituting hard support types, are particularly prudent in making renewed conflict more accessible and appealing for armed groups, as they increase anticipation of renewed support and substantially enhance remobilisation capabilities. Table 2 summarises the Cox regression results on the effects of hard and soft external support on conflict recurrence. Model 1 outlines the raw effect of hard and soft external support provided to governments and rebel groups without control variables. Model 2 accounts for factors that can affect external support and conflict recurrence by incorporating control variables. Following the convention set by previous research on external support and conflict recurrence, an exponential decay function with a half-life of two years is applied to the hard and soft external support variables in both models (Karlén, 2017, p. 504).

The hypothesis of this study states that the previous provisioning of troop support, weapons and ammunition leads to more conflict recurrence in the first years after a conflict, compared to other types of external support. Model 1 indicates that soft types of external support increase the likelihood of conflict recurrence, as its hazard ratio is above one and is statistically significant at the 95% confidence level. However, the result from Model 1 is not sufficient to reject the null hypothesis due to the statistical insignificance in hard and soft external support to governments and hard external support to rebel groups, alongside the model's high probability of omitted variable bias. In Model 2, which controls for other factors that might influence external support and conflict recurrences, soft external support to rebel groups loses statistical significance. All four variables denoting hard and soft external support to governments or rebel groups in Model 2 are statistically insignificant at the 95% level. Consequently, the study does not have sufficient empirical evidence to reject the null hypotheses, stating that the previous provisioning of troop support, weapons, and ammunition *does not lead* to more conflict recurrence in the first years after a conflict compared to other types of external support. The main models of this study are therefore inconclusive. Figure 1 illustrates the statistical insignificance of hard and soft external support types in Model 2. The figure displays the coefficients and confidence intervals of hard and soft external support to governments and rebels, calculated based on the entire model. The dotted red line represents the null hypothesis. As the confidence intervals of all four variables include zero, the study cannot reject the null hypotheses at the 95% confidence level.

Some control variables in Model 2 align with previous research findings, but most do not reach statistical significance. Conflict episode intensity, conflict episode duration, country intensity level, incompatibility over territory, conflict along ethnic division, frozen conflict outcomes, and peacekeeping during the previous peace episode are all statistically insignificant. However, conflict episodes terminated with a peace agreement and military victory have negative hazard ratios and are statistically significant across both models. This indicates that peace agreements and military victories decrease conflict recurrence compared to other outcomes. Moreover, their hazard ratios also indicate that conflicts that end with military victories are relatively less likely to recur than peace agreements, which aligns with previous findings (Licklider, 1995; Wagner, 1995, p. 255). Additionally, state capacity is also statistically significant in Model 2. However, with a hazard ratio above 1, Model 2 indicates that higher levels of state capacity increase the likelihood of conflict recurrence, which deviates from expectations set out by previous studies (Hegre, Havard and Nygard, 2015). Finally, instances of peacekeeping during a conflict episode

increase the likelihood of conflict recurrence. That said, this variable's high hazard ratio and statistical significance may result from possible selection bias, as peacekeeping missions are often deployed in response to the most severe and high-risk conflicts, increasing the likelihood of recurrence. Additionally, it may also signify possible interactive effects or endogeneity. Finally, estimates of the overall model fit are statistically significant. Wald Test results indicate that to a high degree, Model 1 and Model 2 explain variation in conflict recurrence. Likelihood Ratio tests indicate that both models better explain conflict recurrence than a null model without predictors. Additionally, a global test of each model indicates no violation of the proportional hazard assumption. However, individual tests reveal that conflict episode intensity violates the proportional hazard assumption.

To summarise, the result of the empirical analysis is inconclusive due to statistical insignificance in the main predictor variables. The study, therefore, cannot make causal inferences about whether past external support influences the expectation of renewed support and facilitates remobilisations sufficiently to affect the likelihood of conflict recurrence.

Table 2*:* The effects of hard and soft external support on conflict recurrence

	Model 1	*Model 2*
Hard support to government	1.51 (0.54)	1.42 (0.45)
Soft support to government	2.77 (0.68)	1.09 (0.49)
Hard support to rebel group	1.67 (0.48)	1.74 (0.38)
Soft support to rebel group	6.28** (0.79)	1.99 (0.47)
Conflict episode intensity		1.22 (0.44)
Conflict episode duration		1.00 (0.03)
Country intensity level		1.09 (0.16)
Territory		1.67 (0.32)
Ethnic dimension		1.57 (0.32)
Frozen		1.20 (0.33)
Peace agreement		0.38** (0.45)
Military victory		0.18*** (0.42)
State capacity		1.41** (0.16)
Peacekeeping during conflict episode		8.22*** (0.37)
Peacekeeping during peace episode		1.35 (0.35)
Observations	6,027	6,027
Subjects	561	561
Failures	181	181
Wald Test	283.12	465.14
LR Test	251.57	490.54

*Note: *p<0.1, **p<0.05, ***p<0.01. Hazard ratios reported. A ratio above 1 indicates an increased risk for conflict recurrence, while a value below 1 indicates a decreased risk for conflict recurrence. Standard errors clustered on dyad in parenthesis.*

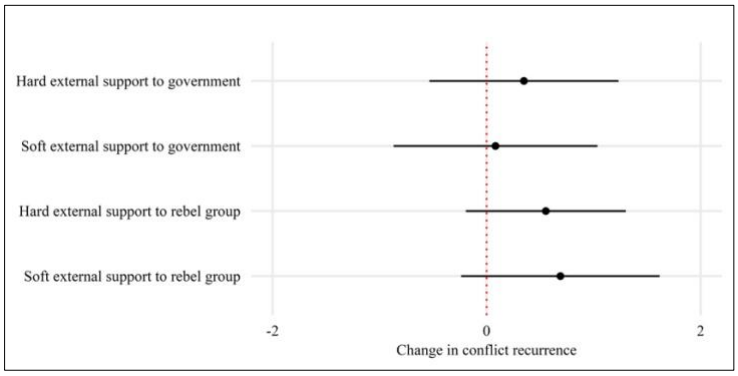


Figure 1: Coefficient plot for Model 2 with 95% confidence intervals

5.3 Robustness tests

In this section, I assess the robustness of the main findings by subjecting the Cox models to alternative specifications and measurement strategies. I begin by recalculating Model 2 with faster and slower decay functions applied to hard and soft types of external support. This step is aimed to ensure that the Cox regression result in Model 2 is not influenced by the specific half-life value assigned to the decay functions. Secondly, I analyse alternative models where hard and soft external support types are disaggregated into their raw measurements from the UCDP ESD across different decay rates.

5.3.1 Altering the decay function

In studies where the effects of certain independent variables are expected to diminish over time, determining the half-life of a decay function can significantly influence regression results. Decay functions - here used to capture how external support loses impact as peace episodes progress - are inherently theoretical assumptions. Although applying a two-year half-life, as seen in Models 1 and 2, follows certain conventions in previous work (Karlén, 2017), this standard is not firmly established due to the limited research on external support and conflict recurrence.

To address concerns regarding the decay function applied to Models 1 and 2, I run additional tests that lower and extend the duration during which hard and soft support can influence conflict recurrence. Specifically, I replicate the specifications of Model 2 but use decay functions with shorter and longer half-lives. Table 3 presents these variations side by side: Model 3 has a faster decay rate with a half-life of one year. Subsequently, Models 4 and 5 have slower decay functions with half-lives of four and six years. Collectively, the models with quicker and slower decay functions do not provide substantially different results compared to

Models 1 and 2, as seen in the widespread statistical insignificance across all model specifications. Expanding the half-life beyond six years would arguably contradict the decay function's role of emulating the theorised short-term effect of hard and soft external support, especially as the longest peace episodes last 40 years. Nonetheless, additional models with half-lives beyond 6 years do not increase the statistical significance of hard and soft external support to governments or rebel groups. Moreover, the statistically significant control variables in Models 1 and 2 behave consistently across all models in Table 3. In sum, the stability of hard and soft external support's statistical insignificance regardless of decay rate provides robustness to the inconclusive result in Models 1 and 2. The inconclusiveness is therefore not caused by model-specific decay rates. Hence, the inconclusive result of Models 1 and 2 stands, regardless of decay rates.

Table 3: The effects of hard and soft external support on conflict recurrence with faster and slower decay rates.

	Model 3 *Half-life 1 year*	*Model 4* *Half-life 4 years*	*Model 5* *Half-life 6 years*
Hard support to government	1.33 (0.44)	1.41 (0.45)	1.38 (0.45)
Soft support to government	0.97 (0.47)	1.11 (0.49)	1.07 (0.49)
Hard support to rebel group	1.71 (0.37)	1.65 (0.39)	1.56 (0.39)
Soft support to rebel group	1.71 (0.44)	2.02 (0.47)	1.92 (0.46)
Conflict episode intensity	1.25 (0.44)	1.22 (0.44)	1.22 (0.44)
Conflict episode duration	1.00 (0.03)	1.00 (0.03)	1.00 (0.03)
Country intensity level	1.10 (0.16)	1.08 (0.17)	1.07 (0.17)
Territory	1.67 (0.31)	1.67 (0.32)	1.67 (0.32)
Ethnic dimension	1.54 (0.32)	1.58 (0.33)	1.57 (0.33)
Frozen	1.20 (0.33)	1.20 (0.34)	1.19 (0.34)
Peace agreement	0.38** (0.45)	0.37** (0.46)	0.37** (0.46)
Military victory	0.18*** (0.42)	0.19*** (0.43)	0.19*** (0.43)
State capacity	1.40** (0.16)	1.42** (0.16)	1.42** (0.16)
Peacekeeping during conflict episode	9.53*** (0.36)	9.09*** (0.32)	10.53*** (0.29)
Peacekeeping during peace episode	1.35 (0.35)	1.37 (0.35)	1.38 (0.35)
Observations	6,027	6,027	6,027
Subjects	561	561	561
Failures	181	181	181
Wald Test	442.56	457.46	441.86
LR Test	478.81	493.33	488.63

*Note: *p<0.1, **p<0.05, ***p<0.01. Hazard ratios reported. A ratio above 1 indicates an increased risk for conflict recurrence, while a value below 1 indicates a decreased risk for conflict recurrence. Standard errors clustered on dyad in parenthesis.*

5.3.2 Disaggregating hard and soft types of external support

In the previous sections, I examined the effect of external support on conflict recurrence, relying on two aggregated measures: one for 'hard' support, containing troops, weapons and ammunition, and the other for 'soft' support, encompassing materiel, training, expertise, intelligence, funding and access to territory. These measures were created based on my theoretical assumption that the two aforementioned groups have diverging effects on how recipients anticipate renewed support and their facilitative impacts on remobilisation. However, these aggregated variables did not reach statistical significance in Model 1 or 2. One possible explanation is that grouping several distinct types of support into two broad categories may obscure important nuances in how each specific type affects conflict recurrence. For instance, troop presence might have a different impact than weapons transfers, even though both fall under 'hard' support. Similarly, the provisioning of materiel sharing might function differently from broader financial assistance under the 'soft' support umbrella.

To address these concerns and to test the robustness of the findings in Models 1 and 2, this section disaggregates each component of the original hard and soft measures into its original UCDP ESD variables. By analysing each type of external support separately, I can more clearly identify which (if any) forms of external support exert a measurable impact on conflict recurrence. If a particular type of support, such as troop contributions, shapes the outcome while others do not, this more granular approach will help reveal those differences. Ultimately, this disaggregation aims to refine our understanding of how and why certain forms of external assistance matter, and whether aggregating them inadvertently masks valuable insights into the dynamics of conflict recurrences. This allows me to reassess if my theory and hypotheses find full, limited or no support across different external support types. However, as I do not have theoretical expectations for each external support type individually, this section serves as a robustness test of Models 1 and 2 and as an explanatory analysis to guide future research.

A few alterations have been made to the "raw" ESD measurements to account for variables with too few observations. The two variations of troop support from states have been merged into one variable, while intelligence has been merged with training and expertise. Territorial access to governments has been omitted, as the dataset only captured one instance of this support type. Removing variables with too few observations is crucial to ensure reliable and stable statistical results. Sparse data can lead to inflated standard errors, unreliable estimates,

and distorted model assumptions. See Appendix B for summary statistics for all variables in Models 6-9.

Table 4 presents the regression results of the disaggregated models with decay functions spanning one to six years. Models 6, 7, 8 and 9 do not provide sufficient empirical evidence to support or refute the hypothesis of this study. This is due to the widespread statistical insignificance of external support types across all model specifications. Some variables are statistically significant and align with theoretical expectations. For example, troop support from non-state actors to rebel groups increases conflict recurrence, while materiel and logistics support reduces conflict relapse. However, most other variables are either statistically insignificant or undermine my hypothesis. For example, two of the three external support types that constitute hard support - troop provisioning from states to rebel groups and the allocation of weapons and ammunition - are statistically insignificant. Moreover, territorial access, theoretically deemed less significant on a rebel group's anticipation for renewed support and facilitation of remobilisation, is statistically significant and strongly increases conflict recurrence. All other types of external support variables are statistically insignificant. Collectively, the widespread statistical insignificance does not allow the study to make any inferences about the effect of external support types on conflict recurrence. Again, coefficients and statistical significance remain stable across different half-life values, indicating that the decay specifications do not affect the results.

Table 4: The effect of external support types on conflict recurrence with different decay rates.

	Model 6 Half-life 1 year	*Model 7 Half-life 2 years*	*Model 8 Half-life 4 years*	*Model 9 Half-life 6 years*
Troop support from state to government	1.65 (0.45)	1.67 (0.47)	1.65 (0.49)	1.62 (0.50)
Troop support from non-state to government	0.89 (0.54)	0.94 (0.52)	0.99 (0.51)	1.01 (0.51)
Weapon and ammunition to government	0.53 (0.52)	0.53 (0.52)	0.51 (0.53)	0.49 (0.52)
Materiel and logistics to government	2.80** (0.42)	3.15*** (0.43)	3.48*** (0.45)	3.63*** (0.46)
Training, expertise and intelligence to government	1.55 (0.43)	1.69 (0.43)	1.65 (0.43)	1.55 (0.43)
Financial support to government	0.54 (0.41)	0.53 (0.41)	0.53 (0.40)	0.53 (0.41)
Troop support from state to rebel group	0.84 (0.69)	0.88 (0.73)	0.97 (0.77)	1.05 (0.79)
Troop support from non-state to rebel group	4.51*** (0.40)	4.71*** (0.40)	4.67*** (0.40)	4.53*** (0.40)
Weapon and ammunition to rebel group	1.61 (0.39)	1.57 (0.40)	1.41 (0.41)	1.27 (0.41)
Materiel and logistics to rebel group	0.30*** (0.44)	0.32** (0.46)	0.32** (0.48)	0.33** (0.49)
Training, expertise and intelligence to rebel group	0.95 (0.43)	0.97 (0.43)	1.01 (0.44)	1.02 (0.44)
Financial support to rebel group	1.52 (0.44)	1.78 (0.46)	1.89 (0.46)	1.88 (0.46)
Territorial access to rebel group	3.56*** (0.35)	3.70*** (0.37)	3.54*** (0.37)	3.34*** (0.38)
Conflict episode intensity	1.21 (0.43)	1.17 (0.43)	1.19 (0.43)	1.22 (0.43)
Conflict episode duration	0.99 (0.03)	0.99 (0.03)	0.99 (0.03)	0.99 (0.03)
Country intensity level	1.04 (0.19)	1.03 (0.19)	1.02 (0.19)	1.03 (0.19)
Territory	2.02** (0.33)	2.11** (0.33)	2.16** (0.33)	2.17** (0.34)
Ethnic dimension	1.65 (0.33)	1.72 (0.33)	1.79* (0.33)	1.84* (0.33)
Frozen	1.21 (0.31)	1.21 (0.32)	1.22 (0.32)	1.22 (0.32)
Peace agreement	0.40* (0.48)	0.40* (0.50)	0.39* (0.52)	0.39* (0.53)
Military victory	0.16*** (0.43)	0.17*** (0.43)	0.17*** (0.44)	0.18*** (0.44)
State capacity	1.24 (0.15)	1.21 (0.15)	1.19 (0.15)	1.19 (0.15)
Peacekeeping during Conflict episode	7.99*** (0.34)	7.12*** (0.34)	7.76*** (0.31)	8.79*** (0.28)
Peacekeeping during peace episode	1.62 (0.34)	1.61 (0.34)	1.60 (0.34)	1.59 (0.34)
Observations	6,027	6,027	6,027	6,027
Subjects	561	561	561	561
Failures	181	181	181	181
Wald Test	593.0	635.30	627.97	605.35
LR Test	526.98	542.22	549.43	547.55

*Note: *p<0.01, **p<0.05, ***p<0.01. Hazard ratios reported. A ratio above 1 indicates an increased risk for conflict recurrence, while a value below 1 indicates a decreased risk for conflict recurrence. Standard errors clustered on dyad in parenthesis.*

6. Discussion

The empirical analysis conducted in this study reveals inconclusive results, with consistent patterns observed across different operationalisations and decay functions. In this discussion, I delve into the possible reasons behind these outcomes, consider their implications, and suggest avenues for future research. I start by discussing methodological issues that may produce statistical insignificance. The discussion is ended by critiquing the theory proposed in this paper. However, it is important to emphasise that these are potential reasons for the statistically insignificant results.

6.1 Methodological limitations

Several methodological limitations and deficiencies may contribute to the statistical insignificance of the independent variables across this study. A possible first cause of statistical insignificance in quantitative research is often tied to sample sizes. Similarly to other regression functions, Cox proportional hazard models are highly dependent on sufficiently large sample sizes to produce statistically significant results. A rule of thumb is that a model should have at least ten events for every predictor variable (Peduzzi et al., 1995). This study captures 181 failure events (conflict recurrences) and applies 15 variables in its main models. It therefore falls within the sample size threshold stipulated by the one-in-ten rule. While reducing the amount of control variables would increase the ratio of events per predictor variables, it would also increase the chance of omitted variable bias. I therefore prioritise control variables to avoid spuriousness, as an inconclusive result is more desirable than a Type I error.

A second issue that may contribute to the study's statistical insignificance could be caused by the lack of granularity in the UCDP ESD's measurements of different external support types. While the UCDP ESD serves as the best alternative for operationalising external support to date, its binary measurements may oversimplify important nuances of external support, leading to measurement inaccuracies. Specifically, variations in the magnitude, quality, duration and composition of the previous external support may be central in affecting the anticipation of renewed support and its perceived facilitation of remobilisation - lowering the cost of conflict recurrence. The occurrence of external support may not be sufficient to reinitiate a conflict; the quality of the support may be crucial. As the binary operationalisation of external support does not capture these nuances, these measurement inaccuracies may explain why the result is statistically significant. However, as discussed in the operationalisation, the UCDP ESD provides what I deem to be the most nuanced measurements of the external support available.

A third potential cause of the statistical insignificance may be triggered by multicollinearity. In a nutshell, multicollinearity occurs when two or more predictor variables are highly correlated. This correlation makes it difficult for the Cox model to distinguish the individual effects of hard and soft external support on conflict recurrence. As a result, the standard errors of the regression coefficients for hard and soft support increase. This may lead to wide confidence intervals and p-values that are not statistically significant, even if the predictors have a meaningful effect on the outcome. Table 5 depicts a correlation matrix between the external support variables included in Model 2. The correlation matrix suggests that hard and soft support to governments has a strong correlation. A standard way to resolve issues of multicollinearity is to merge or drop one of the co-varying predictor values from a model. However, as hard and soft external support are conceptually distinct and central to the theoretical mechanism for when external support increases or decreases instances of conflict recurrence, the variables must remain unaltered. Nonetheless, multicollinearity between the main independent variables of this study may serve as a potential cause for statistical insignificance. Another solution to resolve multicollinearity issues is to employ a Ridge regression model (O'Brien, 2007, p. 674). However, this is beyond the scope of this thesis. The high multicollinearity might be caused by the fact that hard and soft external support tend to be provided simultaneously.

Table 5: Correlation matrix of external support variables in Model 2.

	Hard to government	Soft to government	Hard to rebel group	Soft to rebel group
Hard to government	1,00	0,76	0,37	0,42
Soft to government	0,76	1,00	0,36	0,43
Hard to rebel group	0,37	0,36	1,00	0,67
Soft to rebel group	0,42	0,43	0,67	1,00

6.2 Theoretical limitations

Although the empirical analysis neither confirms nor refutes the proposed theory of this paper, I contend that it remains marked by two key shortcomings. First, the theory may oversimplify how different types of external support influence conflict recurrence through anticipation and facilitation of renewed support. The causes of how external support increases conflict recurrence are likely more complex than increasing anticipation and facilitation of renewed

support. They can be caused by deeper nuances than the operationalisations of this study provide or based upon entirely different mechanisms.

Secondly, the study can also have wrongly inferred which types of external support types have the most significant effect on the anticipation and facilitation of conflict recurrence. The limited research on the value of different external support types in terms of signalling commitment and their immediate effect on facilitating remobilisation makes the theory quite based on intuitive assumptions. Hence, categorising each sub-type into hard or soft types of external support might be faulty, and even systematically vary between governments and rebel groups. One example is access to territory, which previous research suggests plays a crucial role in a rebel group's fighting capabilities. Such territories can serve as sanctuaries and safe havens, providing space for rest, planning, recruitment, and logistical support. They also enable cross-border raids, which governments cannot easily counter without effectively invading neighbouring territory.

7. Conclusion

This study explores how different types of external support influence the likelihood of conflict recurrence. Drawing on previous theoretical and empirical contributions, it proposes that external support types associated with direct military capabilities - such as troop support, weapons, and ammunition - are particularly likely to increase the risk of renewed conflict in the immediate aftermath of hostilities. However, the findings of this study did not provide sufficient empirical evidence to confirm the hypothesis. Despite identifying significant associations between some control variables and conflict recurrence, the main variables of interest, hard and soft external support types, proved statistically insignificant across multiple model specifications and robustness tests.

These inconclusive results underscore the complexity of external support's impact on conflict dynamics. They suggest that the relationship between external support and conflict recurrence may be influenced by additional factors, such as the specific context of the conflict, the motivations of external supporters, or unobserved mechanisms that mediate the effects of support. Furthermore, the findings highlight potential limitations in current data and methodological approaches, such as the binary measurement of support types and the exclusion of inactive conflict years.

Finally, this thesis contributes to the broader literature by addressing a significant research gap and providing a foundation for future studies. It encourages scholars to disaggregate external support types further, explore their interactions with other factors, and incorporate more granular data to refine our understanding of their effects.

8. Bibliography

Borshchevskaya, Anna (2022). *Putin's war in Syria: Russian foreign policy and the price of America's absence*. London; I.B. Tauris.

Brancati, Dawn (2018). *Social scientific research*. Los Angeles London New Delhi Singapore Washington DC Melbourne: SAGE.

Byman, Daniel, Chalk, Peter, Hoffman, Bruce, Rosenau, William and Brannan, David (2001). *Trends in Outside Support for Insurgent Movements*. RAND Corporation.

Carson, Austin (2018). *Secret wars: covert conflict in international politics*. Princeton; Oxford: Princeton University Press.

Charap, Samuel and Priebe, Miranda (2023). *Avoiding a Long War: U.S. Policy and the Trajectory of the Russia-Ukraine Conflict*. RAND Corporation.

Collier, Paul and Hoeffler, Anke (2004). Greed and Grievance in Civil War. *Oxford Economic Papers*, 56(4), p. 563–595.

Collier, Paul, Hoeffler, Anke and Söderbom, Måns (2008). Post-Conflict Risks. *Journal of Peace Research*, 45(4), p. 461–478.

Cunningham, David E. (2010). Blocking resolution: How external states can prolong civil wars. *Journal of Peace Research*, 47(2), p. 115–127.

Cunningham, David E., Gleditsch, Kristian Skrede and Salehyan, Idean (2013). Non-state actors in civil wars: A new dataset. *Conflict Management and Peace Science*, 30(5), p. 516–531.

Davies, Shawn, Engström, Garoun, Pettersson, Therése and Öberg, Magnus (2024). Organized violence 1989–2023, and the prevalence of organized crime groups. *Journal of Peace Research*, 61(4), p. 673–693, doi:10.1177/00223433241262912.

Fearon, James D. and Laitin, David D. (2003). Ethnicity, Insurgency, and Civil War. *The American Political Science Review*, 97(1), p. 75–90.

Fortna, Virginia Page (2004). Does Peacekeeping Keep Peace? International Intervention and the Duration of Peace after Civil War. *International Studies Quarterly*, 48(2), p. 269–292.

Gilligan, Michael J. and Sergenti, Ernest J. (2008). Do UN Interventions Cause Peace? Using Matching to Improve Causal Inference. *Quarterly Journal of Political Science*, 3(2), p. 89–122, doi:10.1561/100.00007051.

Gleditsch, Kristian Skrede, Salehyan, Idean and Schultz, Kenneth (2008). Fighting at Home, Fighting Abroad: How Civil Wars Lead to International Disputes. *Journal of Conflict Resolution*, 52(4), p. 479–506, doi:10.1177/0022002707313305.

Hanson, Jonathan K. and Sigman, Rachel (2021). Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research. *The Journal of Politics*, 83(4), p. 1495–1510, doi:10.1086/715066.

Harbom, Lotta, Melander, Erik and Wallensteen, Peter (2008). Dyadic Dimensions of Armed Conflict, 1946—2007. *Journal of Peace Research*, 45(5), p. 697–710, doi:10.1177/0022343308094331.

Hartzell, Caroline, Hoddie, Matthew and Rothchild, Donald (2001). Stabilizing the Peace After Civil War: An Investigation of Some Key Variables. *International Organization*, 55(1), p. 183–208, doi:10.1162/002081801551450.

Hazen, Jennifer M. (2013). *What Rebels Want: Resources and Supply Networks in Wartime*. Ithaca: Cornell University Press.

Hegre, Havard and Nygard, Havard Mokleiv (2015). Governance and Conflict Relapse. *Journal of Conflict Resolution*, 59(6), p. 984–1016.

Hegre, Håvard, Nygård, Håvard Mokleiv and Ræder, Ranveig Flaten (2017). Evaluating the scope and intensity of the conflict trap: A dynamic simulation approach. *Journal of Peace Research*, 54(2), p. 243–261, doi:10.1177/0022343316684917.

Höglund, Kristine and Öberg, Magnus (eds.) (2011). *Understanding peace research: methods and challenges*. London: Routledge.

International Institute for Strategic Studies (ed.) (2021). *The armed conflict survey 2021: the worldwide review of political, military and humanitarian trends in current conflicts*. Abingdon, Oxon: Routledge.

Jarland, Julie, Nygård, Håvard Mokleiv, Gates, Scott, Hermansen, Emilie and Larsen, Vilde Bergstad (2020). How Should We Understand Patterns of Recurring Conflict? *PRIO Conflict Trends*, 3.

Jo, Jung In (2006). The UN's Effectiveness in Post Civil War Peace Durability. *Journal of International and Area Studies*, 13(1), p. 23–35.

Karlén, Niklas (2016). Historical trends in external support in civil wars. Oxford University Press, p. 117–128.

Karlén, Niklas (2017). The legacy of foreign patrons: External state support and conflict recurrence. *Journal of Peace Research*, 54(4), p. 499–512, doi:10.1177/0022343317700465.

Karlén, Niklas (2023). Escalate to De-Escalate? External State Support and Governments' Willingness to Negotiate. *Studies in Conflict & Terrorism*, 46(8), p. 1323–1344, doi:10.1080/1057610X.2020.1835002.

Keels, Eric, Benson, Jay and Widmeier, Michael (2021). Teaching from experience: foreign training and rebel success in civil War. *Conflict Management and Peace Science*, 38(6), p. 696–717, doi:10.1177/0738894220912976.

Kellstedt, Paul M. and Whitten, Guy D. (2018). *The Fundamentals of Political Science Research*. 3. ed. Cambridge University Press.

Kreutz, Joakim (2010). How and when armed conflicts end: Introducing the UCDP Conflict Termination dataset. *Journal of Peace Research*, 47(2), p. 243–250.

Kreutz, Joakim (2012). Dismantling the Conflict Trap: Essays on Civil War Resolution and Relapse.

Kroeker, Evgenija and Ruggeri, Andrea (2022). Peacekeeping and conflict resolution. In: *Handbook on Peacekeeping and International Relations*. Cheltenham, United Kingdom: Edward Elgar Publishing Limited.

Lacina, Bethany (2006). Explaining the Severity of Civil Wars. *Journal of Conflict Resolution*, 50(2), p. 276–289.

Licklider, Roy (1995). The Consequences of Negotiated Settlements in Civil Wars, 1945-1993. *The American Political Science Review*, 89(3), p. 681–690, doi:10.2307/2082982.

McKibben, Heather Elko and Skoll, Amy (2021). Please Help Us (or Don't): External Interventions and Negotiated Settlements in Civil Conflicts. *Journal of Conflict Resolution*, 65(2–3), p. 480–505, doi:10.1177/0022002720950417.

Meier, Vanessa (2022). UCDP External Support Dataset (ESD) Codebook Version 18.1. https://ucdp.uu.se/downloads/.

Meier, Vanessa, Karlén, Niklas, Pettersson, Therése and Croicu, Mihai (2023). External support in armed conflicts: Introducing the UCDP external support dataset (ESD), 1975–2017. *Journal of Peace Research*, 60(3), p. 545–554, doi:10.1177/00223433221079864.

Mills, Melinda (2011). *Introducing Survival and Event History Analysis*. SAGE Publications Ltd.

Moghadam, Assaf, Rauta, Vladimir and Wyss, Michel (2023). *Routledge Handbook of Proxy Wars*. 1. ed. London: Routledge.

Mullenbach, Mark (2024). *Third-Party Peacekeeping Missions Data Set, 1946-2022 (Version 3.5)*. Harvard Dataverse.

Mumford, Andrew (2013). *Proxy warfare: war and conflict in the modern world*. Cambridge: Polity Press.

Mumford, Andrew (2023). Consequences of Proxy Wars. In: *Routledge Handbook of Proxy Wars*. London: Routledge, p. 285–292.

O'Brien, Robert M. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality and Quantity*, 41(5), p. 673–690, doi:10.1007/s11135-006-9018-6.

Otto, Sabine (2013). Coding one-sided violence from media reports. *Cooperation and Conflict*, 48(4), p. 556–566, doi:10.1177/0010836713507668.

Peduzzi, Peter, Concato, John, Feinstein, Alvan R. and Holford, Theodore R. (1995). Importance of events per independent variable in proportional hazards regression analysis II. Accuracy and precision of regression estimates. *Journal of Clinical Epidemiology*, 48(12), p. 1503–1510, doi:10.1016/0895-4356(95)00048-8.

Pettersson, Therese (2024). UCDP Dyadic Dataset Codebook v 24.1. (https://ucdp.uu.se/downloads/.

Pettersson, Therése, Davies, Shawn, Deniz, Amber, Engström, Garoun, Hawach, Nanar, Högbladh, Stina, Sollenberg, Margareta and Öberg, Magnus (2021). Organized violence 1989–2020, with a special emphasis on Syria. *Journal of Peace Research*, 58(4), p. 809–825, doi:10.1177/00223433211026126.

Pettersson, Therése and Eck, Kristine (2018). Organized violence, 1989–2017. *Journal of Peace Research*, 55(4), p. 535–547, doi:10.1177/0022343318784101.

Pickering, Jeffrey and Kisangani, Emizet F. (2009). The International Military Intervention Dataset: An Updated Resource for Conflict Scholars. *Journal of Peace Research*, 46(4), p. 589–599, doi:10.1177/0022343309334634.

Quinn, J. Michael, Mason, T. David and Gurses, Mehmet (2007). Sustaining the Peace: Determinants of Civil War Recurrence. *International Interactions*, 33(2), p. 167–193, doi:10.1080/03050620701277673.

Rauta, Vladimir (2021). 'Proxy War' - A Reconceptualisation. *Civil Wars*, 23(1), p. 1–24, doi:10.1080/13698249.2021.1860578.

Regan, Patrick M. (2002). Third-Party Interventions and the Duration of Intrastate Conflicts. *The Journal of Conflict Resolution*, 46(1), p. 55–73.

Regan, Patrick M., Frank, Richard W. and Aydin, Aysegul (2009). Diplomatic Interventions and Civil War: A New Dataset. *Journal of Peace Research*, 46(1), p. 135–146, doi:10.1177/0022343308098408.

Regan, Patrick M. and Meachum, M. Scott (2014). Data on interventions during periods of political instability. *Journal of Peace Research*, 51(1), p. 127–135, doi:10.1177/0022343313505303.

Roberts, Jordan (2019). Targeting and Resistance: Reassessing the Effect of External Support on the Duration and Outcome of Armed Conflict. *Civil Wars*, 21(3), p. 362–384, doi:10.1080/13698249.2019.1648631.

Ruggeri, Andrea, Dorussen, Han and Gizelis, Theodora-Ismene (2017). Winning the Peace Locally: UN Peacekeeping and Local Conflict. *International Organization*, 71(1), p. 163–185.

San-Akca, Belgin (2016). *States in disguise: causes of state support for rebel groups*. Oxford: Oxford University Press.

Sawyer, Katherine, Cunningham, Kathleen Gallagher and Reed, William (2017). The Role of External Support in Civil War Termination. *Journal of Conflict Resolution*, 61(6), p. 1174–1202, doi:10.1177/0022002715600761.

Sullivan, Patricia L. and Koch, Michael T. (2009). Military Intervention by Powerful States, 1945–2003. *Journal of Peace Research*, 46(5), p. 707–718.

Tarr, Nathan (2022). *Ethno-Religious Conflict and the Duration of Peace: Autonomy, Discrimination, and Territory*. Arizona State University.

Teorell, Jan, Sundström, Aksel, Holmberg, Sören, Rothstein, Bo, Alvarado Pachon, Natalia, Dalli, Cem Mert, Lopez Valverde, Rafael and Nilsson, Paula (2024). *The Quality of Government Standard Dataset, version Jan24*. University of Gothenburg. The Quality of Government Institute. https://www.gu.se/en/quality-government.

Testerman, Matthew (2015). Removing the Crutch: External Support and the Dynamics of Armed Conflict. *Studies in Conflict & Terrorism*, 38(7), p. 529–542, doi:10.1080/1057610X.2015.1016312.

Tillema, Herbert K. (1989). Foreign Overt Military Intervention in the Nuclear Age. *Journal of Peace Research*, 26(2), p. 179–196, doi:10.1177/0022343389026002006.

UCDP (2024). *UCDP Definitions - Uppsala University*. https://www.uu.se/en/department/peace-and-conflict-research/research/ucdp/ucdp-definitions [Accessed: 2024-10-04].

Vogt, Manuel, Bormann, Nils-Christian, Rüegger, Seraina, Cederman, Lars-Erik, Hunziker, Philipp and Girardin, Luc (2015). Integrating Data on Ethnicity, Geography, and Conflict: The Ethnic Power Relations Data Set Family. *Journal of Conflict Resolution*, 59(7), p. 1327–1342, doi:10.1177/0022002715591215.

Wagner, Robert Harrison (1995). The Causes of Peace. In: *Stopping the Killing*. NYU Press.

Walter, Barbara F. (2015). Why Bad Governance Leads to Repeat Civil War. *The Journal of Conflict Resolution*, 59(7), p. 1242–1272.

Wiger, Matthew and Atwell, Kyle (2023). Causal Logics of Proxy Wars. In: *Routledge Handbook of Proxy Wars*. London: Routledge, p. 17–30.

Wucherpfennig, Julian, Metternich, Nils W., Cederman, Lars-Erik and Gleditsch, Kristian Skrede (2012). Ethnicity, the State, and the Duration of Civil War. *World Politics*, 64(1), p. 79–115, doi:10.1017/S004388711100030X.

9. Appendix A: Compiled R report

Persistent friends, persistent conflicts? Analysing the Effects of External Support Types on Conflict Recurrence: R Script

Master's thesis

Fabian Stigar

2025-01-08

```
#--- Preparation ---#

# Clear environment.
rm(list = ls())

# Set Seed.
set.seed(21031999)

# Set working directory.
setwd("/Users/fabianstigar/Library/CloudStorage/OneDrive-Försvarshögskolan/Master\'s\ Thesi
s/Datasets/Sourcefiles")

# Load packages.
library(broom) #install.packages("broom")
library(car) #install.packages("car)

## Loading required package: carData

library(countrycode) #install.packages("countrycode")
library(devtools) #install.packages("devtools")

## Loading required package: usethis

library(dplyr) #install.packages("dplyr")

##
## Attaching package: 'dplyr'

## The following object is masked from 'package:car':
##
##     recode

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

library(ggplot2) #install.packages("ggplot2")
library(gridExtra) #install.packages("gridExtra")

##
## Attaching package: 'gridExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     combine

library(haven) #install.packages("haven")
library(lmtest) #install.packages("lmtest")

## Loading required package: zoo

##
## Attaching package: 'zoo'

## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric

library(magrittr) #install.packages("magrittr")
library(RCurl) #install.packages("RCurl")

##
## Attaching package: 'RCurl'

## The following object is masked from 'package:lmtest':
##
##     reset

library(readr) #install.packages("readr")
library(readxl)  #install.packages("readxl")
library(sandwich) #install.packages("sandwich")
library(stargazer) #install.packages("stargazer")

##
## Please cite as:

##  Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Table
s.

##  R package version 5.2.3. https://CRAN.R-project.org/package=stargazer

library(survival) #install.packages("survival")
library(tidyr) #install.packages("tidyr")

##
## Attaching package: 'tidyr'

## The following object is masked from 'package:RCurl':
##
##     complete

## The following object is masked from 'package:magrittr':
##
##     extract

library(tidyverse) #install.packages("tidyverse")

## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──
## ✓ forcats   1.0.0     ✓ stringr   1.5.1
## ✓ lubridate 1.9.4     ✓ tibble    3.2.1
## ✓ purrr     1.0.2

## ── Conflicts ────────────────────────────────────────── tidyverse_conflicts() ──
## ✖ gridExtra::combine() masks dplyr::combine()
## ✖ tidyr::complete()    masks RCurl::complete()
## ✖ tidyr::extract()     masks magrittr::extract()
## ✖ dplyr::filter()      masks stats::filter()
## ✖ dplyr::lag()         masks stats::lag()
```

```
## ✖ dplyr::recode()      masks car::recode()
## ✖ purrr::set_names()   masks magrittr::set_names()
## ✖ purrr::some()        masks car::some()
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to
become errors
```

```
library(vtable) #install.packages("vtable")
```

```
## Loading required package: kableExtra
##
## Attaching package: 'kableExtra'
##
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
library(writexl) #install.packages("writexl")
```

```
#--- Preparation of UCDP External Support Dataset (Actor-Year) ---#
# Load dataset and remove observations that are interstate conflicts and observations of ex
ternal support in actor-years that are inactive to remove biases, as the UCDP ESD's measure
ment of this variable is incomplete and unsystematic.
ucdp_esd_ay_181 <- read_excel("ucdp-esd-ay-181.xlsx") %>%
  filter(civil != 0) %>%
  filter(active != 0) %>%
  filter(year <2016)

# Merge ext_x and ext_p to create one variable denoting troop support from states.
ucdp_esd_ay_181$ext_xp <- ifelse(
  !is.na(ucdp_esd_ay_181$ext_x) & !is.na(ucdp_esd_ay_181$ext_p) &
    (ucdp_esd_ay_181$ext_x == 1 | ucdp_esd_ay_181$ext_p == 1),
  1,
  ifelse(!is.na(ucdp_esd_ay_181$ext_x) & !is.na(ucdp_esd_ay_181$ext_p) &
           ucdp_esd_ay_181$ext_x == 0 & ucdp_esd_ay_181$ext_p == 0,
         0,
         NA))

# Merge ext_t and ext_i due to limited observations in intelligence (243 for governments, 2
3 for rebel groups).
ucdp_esd_ay_181$ext_ti <- ifelse(
  !is.na(ucdp_esd_ay_181$ext_t) & !is.na(ucdp_esd_ay_181$ext_i) &
    (ucdp_esd_ay_181$ext_t == 1 | ucdp_esd_ay_181$ext_i == 1),
  1,
  ifelse(!is.na(ucdp_esd_ay_181$ext_t) & !is.na(ucdp_esd_ay_181$ext_i) &
           ucdp_esd_ay_181$ext_t == 0 & ucdp_esd_ay_181$ext_i == 0,
         0,
         NA))


#--- Generate observations for every dyad-actor year from armed conflict inception until 20
17 ---#
# Create observations for all years from a dyad first reached the threshold of armed confli
ct until 2017 (the end date of the UCDP ESD). It initially identifies the first instance of
armed conflict for each dyad, and then creates a grid containing each actor-dyad-year from
the first instance of armed conflict until the right-censoring of the UCDP dataset in 2017.
This grid is then merged with the UCDP ESD dataset to include all dyad-actor-years from an
armed conflict first occurred until 2017, including years of armed conflict, inactive years
(below 25-battle related deaths) and dyad years of negative peace. Finally, the dataset is
rearranged to first show each dyad, and then each actors years in ascending order.

# Step 1: Identify the first year of observation for each actor-dyad and generate a complet
e actor-year grid, starting from the first recorded year until 2017.
additional_actor_dyad_years <- ucdp_esd_ay_181 %>%
```

```
  group_by(actor_id, dyad_id) %>%
  summarize(first_year = min(year)) %>%
  ungroup()

## `summarise()` has grouped output by 'actor_id'. You can override using the
## `.groups` argument.

additional_actor_dyad_years <- additional_actor_dyad_years %>%
  rowwise() %>%
  do(data.frame(actor_id = .$actor_id, dyad_id = .$dyad_id, year = seq(.$first_year, 2015))
) %>%
  ungroup()

# Step 2: Merge the dataframe containing additional years with the UCDP ESD dataset to crea
te a complete account of each dyad from armed conflict inception until 2017 and rearrange i
t by dyad id, actor id and year.
final_dataset <- additional_actor_dyad_years %>%
  left_join(ucdp_esd_ay_181, by = c("actor_id", "dyad_id", "year"))

final_dataset <- final_dataset %>%
  arrange(dyad_id, actor_id, year) %>%
  select(dyad_id, actor_id, year, everything())



#--- Add variables on conflict termination, recurrence and peace ---#
# Load and merge variables on dyad episodes, conflict termination and recurrences from the
UCDP Conflict Termination Dataset with my dataset. Rename dyadepisode and recur for parity.
ucdp_term_dyad_3_2021 <- read_excel("ucdp-term-dyad-3-2021.xlsx")
ucdp_term_dyad_3_2021 <- ucdp_term_dyad_3_2021 %>%
  select(dyad_id, year, dyadepisode, outcome, recur)

final_dataset<- final_dataset %>%
  left_join(ucdp_term_dyad_3_2021, by = c("dyad_id", "year"))

final_dataset <- final_dataset %>% select(dyad_id, actor_id, year, dyadepisode, outcome, re
cur, everything())

names(final_dataset)[names(final_dataset) == "dyadepisode"] <- "dyad_episode"
names(final_dataset)[names(final_dataset) == "recur"] <- "conflict_recurrence"
names(final_dataset)[names(final_dataset) == "outcome"] <- "dyad_outcome"

# Remove dyads that are not included in the UCDP Conflict Termination Dataset or are right
censored from 2017.
final_dataset <- final_dataset[!final_dataset$dyad_id %in% c(905, 12088, 15389), ]

# Calculate the duration of each dyad episode while leaving NA values in dyad_episode untou
ched.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id, dyad_episode) %>%
  mutate(dyad_episode_duration = ifelse(
    !is.na(dyad_episode),
    max(year) - min(year) + 1,
    NA_real_
  )) %>%
  ungroup()

# Create variables for the first and last year of each dyad episode.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id, dyad_episode) %>%
  mutate(
    dyad_episode_start = ifelse(!is.na(dyad_episode), min(year), NA_real_),
    dyad_episode_end = ifelse(!is.na(dyad_episode), max(year), NA_real_)
  ) %>%
  ungroup()
```

```r
# Calculate and assign numbers to each dyad's peace episodes.
final_dataset$dyad_episode[is.na(final_dataset$dyad_episode)] <- 99

# Calculate a peace episode variable.
peace_counts <- final_dataset %>%
  filter(dyad_episode == 99) %>% # Select peace episode rows
  distinct(dyad_id, actor_id, dyad_episode, year) %>% # Remove duplicates of peace episodes
  group_by(dyad_id, actor_id) %>% # Group by dyad and actor
  summarise(peace_count = n(), .groups = "drop") # Count peace episodes
final_dataset <- final_dataset %>% # Merge the peace counts back into the original dataset
  left_join(peace_counts, by = c("dyad_id", "actor_id")) %>%
  mutate(peace_count = replace_na(peace_count, 0)) # Replace NA with 0 for actors without p
eace episodes
final_dataset <- final_dataset %>% # Create the peace episode variable
  group_by(dyad_id, actor_id) %>%
  mutate(peace_episode = cumsum(is.na(conflict_recurrence) & lag(!is.na(conflict_recurrence
), default = FALSE)))
final_dataset$peace_episode[!is.na(final_dataset$conflict_recurrence)] <- 0 # Replace NA in
peace_episode with 0 for active or inactive conflict years
final_dataset$dyad_episode[final_dataset$dyad_episode == 99] <- NA # Convert 99 in 'dyad_ep
isode' to NA
final_dataset$peace_episode[final_dataset$peace_episode == 0] <- NA # Convert 0 in 'peace_e
pisode' to NA

# Finalize the dependent variable by removing 0-values from observations during dyad episod
es and add 0-values to observations during years of dyad peace.
final_dataset$conflict_recurrence <- ifelse(
  is.na(final_dataset$conflict_recurrence) & final_dataset$peace_episode >= 1,
  0,
  final_dataset$conflict_recurrence)

# Create a time variable that summaries the survival time of each dyad peace episode.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id, peace_episode) %>% # Group by the specified variables
  mutate(peace_episode_duration = sum(!is.na(conflict_recurrence))) %>% # Count non-NA valu
es in conflict_recurrence
  ungroup() %>% # Ungroup to remove grouping structure
  mutate(peace_episode_duration = ifelse(is.na(peace_episode), NA, peace_episode_duration))
# Replace values in peace_episode_duration if peace_episode is NA

# Create variables for the first and last year of each peace episode.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id, peace_episode) %>%
  mutate(
    peace_episode_start = ifelse(!is.na(peace_episode), min(year), NA_real_),
    peace_episode_end = ifelse(!is.na(peace_episode), max(year), NA_real_)
  ) %>%
  ungroup() %>%
  select(dyad_id, actor_id, year, conflict_id, actor_nonstate, gwno_a, active, dyad_episode
, dyad_episode_duration, dyad_episode_start, dyad_episode_end, ext_sup, ext_xp, ext_y, ext_
w, ext_m, ext_ti, ext_f, ext_l, peace_episode, peace_episode_duration, peace_episode_start,
peace_episode_end, conflict_recurrence, dyad_outcome)

# Add identifiers to the new observations.
while(any(is.na(final_dataset$gwno_a))) {
  final_dataset <- final_dataset %>%
    mutate(gwno_a = ifelse(is.na(gwno_a), lag(gwno_a), gwno_a))}

while(any(is.na(final_dataset$conflict_id))) {
  final_dataset <- final_dataset %>%
    mutate(conflict_id = ifelse(is.na(conflict_id), lag(conflict_id), conflict_id))}

while(any(is.na(final_dataset$actor_nonstate))) {
```

```
  final_dataset <- final_dataset %>%
    mutate(actor_nonstate = ifelse(is.na(actor_nonstate), lag(actor_nonstate), actor_nonsta
te))}

# Adjust peace_episode start variable to include the previous year where termination occurr
ed.
final_dataset$peace_episode_start <- final_dataset$peace_episode_start - 1



#--- Add variables from UCDP/PRIO Armed Conflict Dataset version to control for other armed
conflicts occurred in the country during a dyad peace period ---#
# This code imports yearly data on the presence of armed conflict on civil war in the count
ry of each dyad during years of negative peace between the dyad-actors. As such, even thoug
h a dyad might be in a period of no violence, the government might be involved in conflict
with other rebel groups simultaneously.

# Load dataset and subset only intrastate conflicts.
UcdpPrioConflict_v24_1 <- read_excel("UcdpPrioConflict_v24_1.xlsx") %>%
  filter(type_of_conflict == 3)  # Keep only intrastate conflicts

# Change the datatypes of UCDP/PRIO Armed Conflict Dataset and rename the intensity_level v
ariable to country_intensity_level.
UcdpPrioConflict_v24_1 <- UcdpPrioConflict_v24_1 %>%
  mutate(gwno_a = as.double(gwno_a),
         year = as.double(year),
         intensity_level = as.double(intensity_level)) %>%
  rename(country_intensity_level = intensity_level)

#Keep only one row per group (country-year) and ensure that the highest value of country_in
tensity_level is selected.
UcdpPrioConflict_v24_1 <- UcdpPrioConflict_v24_1 %>%
  group_by(gwno_a, year) %>%
  slice_max(country_intensity_level, with_ties = FALSE)

# Perform the left join with 'final_dataset' only for observations that experience negative
peace between the dyad actors.
final_dataset <- final_dataset %>%
  left_join(UcdpPrioConflict_v24_1 %>% select(gwno_a, year, country_intensity_level),
            by = c("gwno_a", "year")) %>%
  mutate(country_intensity_level = ifelse(is.na(active), country_intensity_level, NA))



#--- Add variables from UCDP Dyadic Dataset version 24.1 to control the intensity level of
each dyad episode and if a dyad episode included incompatibilities over territory ---#

# Load dataset.
Dyadic_v24_1 <- read_excel("Dyadic_v24_1.xlsx")

# Import variable for conflict intensity and merge with final_dataset.
final_dataset <- final_dataset %>%
  left_join(
    Dyadic_v24_1 %>%
      mutate(
        dyad_id = as.numeric(dyad_id),  # Ensure `dyad_id` matches type
        year = as.numeric(year)         # Convert `year` to numeric
      ) %>%
      select(dyad_id, year, intensity_level) %>%
      rename(dyad_episode_intensity = intensity_level),
    by = c("dyad_id", "year")
  )

# Transform dyad_episode_intensity into numeric.
final_dataset$dyad_episode_intensity <- as.numeric(final_dataset$dyad_episode_intensity)
```

```r
# Transform dyad_episode_intensity into dummy variable.
final_dataset$dyad_episode_intensity <- ifelse(final_dataset$dyad_episode_intensity == 1, 0
,
                                               ifelse(final_dataset$dyad_episode_intensity
== 2, 1,
                                                      final_dataset$dyad_episode_intensity)
)

# Import variable denoting incompatibility over territory during previous conflict episode.
Dyadic_v24_1$territory <- ifelse(Dyadic_v24_1$incompatibility %in% c(1, 3), 1, 0) # Merges
observation on incompatibilities over "territory" and "government and territory".
final_dataset <- final_dataset %>%
  left_join(
    Dyadic_v24_1 %>%
      mutate(
        dyad_id = as.numeric(dyad_id),  # Ensure `dyad_id` matches type
        year = as.numeric(year)        # Convert `year` to numeric
      ) %>%
      select(dyad_id, year, territory),
    by = c("dyad_id", "year")
  )

#--- Add variables from Third Party Peacekeeping Missions, 1946-2022 (Version 3.5) to contr
ol for the presence of peacekeeping during a previous dyad episode and during peace episode
s ---#

# Load dataset.
Third_Party_PKMs_version_3_5 <- read_excel("Third-Party-PKMs-version-3.5.xls")

# Remove all observations that are not UN mandated interventions.
Third_Party_PKMs_version_3_5 <- Third_Party_PKMs_version_3_5[Third_Party_PKMs_version_3_5$U
NMANDATE == 1, ]

# Expand the dataset into a time-series.
Third_Party_PKMs_version_3_5 <- Third_Party_PKMs_version_3_5 %>%
  rowwise() %>%
  mutate(years = list(if (is.finite(STARTYR) && is.finite(ENDYR) && STARTYR <= ENDYR) {
    seq(STARTYR, ENDYR)
  } else {
    NA
  })) %>%
  unnest(cols = years) %>%
  filter(!is.na(years)) %>%
  ungroup()

# Rename the generated "years" column to "year".
Third_Party_PKMs_version_3_5 <- Third_Party_PKMs_version_3_5 %>%
  rename(year = years)

# Create a variable indicating the presence of peacekeeping.
Third_Party_PKMs_version_3_5 <- Third_Party_PKMs_version_3_5 %>%
  mutate(peacekeeping = 1)

# Translate country-identifier from ccode to gwn.
Third_Party_PKMs_version_3_5 <- Third_Party_PKMs_version_3_5 %>%
  left_join(
    countrycode::codelist_panel %>%
      select(cown, gwn, year),  # Use relevant columns from codelist_panel
    by = c("CCODE1" = "cown", "year" = "year")  # Match by cown and year
  )

# Rename the column "gwn" to "gwno_a" for parity.
colnames(Third_Party_PKMs_version_3_5)[colnames(Third_Party_PKMs_version_3_5) == "gwn"] <-
```

```
"gwno_a"

# Manually translate remaining country codes by cross-checking with codes in External Suppo
rt Dataset.
Third_Party_PKMs_version_3_5$gwno_a[Third_Party_PKMs_version_3_5$CCODE1 == 851] <- 850 # Ea
st Timor
Third_Party_PKMs_version_3_5$gwno_a[Third_Party_PKMs_version_3_5$CCODE1 == 343] <- 343 # Ma
cedonia
Third_Party_PKMs_version_3_5$gwno_a[Third_Party_PKMs_version_3_5$CCODE1 == 520] <- 520 # So
malia

# Remove variables and duplicate observations of peacekeeping present in a country in the s
ame year.
Third_Party_PKMs_version_3_5 <- Third_Party_PKMs_version_3_5 %>%
  select(gwno_a, year, peacekeeping) %>%
  distinct()

# Merge the peacekeeping variable into final_dataset.
final_dataset <- final_dataset %>%
  left_join(Third_Party_PKMs_version_3_5, by = c("gwno_a" = "gwno_a", "year" = "year"))

# Split into two variables denoting peacekeeping during dyad and peacekeeping during peace
years.
final_dataset$peacekeeping_dyad_episode <- ifelse(!is.na(final_dataset$dyad_episode), 1, 0)
# Create a new variable 'peacekeeping_dyad_episode' with value 1 where 'dyad_episode' is no
t NA

# Rename the variable 'peacekeeping' to 'peacekeeping_peace_episode'.
colnames(final_dataset)[colnames(final_dataset) == "peacekeeping"] <- "peacekeeping_peace_e
pisode"



#--- Add variable on ethnic dimension ---#

# Load dataset.
ACD2EPR_2021 <- read_excel("ACD2EPR-2021.xls")

# Rename the column 'claim' to 'ethnic' and 'dyadid' to 'dyad_id'.
colnames(ACD2EPR_2021)[colnames(ACD2EPR_2021) == "claim"] <- "ethnic"
colnames(ACD2EPR_2021)[colnames(ACD2EPR_2021) == "dyadid"] <- "dyad_id"

# Remove variables.
ACD2EPR_2021 <- ACD2EPR_2021[, c("dyad_id", "ethnic")]

# Merge direct and indirect values into 1 variable denoting ethnic dimension.
ACD2EPR_2021$ethnic[ACD2EPR_2021$ethnic == 2] <- 1

# Replace -1 values indicating no information to 0. The paper assumes that no information =
no ethnic.
ACD2EPR_2021$ethnic[ACD2EPR_2021$ethnic == -1] <- 0

# Turn NA values into 0, as these dyads have no ethnic connection.
ACD2EPR_2021$ethnic[is.na(ACD2EPR_2021$ethnic)] <- 0

# Merge multiple observations on the same dyad.
ACD2EPR_2021 <- ACD2EPR_2021 %>%
  group_by(dyad_id) %>%
  summarise(
    ethnic = ifelse(any(ethnic == 1), 1, 0)
  )

# Remove rows in ACD2EPR_2021 where dyad_id is not in final_dataset$dyad_id.
ACD2EPR_2021 <- ACD2EPR_2021 %>%
```

```r
  filter(dyad_id %in% final_dataset$dyad_id)

# Merge the 'ethnic' variable into final_dataset based on matching 'dyad_id'.
final_dataset <- merge(
  final_dataset,
  ACD2EPR_2021[ACD2EPR_2021$dyad_id %in% final_dataset$dyad_id, ],
  by = "dyad_id",
  all.x = TRUE
)

# Add 0-value to dyad number 871, 909, 11978 and 12575. These dyads not included in the ACD
2EPR dataset. I have verified that these dyads lack an ethnic dimension based on the ACD2EP
R definition.
final_dataset$ethnic[is.na(final_dataset$ethnic)] <- 0



#--- Manually add some external support values ---#
# Error due to what I believe is either instances when UCDP Conflict Termination dataset li
sts a recurrence during an inactive year in UCDP ESD or when UCDP ESD lists an uneven numbe
r of observations for each member of a dyad.

# Dyad id 657.
final_dataset[final_dataset$dyad_id == 657 & final_dataset$year == 2010,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0

# Dyad id 689.
final_dataset[final_dataset$actor_id == 90 & final_dataset$year == 2008,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0
final_dataset[final_dataset$actor_id == 90 & final_dataset$year == 2008,
              c("ext_sup", "ext_m", "ext_f")] <- 1
final_dataset[final_dataset$actor_id == 489 & final_dataset$year == 2008,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0
final_dataset[final_dataset$actor_id == 489 & final_dataset$year == 2008,
              c("ext_sup", "ext_l")] <- 1

# Dyad id 822.
final_dataset[final_dataset$dyad_id == 822 & final_dataset$year == 1995,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0

# Dyad id 875.
final_dataset[final_dataset$dyad_id == 875 & final_dataset$year == 2013,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0

# Dyad id 882.
final_dataset[final_dataset$dyad_id == 882 & final_dataset$year == 2011,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0

# Dyad id 11975
final_dataset[final_dataset$actor_id == 1123 & final_dataset$year == 2015,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0
final_dataset[final_dataset$actor_id == 1123 & final_dataset$year == 2015,
              c("ext_sup", "ext_l")] <- 1
final_dataset[final_dataset$actor_id == 112 & final_dataset$year == 2015,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0

# Dyad id 12102.
```

```r
final_dataset[final_dataset$actor_id == 94 & final_dataset$year == 2013,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0
final_dataset[final_dataset$actor_id == 94 & final_dataset$year == 2013,
              c("ext_sup", "ext_xp", "ext_l")] <- 1
final_dataset[final_dataset$actor_id == 528 & final_dataset$year == 2013,
              c("ext_sup", "ext_xp", "ext_y", "ext_w", "ext_m", "ext_ti", "ext_f", "ext_l")
] <- 0
final_dataset[final_dataset$actor_id == 528 & final_dataset$year == 2013,
              c("ext_sup", "ext_w", "ext_m")] <- 1



#--- Format dataset for survival analysis ---#
# This section formats the dataset to be structured in a multi-episode subject-period dataf
rame.

# Rearrange and sort.
final_dataset <- final_dataset %>%
  group_by(actor_id, dyad_episode) %>%
  mutate(min_year = min(year, na.rm = TRUE)) %>%
  ungroup() %>%
  arrange(dyad_id, actor_id, year) %>%
  select(dyad_id, actor_id, year, conflict_id, actor_nonstate, gwno_a, active, dyad_episode
, dyad_outcome, dyad_episode_duration, dyad_episode_start, dyad_episode_end, dyad_episode_i
ntensity, ext_sup, ext_xp, ext_y, ext_w, ext_m, ext_ti, ext_f, ext_l, peace_episode, confli
ct_recurrence, peace_episode_duration, peace_episode_start, peace_episode_end, country_inte
nsity_level, dyad_episode_intensity, territory, ethnic, peacekeeping_dyad_episode, peacekee
ping_peace_episode)

# Merge all dyad episode observations into one observation per episode for each dyad actor.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id, dyad_episode) %>%
  mutate(across(everything(), ~ ifelse(is.na(dyad_episode), ., first(na.omit(.))))) %>%
  ungroup() %>%
  filter(is.na(dyad_episode) | !duplicated(select(., dyad_id, actor_id, dyad_episode)))

# Adjust conflict_recurrence based on the row below.
final_dataset <- final_dataset %>%
  arrange(dyad_id, actor_id, year) %>% # Ensure rows are in temporal order
  group_by(dyad_id, actor_id) %>%     # Group by dyad_id and actor_id
  mutate(
    conflict_recurrence = ifelse(
      lead(conflict_recurrence, default = 0) == 1, # Check if the next row has a 1
      1, # Assign 1 to the current row's conflict_recurrence
      conflict_recurrence # Otherwise, keep the original value
    )
  ) %>%
  ungroup()

# Update conflict_recurrence to NA if dyad_episode is not NA and conflict_recurrence is 1.
final_dataset <- final_dataset %>%
  mutate(conflict_recurrence = ifelse(!is.na(dyad_episode) & conflict_recurrence == 1, NA,
conflict_recurrence))

# Merge dyad-episode observations with peace episodes.
final_dataset$dyad_episode_placeholder <- final_dataset$dyad_episode # Create placeholder v
ariable for dyad_episode, used for merging.

fill_and_delete <- function(final_dataset) {
  # Start looping
  i <- 1
  while (i < nrow(final_dataset)) {
    # Check if current row has value in 'dyad_episode_placeholder'
    # and the next row has NA in 'dyad_episode_placeholder'
```

```
    if (!is.na(final_dataset$dyad_episode_placeholder[i]) && is.na(final_dataset$dyad_episo
de_placeholder[i + 1])) {

      # Transfer values to the next row
      cols_to_transfer <- c("dyad_episode", "dyad_episode_duration", "dyad_episode_start",
                            "dyad_episode_end", "ext_sup", "ext_xp", "ext_y", "ext_w",
                            "ext_m", "ext_ti", "ext_f", "ext_l",
                            "dyad_episode_intensity", "dyad_outcome", "territory",
                            "peacekeeping_dyad_episode")

      final_dataset[i + 1, cols_to_transfer] <- final_dataset[i, cols_to_transfer]

      # Delete the current row
      final_dataset <- final_dataset[-i, ]

      # Adjust the loop index to account for row deletion
      i <- i - 1
    }
    # Move to the next row
    i <- i + 1
  }
  return(final_dataset)
}

# Apply the function to the dataset
final_dataset <- fill_and_delete(final_dataset)

final_dataset <- final_dataset %>%
 left_join(ucdp_term_dyad_3_2021 %>% select(dyad_id, year),
            by = c("dyad_id", "year"))

# Manually add 1 values to peace_episodes with recurrences in 2015.
final_dataset$conflict_recurrence[final_dataset$dyad_id %in% c(657, 708, 781, 869, 11972, 1
1975, 11986) & final_dataset$year == 2015] <- 1

# Remove dyad episodes that extend beyond 2015, as these cannot recur.
final_dataset <- final_dataset[!is.na(final_dataset$conflict_recurrence), ]

# Update the peace episode count.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id) %>%
  mutate(peace_episode = if_else(
    is.na(peace_episode),
    ifelse(all(is.na(peace_episode)), 1, max(peace_episode, na.rm = TRUE) + 1),
    peace_episode
  )) %>%
  ungroup()

# Fill in constant values where possible in observations with NAs.
while(any(is.na(final_dataset$dyad_episode))) {
  final_dataset <- final_dataset %>%
    mutate(dyad_episode = ifelse(is.na(dyad_episode), lag(dyad_episode), dyad_episode))}

while(any(is.na(final_dataset$dyad_episode_start))) {
  final_dataset <- final_dataset %>%
    mutate(dyad_episode_start = ifelse(is.na(dyad_episode_start), lag(dyad_episode_start),
dyad_episode_start))}

while(any(is.na(final_dataset$dyad_episode_end))) {
  final_dataset <- final_dataset %>%
    mutate(dyad_episode_end = ifelse(is.na(dyad_episode_end), lag(dyad_episode_end), dyad_e
pisode_end))}
```

```r
while(any(is.na(final_dataset$dyad_episode_duration))) {
  final_dataset <- final_dataset %>%
    mutate(dyad_episode_duration = ifelse(is.na(dyad_episode_duration), lag(dyad_episode_du
ration), dyad_episode_duration))}

while(any(is.na(final_dataset$dyad_outcome))) {
  final_dataset <- final_dataset %>%
    mutate(dyad_outcome = ifelse(is.na(dyad_outcome), lag(dyad_outcome), dyad_outcome))}

while(any(is.na(final_dataset$dyad_episode_intensity))) {
  final_dataset <- final_dataset %>%
    mutate(dyad_episode_intensity = ifelse(is.na(dyad_episode_intensity), lag(dyad_episode_
intensity), dyad_episode_intensity))}

while(any(is.na(final_dataset$territory))) {
  final_dataset <- final_dataset %>%
    mutate(territory = ifelse(is.na(territory), lag(territory), territory))}

while(any(is.na(final_dataset$peace_episode_duration))) {
  final_dataset <- final_dataset %>%
    mutate(peace_episode_duration = ifelse(is.na(peace_episode_duration), lag(peace_episode
_duration), peace_episode_duration))}

while(any(is.na(final_dataset$peace_episode_start))) {
  final_dataset <- final_dataset %>%
    mutate(peace_episode_start = ifelse(is.na(peace_episode_start), lag(peace_episode_start
), peace_episode_start))}

while(any(is.na(final_dataset$peace_episode_end))) {
  final_dataset <- final_dataset %>%
    mutate(peace_episode_end = ifelse(is.na(peace_episode_end), lag(peace_episode_end), pea
ce_episode_end))}

# Replacing NA values with 0 in the country_intensity_level column to indicate no armed con
flict (or at least less than 25 battle-related deaths)
final_dataset$country_intensity_level[is.na(final_dataset$country_intensity_level)] <- 0

# Replacing NA values with 0
final_dataset$peacekeeping_peace_episode[is.na(final_dataset$peacekeeping_peace_episode)] <
- 0

#Reorder
final_dataset <- final_dataset[order(final_dataset$dyad_id, final_dataset$actor_id, final_d
ataset$year), ]



#--- Remove dyad episodes resulting in one actor ceasing to exist  ---#
# The UCDP Conflict termination dataset denotes dyad_episodes that result in one of the dya
d actor's ceasing to exist for a variety of reasons. These observations must be removed, as
a dyad ceasing to exist (a dyad being an incompatibility between two specific actors) canno
t recur.
final_dataset <- final_dataset[final_dataset$dyad_outcome != 6, ]



#--- Re-code dyad_outcome ---#
# Merge government and rebel victories.
final_dataset <- final_dataset %>%
  mutate(dyad_outcome = ifelse(dyad_outcome %in% c(3, 4), 3, dyad_outcome))

# Create binary variables for each category.
final_dataset$frozen<- ifelse(final_dataset$dyad_outcome == 5, 1, 0)
final_dataset$peace_agreement <- ifelse(final_dataset$dyad_outcome == 1, 1, 0)
final_dataset$victory <- ifelse(final_dataset$dyad_outcome == 3, 1, 0)
```

```r
#--- Add state capacity control variable ---#
# Load dataset. Downloaded from QoG due to thier more compatible country codes.
qogdata_26_12_2024 <- read_excel("qogdata_26_12_2024.xlsx")

## New names:
## • `` -> `...1`

# Rename lld_capacity to state_capacity
colnames(qogdata_26_12_2024)[colnames(qogdata_26_12_2024) == "lld_capacity"] <- "state_capa
city"

# Add Gleditsch & Ward numeric codes.
qogdata_26_12_2024$gwno_a <- countrycode(
  sourcevar = qogdata_26_12_2024$ccodecow, # Correlates of war source variable
  origin = "cown",                  # Correlates of war as the input type
  destination = "gwn",               # Gleditsch & Ward numeric code as the output
  warn = TRUE
)

## Warning: Some values were not matched unambiguously: 679

# Manually translate remaining country codes by cross-checking with codes in External Suppo
rt Dataset.
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodecow == 679] <- 678 # Yemen
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "YEM"] <- 678 # Yemen
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "SRB"] <- 345 # Serbia
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "SCG"] <- 345 # Serbia
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "RUS"] <- 365 # USSR/Russia
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "SUN"] <- 365 # USSR/Russia
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "ETH"] <- 530 # Ethiopia
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "SDN"] <- 625 # Sudan
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "PAK"] <- 770 # Pakistan
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "VNM"] <- 816 # North Vietnam
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "VDR"] <- 817 # South Vietnam
qogdata_26_12_2024$gwno_a[qogdata_26_12_2024$ccodealp == "MYS"] <- 820 # Malaysia

# Filter away unneeded variables.
qogdata_26_12_2024 <- qogdata_26_12_2024[, c("gwno_a", "cname", "year", "state_capacity")]

# Merge the datasets based on gwno_a and year. Keep all rows in final_dataset that do not h
ave values for state capacity.
final_dataset <- merge(final_dataset,
                       qogdata_26_12_2024,
                       by = c("gwno_a", "year"),
                       all.x = TRUE)

# Remove observations due to missing data in State capacity dataset.
final_dataset <- final_dataset[final_dataset$dyad_id != 786, ] # Yemen
final_dataset <- final_dataset[final_dataset$dyad_id != 824, ] # Serbia



#--- Create dummy variables for hard and soft external support ---#
# Create a new variable denoting hard external support.
final_dataset$ext_hard <- ifelse(final_dataset$ext_xp == 1 |
                                   final_dataset$ext_y == 1 |
                                   final_dataset$ext_w == 1,
                                 1, 0)

# Create a new variable denoting soft external support.
final_dataset$ext_soft <- ifelse(final_dataset$ext_m == 1 |
                                   final_dataset$ext_ti == 1 |
                                   final_dataset$ext_f == 1 |
```

```
                                  final_dataset$ext_l == 1,
                                1, 0)


#--- Calculate decay on IVs ---#
# The theory of this paper argues that the effects of external support likely vanishes over
time. These effects can be simulated by adding a decay function to the indirect variables t
hat decreases along each observation, given the dataset's multi-episode subject-period form
at.

# Define the half-life decay function.
apply_decay <- function(values) {
  if (length(values) <= 1) return(values)

  decay_rate <- log(0.5) / 2 # Half-life of 2 years. This value is manually changed for reg
ressions with half-life of 1 and 4 and 6 years in table 4.
  decayed <- numeric(length(values))
  decayed[1] <- values[1] # The first row keeps its original value

  for (i in 2:length(values)) {
    decayed[i] <- decayed[i - 1] * exp(decay_rate)
  }

  return(decayed)
}

# Specify the columns for which decay needs to be applied.
decay_columns <- c("ext_hard", "ext_soft", "ext_xp", "ext_y", "ext_w",
                   "ext_m", "ext_ti", "ext_f", "ext_l")

# Apply the decay logic and replace original values.
final_dataset <- final_dataset %>%
  group_by(dyad_id, actor_id, peace_episode) %>%
  mutate(across(all_of(decay_columns), apply_decay))


#--- Split IVs into Government and Rebel Groups ---#
# Create new variables based on actor_nonstate.
final_dataset <- final_dataset %>%
  mutate(across(starts_with("ext_"),
                list(
                  g = ~ ifelse(actor_nonstate == 0, ., NA),
                  r = ~ ifelse(actor_nonstate == 1, ., NA)
                ),
                .names = "{fn}_{col}"))


#---Final clean-up ---#
# Reorder columns and remove unused variables.
final_dataset <- final_dataset[, c(
  "dyad_id", "actor_id", "year", "conflict_id", "actor_nonstate", "gwno_a",
  "dyad_episode", "dyad_episode_duration", "dyad_episode_start", "dyad_episode_end",
  "g_ext_hard", "g_ext_soft", "r_ext_hard", "r_ext_soft",
  "g_ext_xp", "g_ext_y", "g_ext_w", "g_ext_m", "g_ext_ti", "g_ext_f", "g_ext_l",
  "r_ext_xp", "r_ext_y", "r_ext_w", "r_ext_m", "r_ext_ti", "r_ext_f", "r_ext_l",
  "peace_episode", "conflict_recurrence", "peace_episode_duration", "peace_episode_start",
  "peace_episode_end", "state_capacity", "country_intensity_level", "territory", "ethnic",
  "dyad_episode_intensity", "peacekeeping_dyad_episode", "peacekeeping_peace_episode",
  "dyad_outcome", "frozen", "peace_agreement", "victory"
)]

#Calculate peace episode number.
final_dataset$peace_episode_nr <- paste0(final_dataset$dyad_id, "_", final_dataset$peace_ep
```

```
isode)

# Sort the dataset by dyad_id, actor_id, and year.
final_dataset <- final_dataset[order(final_dataset$dyad_id, final_dataset$actor_id, final_d
ataset$year), ]

# Merge government and rebel group observations on year.
final_dataset <- final_dataset %>%
  group_by(dyad_id, year) %>%
  summarise(across(everything(), max, na.rm = TRUE), .groups = "drop")

## Warning: There was 1 warning in `summarise()`.
## ℹ In argument: `across(everything(), max, na.rm = TRUE)`.
## ℹ In group 1: `dyad_id = 406` and `year = 1989`.
## Caused by warning:
## ! The `...` argument of `across()` is deprecated as of dplyr 1.1.0.
## Supply arguments directly to `.fns` through an anonymous function instead.
##
##   # Previously
##   across(a:b, mean, na.rm = TRUE)
##
##   # Now
##   across(a:b, \(x) mean(x, na.rm = TRUE))

# Save a copy of the dataset.
file_path <- "Replication_data_Fabian_Stigar.xlsx"
write_xlsx(final_dataset, file_path)


#--- Descriptive statistics ---#

# Create descriptive table for main analysis.
descriptive_table_main <- vtable::sumtable(final_dataset[c("conflict_recurrence",
                                                           "peace_episode_duration",
                                                           "g_ext_hard",
                                                           "g_ext_soft",
                                                           "r_ext_hard",
                                                           "r_ext_soft",
                                                           "dyad_episode_intensity",
                                                           "dyad_episode_duration",
                                                           "country_intensity_level",
                                                           "territory",
                                                           "ethnic",
                                                           "frozen",
                                                           "peace_agreement",
                                                           "victory",
                                                           "state_capacity",
                                                           "peacekeeping_dyad_episode",
                                                           "peacekeeping_peace_episode")],
                                           summ=c('notNA(x)', 'mean(x)', 'sd(x)', 'min(x)', 'max
(x)'),
                                           summ.names=c("N","Mean","Sd","Min","Max"),out="return
")

write_xlsx(descriptive_table_main,"/Users/fabianstigar/Library/CloudStorage/OneDrive-Försva
rshögskolan/Master\'s\ Thesis/Datasets/Sourcefiles/descriptive_table_main.xlsx")

# Create descriptive table for robustness test.
descriptive_table_robustness <- vtable::sumtable(final_dataset[c("conflict_recurrence",
                                                                 "peace_episode_duration",
                                                                 "g_ext_xp",
                                                                 "g_ext_y",
                                                                 "g_ext_w",
                                                                 "g_ext_m",
```

```
                                                    "g_ext_ti",
                                                    "g_ext_f",
                                                    "r_ext_xp",
                                                    "r_ext_y",
                                                    "r_ext_w",
                                                    "r_ext_m",
                                                    "r_ext_ti",
                                                    "r_ext_f",
                                                    "r_ext_l",
                                                    "dyad_episode_intensity",
                                                    "dyad_episode_duration",
                                                    "country_intensity_level",
                                                    "territory",
                                                    "ethnic",
                                                    "frozen",
                                                    "peace_agreement",
                                                    "victory",
                                                    "state_capacity",
                                                    "peacekeeping_dyad_episode",
                                                    "peacekeeping_peace_episode")],
                                          summ=c('notNA(x)', 'mean(x)', 'sd(x)', 'min(x)',
'max(x)'),
                                          summ.names=c("N","Mean","Sd","Min","Max"),out="r
eturn")

write_xlsx(descriptive_table_robustness,"/Users/fabianstigar/Library/CloudStorage/OneDrive-
Försvarshögskolan/Master\'s\ Thesis/Datasets/Sourcefiles/descriptive_table_main.xlsx")


#--- Regression analysis ---#

#== The effects of hard and soft external support on governments without controls ==#
# Fit Cox Proportional Hazards Model.
cox_model_HS_WC <- coxph(Surv(peace_episode_start, peace_episode_end, conflict_recurrence)
~ g_ext_hard + g_ext_soft + r_ext_hard + r_ext_soft + cluster(dyad_id), data = final_datase
t)

# Summary of the model.
summary(cox_model_HS_WC)

## Call:
## coxph(formula = Surv(peace_episode_start, peace_episode_end,
##     conflict_recurrence) ~ g_ext_hard + g_ext_soft + r_ext_hard +
##     r_ext_soft, data = final_dataset, cluster = dyad_id)
##
##   n= 6027, number of events= 181
##
##              coef exp(coef) se(coef) robust se     z Pr(>|z|)
## g_ext_hard 0.4116    1.5093   0.3267    0.5448 0.756   0.4499
## g_ext_soft 1.0194    2.7715   0.3511    0.6835 1.491   0.1358
## r_ext_hard 0.5098    1.6650   0.2871    0.4769 1.069   0.2851
## r_ext_soft 1.8372    6.2791   0.3414    0.7934 2.316   0.0206 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##            exp(coef) exp(-coef) lower .95 upper .95
## g_ext_hard     1.509     0.6626    0.5189      4.39
## g_ext_soft     2.772     0.3608    0.7260     10.58
## r_ext_hard     1.665     0.6006    0.6538      4.24
## r_ext_soft     6.279     0.1593    1.3261     29.73
##
## Concordance= 0.737  (se = 0.036 )
## Likelihood ratio test= 251.6  on 4 df,   p=<2e-16
## Wald test            = 283.1  on 4 df,   p=<2e-16
## Score (logrank) test = 637  on 4 df,   p=<2e-16,   Robust = 39.92  p=5e-08
```

```
##
##   (Note: the likelihood ratio and score tests assume independence of
##      observations within a cluster, the Wald and robust score tests do not).

# Check Proportional Hazards Assumption.
cox.zph(cox_model_HS_WC)

##             chisq df     p
## g_ext_hard  0.286  1 0.593
## g_ext_soft  0.117  1 0.732
## r_ext_hard  0.320  1 0.572
## r_ext_soft  3.139  1 0.076
## GLOBAL     10.279  4 0.036

#== The effects of hard and soft external support on governments with controls ==#
# Fit Cox Proportional Hazards Model.
cox_model_HS <- coxph(Surv(peace_episode_start, peace_episode_end, conflict_recurrence) ~ g
_ext_hard + g_ext_soft + r_ext_hard + r_ext_soft + dyad_episode_intensity + dyad_episode_du
ration + country_intensity_level + territory + ethnic + frozen + peace_agreement + victory
+ state_capacity + peacekeeping_dyad_episode + peacekeeping_peace_episode + cluster(dyad_id
), data = final_dataset)

# Summary of the model.
summary(cox_model_HS)

## Call:
## coxph(formula = Surv(peace_episode_start, peace_episode_end,
##     conflict_recurrence) ~ g_ext_hard + g_ext_soft + r_ext_hard +
##     r_ext_soft + dyad_episode_intensity + dyad_episode_duration +
##     country_intensity_level + territory + ethnic + frozen + peace_agreement +
##     victory + state_capacity + peacekeeping_dyad_episode + peacekeeping_peace_episode,
##     data = final_dataset, cluster = dyad_id)
##
##   n= 6027, number of events= 181
##
##                                 coef exp(coef)  se(coef) robust se      z
## g_ext_hard                  0.348943  1.417568  0.294994  0.450594  0.774
## g_ext_soft                  0.083446  1.087027  0.305881  0.485918  0.172
## r_ext_hard                  0.553383  1.739127  0.253727  0.381218  1.452
## r_ext_soft                  0.689659  1.993036  0.269430  0.473007  1.458
## dyad_episode_intensity      0.201976  1.223818  0.267580  0.440664  0.458
## dyad_episode_duration      -0.001514  0.998487  0.018050  0.027947 -0.054
## country_intensity_level     0.087049  1.090950  0.109591  0.163655  0.532
## territory                   0.514347  1.672546  0.198766  0.316615  1.625
## ethnic                      0.448310  1.565664  0.208133  0.322766  1.389
## frozen                      0.178444  1.195356  0.215500  0.333893  0.534
## peace_agreement            -0.975223  0.377108  0.317399  0.453311 -2.151
## victory                    -1.694349  0.183719  0.343365  0.424080 -3.995
## state_capacity              0.344851  1.411779  0.099258  0.157891  2.184
## peacekeeping_dyad_episode   2.106920  8.222873  0.226127  0.369817  5.697
## peacekeeping_peace_episode  0.300120  1.350020  0.257009  0.354767  0.846
##                            Pr(>|z|)
## g_ext_hard                   0.4387
## g_ext_soft                   0.8637
## r_ext_hard                   0.1466
## r_ext_soft                   0.1448
## dyad_episode_intensity       0.6467
## dyad_episode_duration        0.9568
## country_intensity_level      0.5948
## territory                    0.1043
## ethnic                       0.1648
## frozen                       0.5930
## peace_agreement              0.0314 *
## victory                    6.46e-05 ***
## state_capacity               0.0290 *
## peacekeeping_dyad_episode  1.22e-08 ***
```

```
## peacekeeping_peace_episode   0.3976
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                             exp(coef) exp(-coef) lower .95 upper .95
## g_ext_hard                     1.4176     0.7054   0.58614    3.4284
## g_ext_soft                     1.0870     0.9199   0.41940    2.8174
## r_ext_hard                     1.7391     0.5750   0.82383    3.6713
## r_ext_soft                     1.9930     0.5017   0.78866    5.0366
## dyad_episode_intensity         1.2238     0.8171   0.51597    2.9028
## dyad_episode_duration          0.9985     1.0015   0.94527    1.0547
## country_intensity_level        1.0909     0.9166   0.79159    1.5035
## territory                      1.6725     0.5979   0.89924    3.1109
## ethnic                         1.5657     0.6387   0.83169    2.9474
## frozen                         1.1954     0.8366   0.62128    2.2999
## peace_agreement                0.3771     2.6518   0.15510    0.9169
## victory                        0.1837     5.4431   0.08002    0.4218
## state_capacity                 1.4118     0.7083   1.03602    1.9238
## peacekeeping_dyad_episode      8.2229     0.1216   3.98323   16.9751
## peacekeeping_peace_episode     1.3500     0.7407   0.67354    2.7059
##
## Concordance= 0.872  (se = 0.018 )
## Likelihood ratio test= 490.5  on 15 df,   p=<2e-16
## Wald test            = 465.1  on 15 df,   p=<2e-16
## Score (logrank) test = 1119  on 15 df,   p=<2e-16,   Robust = 53.03  p=4e-06
##
##   (Note: the likelihood ratio and score tests assume independence of
##      observations within a cluster, the Wald and robust score tests do not).

# Check Proportional Hazards Assumption.
cox.zph(cox_model_HS)

##                               chisq df     p
## g_ext_hard                  0.00917  1 0.924
## g_ext_soft                  0.39651  1 0.529
## r_ext_hard                  0.12090  1 0.728
## r_ext_soft                  0.90909  1 0.340
## dyad_episode_intensity      7.86800  1 0.005
## dyad_episode_duration       0.32894  1 0.566
## country_intensity_level     0.02106  1 0.885
## territory                   2.33446  1 0.127
## ethnic                      0.89218  1 0.345
## frozen                      0.28434  1 0.594
## peace_agreement             0.48565  1 0.486
## victory                     0.01860  1 0.892
## state_capacity              0.00254  1 0.960
## peacekeeping_dyad_episode   0.23044  1 0.631
## peacekeeping_peace_episode  1.07428  1 0.300
## GLOBAL                     20.27260 15 0.162

#== The effects of external support types on governments with controls ==#
# Fit Cox Proportional Hazards Model.
cox_model_all_types <- coxph(Surv(peace_episode_start, peace_episode_end, conflict_recurren
ce) ~ g_ext_xp + g_ext_y + g_ext_w + g_ext_m + g_ext_ti + g_ext_f  + r_ext_xp + r_ext_y + r
_ext_w + r_ext_m + r_ext_ti + r_ext_f + r_ext_l + dyad_episode_intensity + dyad_episode_dur
ation + country_intensity_level + territory + ethnic + frozen + peace_agreement + victory +
state_capacity + peacekeeping_dyad_episode + peacekeeping_peace_episode + cluster(dyad_id),
data = final_dataset)

# Summary of the model.
summary(cox_model_all_types)

## Call:
## coxph(formula = Surv(peace_episode_start, peace_episode_end,
##     conflict_recurrence) ~ g_ext_xp + g_ext_y + g_ext_w + g_ext_m +
##     g_ext_ti + g_ext_f + r_ext_xp + r_ext_y + r_ext_w + r_ext_m +
```

```
##     r_ext_ti + r_ext_f + r_ext_l + dyad_episode_intensity + dyad_episode_duration +
##     country_intensity_level + territory + ethnic + frozen + peace_agreement +
##     victory + state_capacity + peacekeeping_dyad_episode + peacekeeping_peace_episode,
##     data = final_dataset, cluster = dyad_id)
##
##   n= 6027, number of events= 181
##
##                                coef exp(coef)  se(coef) robust se      z
## g_ext_xp                    0.512338  1.669189  0.346236  0.473627  1.082
## g_ext_y                    -0.060959  0.940862  0.352795  0.520488 -0.117
## g_ext_w                    -0.642541  0.525954  0.361201  0.524172 -1.226
## g_ext_m                     1.147137  3.149165  0.345827  0.429879  2.669
## g_ext_ti                    0.523419  1.687789  0.316216  0.432623  1.210
## g_ext_f                    -0.637791  0.528458  0.304953  0.405543 -1.573
## r_ext_xp                   -0.127139  0.880611  0.515234  0.731099 -0.174
## r_ext_y                     1.550334  4.713045  0.294788  0.401442  3.862
## r_ext_w                     0.452439  1.572142  0.297794  0.400852  1.129
## r_ext_m                    -1.150074  0.316613  0.372893  0.461724 -2.491
## r_ext_ti                   -0.026056  0.974281  0.300212  0.434356 -0.060
## r_ext_f                     0.575640  1.778268  0.307376  0.455448  1.264
## r_ext_l                     1.307133  3.695565  0.248331  0.365861  3.573
## dyad_episode_intensity      0.161232  1.174958  0.281028  0.431101  0.374
## dyad_episode_duration      -0.009333  0.990710  0.018716  0.027144 -0.344
## country_intensity_level     0.030897  1.031380  0.119374  0.189914  0.163
## territory                   0.744912  2.106257  0.209530  0.331086  2.250
## ethnic                      0.540242  1.716423  0.216558  0.329197  1.641
## frozen                      0.193128  1.213038  0.219020  0.315967  0.611
## peace_agreement            -0.927238  0.395645  0.335709  0.500874 -1.851
## victory                    -1.777418  0.169074  0.350901  0.433085 -4.104
## state_capacity              0.193119  1.213028  0.103206  0.150548  1.283
## peacekeeping_dyad_episode   1.963390  7.123433  0.223196  0.343483  5.716
## peacekeeping_peace_episode  0.475734  1.609195  0.256567  0.343909  1.383
##                            Pr(>|z|)
## g_ext_xp                   0.279372
## g_ext_y                    0.906766
## g_ext_w                    0.220266
## g_ext_m                    0.007619 **
## g_ext_ti                   0.226328
## g_ext_f                    0.115792
## r_ext_xp                   0.861943
## r_ext_y                    0.000113 ***
## r_ext_w                    0.259027
## r_ext_m                    0.012745 *
## r_ext_ti                   0.952166
## r_ext_f                    0.206267
## r_ext_l                    0.000353 ***
## dyad_episode_intensity     0.708404
## dyad_episode_duration      0.730965
## country_intensity_level    0.870761
## territory                  0.024455 *
## ethnic                     0.100779
## frozen                     0.541048
## peace_agreement            0.064135 .
## victory                    4.06e-05 ***
## state_capacity             0.199569
## peacekeeping_dyad_episode  1.09e-08 ***
## peacekeeping_peace_episode 0.166568
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##                            exp(coef) exp(-coef) lower .95 upper .95
## g_ext_xp                      1.6692     0.5991   0.65971    4.2234
## g_ext_y                       0.9409     1.0629   0.33922    2.6096
## g_ext_w                       0.5260     1.9013   0.18827    1.4693
## g_ext_m                       3.1492     0.3175   1.35607    7.3132
## g_ext_ti                      1.6878     0.5925   0.72288    3.9407
```

```
## g_ext_f                        0.5285     1.8923   0.23868    1.1701
## r_ext_xp                       0.8806     1.1356   0.21012    3.6906
## r_ext_y                        4.7130     0.2122   2.14582   10.3517
## r_ext_w                        1.5721     0.6361   0.71662    3.4490
## r_ext_m                        0.3166     3.1584   0.12809    0.7826
## r_ext_ti                       0.9743     1.0264   0.41587    2.2825
## r_ext_f                        1.7783     0.5623   0.72831    4.3419
## r_ext_l                        3.6956     0.2706   1.80409    7.5701
## dyad_episode_intensity         1.1750     0.8511   0.50474    2.7351
## dyad_episode_duration          0.9907     1.0094   0.93938    1.0448
## country_intensity_level        1.0314     0.9696   0.71083    1.4965
## territory                      2.1063     0.4748   1.10075    4.0303
## ethnic                         1.7164     0.5826   0.90035    3.2722
## frozen                         1.2130     0.8244   0.65302    2.2533
## peace_agreement                0.3956     2.5275   0.14824    1.0560
## victory                        0.1691     5.9146   0.07235    0.3951
## state_capacity                 1.2130     0.8244   0.90308    1.6294
## peacekeeping_dyad_episode      7.1234     0.1404   3.63343   13.9657
## peacekeeping_peace_episode     1.6092     0.6214   0.82011    3.1575
##
## Concordance= 0.877  (se = 0.017 )
## Likelihood ratio test= 542.2  on 24 df,   p=<2e-16
## Wald test            = 635.3  on 24 df,   p=<2e-16
## Score (logrank) test = 1501  on 24 df,   p=<2e-16,   Robust = 55.57  p=3e-04
##
##   (Note: the likelihood ratio and score tests assume independence of
##      observations within a cluster, the Wald and robust score tests do not).

# Check Proportional Hazards Assumption.
cox.zph(cox_model_all_types)

##                               chisq df      p
## g_ext_xp                     1.1754  1 0.2783
## g_ext_y                      1.6873  1 0.1940
## g_ext_w                      3.6679  1 0.0555
## g_ext_m                      0.8772  1 0.3490
## g_ext_ti                     1.0671  1 0.3016
## g_ext_f                      0.0501  1 0.8229
## r_ext_xp                     0.0111  1 0.9160
## r_ext_y                      0.0843  1 0.7715
## r_ext_w                      2.0719  1 0.1500
## r_ext_m                      0.0202  1 0.8868
## r_ext_ti                     0.0532  1 0.8176
## r_ext_f                      3.2635  1 0.0708
## r_ext_l                      2.2853  1 0.1306
## dyad_episode_intensity       9.4577  1 0.0021
## dyad_episode_duration        0.0553  1 0.8141
## country_intensity_level      0.2236  1 0.6363
## territory                    2.3696  1 0.1237
## ethnic                       0.4777  1 0.4895
## frozen                       0.0456  1 0.8310
## peace_agreement              0.0894  1 0.7649
## victory                      0.0415  1 0.8386
## state_capacity               0.3405  1 0.5596
## peacekeeping_dyad_episode    0.0853  1 0.7703
## peacekeeping_peace_episode   1.3620  1 0.2432
## GLOBAL                      40.3467 24 0.0196

#--- Regression tables ---#
# Due to incompatibility issues between the Survival package and Stargazer, hazard ratios,
robust standard errors and p-values have to be calculated separately.

# Calculate hazard ratios separately .
hazard_ratios_HS_WC <- exp(coef(cox_model_HS_WC))
hazard_ratios_HS <- exp(coef(cox_model_HS))
hazard_ratios_all_types <- exp(coef(cox_model_all_types))
```

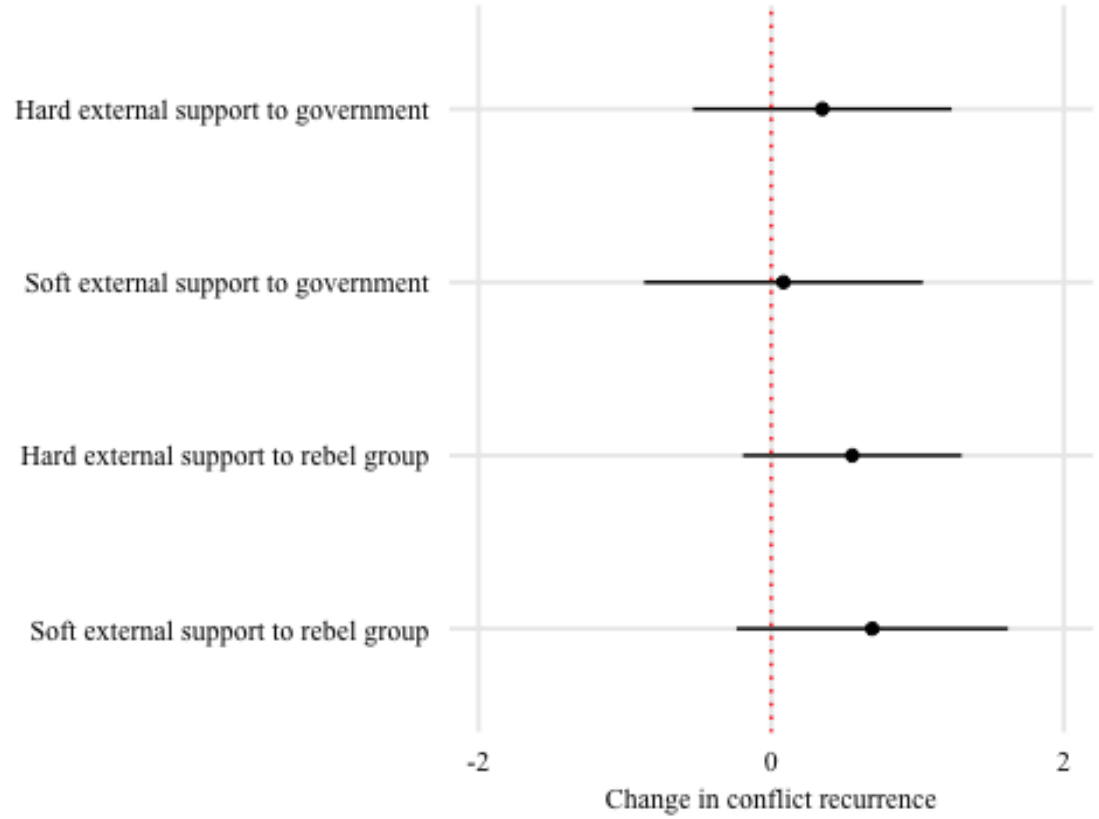
```r
# Calculate robust standard errors for regression tables.
robust_se_HS_WC <- summary(cox_model_HS_WC)$coefficients[, "robust se"]
robust_se_HS <- summary(cox_model_HS)$coefficients[, "robust se"]
robust_se_all_types <- summary(cox_model_all_types)$coefficients[, "robust se"]

# Calculate z-values and p-values.
z_values_HS_WC <- coef(cox_model_HS_WC) / robust_se_HS_WC
p_values_HS_WC <- 2 * (1 - pnorm(abs(z_values_HS_WC)))

z_values_HS <- coef(cox_model_HS) / robust_se_HS
p_values_HS <- 2 * (1 - pnorm(abs(z_values_HS)))

z_values_all_types <- coef(cox_model_all_types) / robust_se_all_types
p_values_all_types <- 2 * (1 - pnorm(abs(z_values_all_types)))

# 1. Regression table hard and soft types of external support.
stargazer(
  cox_model_HS_WC, cox_model_HS,
  type = "html", out = "regression_table_HS.html",
  title = "Table 2: The effects of hard and soft external support on conflict recurrence",
  dep.var.labels = c("Conflict Recurrence"),
  covariate.labels = c("Hard support to government", "Soft support to government",
                       "Hard support to rebel group", "Soft support to rebel group",
                       "Conflict episode intensity",
                       "Conflict episode duration", "Country intensity level",
                       "Territory", "Ethnic dimension",
                       "Frozen", "Peace agreement", "Military victory",
                       "State capacity", "Peacekeeping during conflict episode",
                       "Peacekeeping during peace episode"),
  column.labels = c(""),
  align = TRUE,
  no.space = TRUE,
  omit.stat = c("LL", "ser"),
  digits = 2,
  coef = list(hazard_ratios_HS_WC, hazard_ratios_HS),  # Display hazard ratios
  se = list(robust_se_HS_WC, robust_se_HS),           # Clustered SEs
  p = list(p_values_HS_WC, p_values_HS),              # Correct p-values
  notes = "Hazard ratios reported. A ratio with a value above 1 indicates an increased risk for conflict recurrence, while a value below 1 indicates a decreased risk for conflict recurrence. Standard errors are clustered on dyad and actor in parenthesis."
)

##
## <table style="text-align:center"><caption><strong>Table 2: The effects of hard and soft external support on conflict recurrence</strong></caption>
## <tr><td colspan="3" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left"></td><td colspan="2"><em>Dependent variable:</em></td></tr>
## <tr><td></td><td colspan="2" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td colspan="2">Conflict Recurrence</td></tr>
## <tr><td style="text-align:left"></td><td></td><td></td><td></td></tr>
## <tr><td style="text-align:left"></td><td>(1)</td><td>(2)</td></tr>
## <tr><td colspan="3" style="border-bottom: 1px solid black"></td></tr><tr><td style="text-align:left">Hard support to government</td><td>1.51</td><td>1.42</td></tr>
## <tr><td style="text-align:left"></td><td>(0.54)</td><td>(0.45)</td></tr>
## <tr><td style="text-align:left">Soft support to government</td><td>2.77</td><td>1.09</td></tr>
## <tr><td style="text-align:left"></td><td>(0.68)</td><td>(0.49)</td></tr>
## <tr><td style="text-align:left">Hard support to rebel group</td><td>1.67</td><td>1.74</td></tr>
## <tr><td style="text-align:left"></td><td>(0.48)</td><td>(0.38)</td></tr>
## <tr><td style="text-align:left">Soft support to rebel group</td><td>6.28<sup>**</sup></td><td>1.99</td></tr>
## <tr><td style="text-align:left"></td><td>(0.79)</td><td>(0.47)</td></tr>
## <tr><td style="text-align:left">Conflict episode intensity</td><td></td><td>1.22</td></t
```

```
r>
## <tr><td style="text-align:left"></td><td></td><td>(0.44)</td></tr>
## <tr><td style="text-align:left">Conflict episode duration</td><td></td><td>1.00</td></tr
>
## <tr><td style="text-align:left"></td><td></td><td>(0.03)</td></tr>
## <tr><td style="text-align:left">Country intensity level</td><td></td><td>1.09</td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.16)</td></tr>
## <tr><td style="text-align:left">Territory</td><td></td><td>1.67</td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.32)</td></tr>
## <tr><td style="text-align:left">Ethnic dimension</td><td></td><td>1.57</td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.32)</td></tr>
## <tr><td style="text-align:left">Frozen</td><td></td><td>1.20</td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.33)</td></tr>
## <tr><td style="text-align:left">Peace agreement</td><td></td><td>0.38<sup>**</sup></td><
/tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.45)</td></tr>
## <tr><td style="text-align:left">Military victory</td><td></td><td>0.18<sup>***</sup></td
></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.42)</td></tr>
## <tr><td style="text-align:left">State capacity</td><td></td><td>1.41<sup>**</sup></td></
tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.16)</td></tr>
## <tr><td style="text-align:left">Peacekeeping during conflict episode</td><td></td><td>8.
22<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.37)</td></tr>
## <tr><td style="text-align:left">Peacekeeping during peace episode</td><td></td><td>1.35<
/td></tr>
## <tr><td style="text-align:left"></td><td></td><td>(0.35)</td></tr>
## <tr><td colspan="3" style="border-bottom: 1px solid black"></td></tr><tr><td style="text
-align:left">Observations</td><td>6,027</td><td>6,027</td></tr>
## <tr><td style="text-align:left">R<sup>2</sup></td><td>0.04</td><td>0.08</td></tr>
## <tr><td style="text-align:left">Max. Possible R<sup>2</sup></td><td>0.39</td><td>0.39</t
d></tr>
## <tr><td style="text-align:left">Wald Test</td><td>283.12<sup>***</sup> (df = 4)</td><td>
465.14<sup>***</sup> (df = 15)</td></tr>
## <tr><td style="text-align:left">LR Test</td><td>251.57<sup>***</sup> (df = 4)</td><td>49
0.54<sup>***</sup> (df = 15)</td></tr>
## <tr><td style="text-align:left">Score (Logrank) Test</td><td>637.02<sup>***</sup> (df =
4)</td><td>1,118.86<sup>***</sup> (df = 15)</td></tr>
## <tr><td colspan="3" style="border-bottom: 1px solid black"></td></tr><tr><td style="text
-align:left"><em>Note:</em></td><td colspan="2" style="text-align:right"><sup>*</sup>p<0.1;
<sup>**</sup>p<0.05; <sup>***</sup>p<0.01</td></tr>
## <tr><td style="text-align:left"></td><td colspan="2" style="text-align:right">Hazard rat
ios reported. A ratio with a value above 1 indicates an increased risk for conflict recurre
nce, while a value below 1 indicates a decreased risk for conflict recurrence. Standard err
ors are clustered on dyad and actor in parenthesis.</td></tr>
## </table>

# 2. Regression table for all types of external support.
stargazer(
  cox_model_all_types,
  type = "html", out = "regression_table_all_types.html",
  title = "Table 4: The effects of external support types on conflict recurrence",
  dep.var.labels = c("Conflict Recurrence"),  # Label for the dependent variable
  covariate.labels = c("Troop support from state to government", "Troop support from non-st
ate to government", "Weapon and ammunition to government", "Materiel and logistics to gover
nment", "Training, expertise and intelligence to government", "Financial support to governm
ent", "Troop support from state to rebel group", "Troop support from non-state to rebel gro
up", "Weapon and ammunition to rebel group", "Materiel and logistics to rebel group", "Trai
ning, expertise and intelligence to rebel group", "Financial support to rebel group", "Terr
itorial access to rebel group", "Conflict episode intensity", "Conflict episode duration",
"Country intensity level", "Territory", "Ethnic dimension", "Frozen", "Peace agreement", "M
ilitary victory", "State capacity", "Peacekeeping during Conflict episode", "Peacekeeping d
uring peace episode"),  # Custom labels for variables
  column.labels = c(""),
  align = TRUE,
```

```
  no.space = TRUE,
  omit.stat = c("LL", "ser"),
  digits = 2,
  coef = list(hazard_ratios_all_types, hazard_ratios_all_types),  # Display hazard ratios
  se = list(robust_se_all_types, robust_se_all_types),           # Clustered SEs
  p = list(p_values_all_types, p_values_all_types),              # Correct p-values
  notes = "Hazard ratios reported. A ratio with a value above 1 indicates an increased risk
for conflict recurrence, while a value below 1 indicates a decreased risk for conflict recu
rrence. Standard errors are clustered on dyad and actor in parenthesis."
)

##
## <table style="text-align:center"><caption><strong>Table 4: The effects of external suppo
rt types on conflict recurrence</strong></caption>
## <tr><td colspan="2" style="border-bottom: 1px solid black"></td></tr><tr><td style="text
-align:left"></td><td><em>Dependent variable:</em></td></tr>
## <tr><td></td><td colspan="1" style="border-bottom: 1px solid black"></td></tr>
## <tr><td style="text-align:left"></td><td>Conflict Recurrence</td></tr>
## <tr><td style="text-align:left"></td><td></td></tr>
## <tr><td colspan="2" style="border-bottom: 1px solid black"></td></tr><tr><td style="text
-align:left">Troop support from state to government</td><td>1.67</td></tr>
## <tr><td style="text-align:left"></td><td>(0.47)</td></tr>
## <tr><td style="text-align:left">Troop support from non-state to government</td><td>0.94<
/td></tr>
## <tr><td style="text-align:left"></td><td>(0.52)</td></tr>
## <tr><td style="text-align:left">Weapon and ammunition to government</td><td>0.53</td></t
r>
## <tr><td style="text-align:left"></td><td>(0.52)</td></tr>
## <tr><td style="text-align:left">Materiel and logistics to government</td><td>3.15<sup>**
*</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.43)</td></tr>
## <tr><td style="text-align:left">Training, expertise and intelligence to government</td><
td>1.69</td></tr>
## <tr><td style="text-align:left"></td><td>(0.43)</td></tr>
## <tr><td style="text-align:left">Financial support to government</td><td>0.53</td></tr>
## <tr><td style="text-align:left"></td><td>(0.41)</td></tr>
## <tr><td style="text-align:left">Troop support from state to rebel group</td><td>0.88</td
></tr>
## <tr><td style="text-align:left"></td><td>(0.73)</td></tr>
## <tr><td style="text-align:left">Troop support from non-state to rebel group</td><td>4.71
<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.40)</td></tr>
## <tr><td style="text-align:left">Weapon and ammunition to rebel group</td><td>1.57</td></
tr>
## <tr><td style="text-align:left"></td><td>(0.40)</td></tr>
## <tr><td style="text-align:left">Materiel and logistics to rebel group</td><td>0.32<sup>*
*</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.46)</td></tr>
## <tr><td style="text-align:left">Training, expertise and intelligence to rebel group</td>
<td>0.97</td></tr>
## <tr><td style="text-align:left"></td><td>(0.43)</td></tr>
## <tr><td style="text-align:left">Financial support to rebel group</td><td>1.78</td></tr>
## <tr><td style="text-align:left"></td><td>(0.46)</td></tr>
## <tr><td style="text-align:left">Territorial access to rebel group</td><td>3.70<sup>***</
sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.37)</td></tr>
## <tr><td style="text-align:left">Conflict episode intensity</td><td>1.17</td></tr>
## <tr><td style="text-align:left"></td><td>(0.43)</td></tr>
## <tr><td style="text-align:left">Conflict episode duration</td><td>0.99</td></tr>
## <tr><td style="text-align:left"></td><td>(0.03)</td></tr>
## <tr><td style="text-align:left">Country intensity level</td><td>1.03</td></tr>
## <tr><td style="text-align:left"></td><td>(0.19)</td></tr>
## <tr><td style="text-align:left">Territory</td><td>2.11<sup>**</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.33)</td></tr>
## <tr><td style="text-align:left">Ethnic dimension</td><td>1.72</td></tr>
## <tr><td style="text-align:left"></td><td>(0.33)</td></tr>
```

```
## <tr><td style="text-align:left">Frozen</td><td>1.21</td></tr>
## <tr><td style="text-align:left"></td><td>(0.32)</td></tr>
## <tr><td style="text-align:left">Peace agreement</td><td>0.40<sup>*</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.50)</td></tr>
## <tr><td style="text-align:left">Military victory</td><td>0.17<sup>***</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.43)</td></tr>
## <tr><td style="text-align:left">State capacity</td><td>1.21</td></tr>
## <tr><td style="text-align:left"></td><td>(0.15)</td></tr>
## <tr><td style="text-align:left">Peacekeeping during Conflict episode</td><td>7.12<sup>**
*</sup></td></tr>
## <tr><td style="text-align:left"></td><td>(0.34)</td></tr>
## <tr><td style="text-align:left">Peacekeeping during peace episode</td><td>1.61</td></tr>
## <tr><td style="text-align:left"></td><td>(0.34)</td></tr>
## <tr><td colspan="2" style="border-bottom: 1px solid black"></td></tr><tr><td style="text
-align:left">Observations</td><td>6,027</td></tr>
## <tr><td style="text-align:left">R<sup>2</sup></td><td>0.09</td></tr>
## <tr><td style="text-align:left">Max. Possible R<sup>2</sup></td><td>0.39</td></tr>
## <tr><td style="text-align:left">Wald Test</td><td>635.30<sup>***</sup> (df = 24)</td></t
r>
## <tr><td style="text-align:left">LR Test</td><td>542.22<sup>***</sup> (df = 24)</td></tr>
## <tr><td style="text-align:left">Score (Logrank) Test</td><td>1,501.21<sup>***</sup> (df
= 24)</td></tr>
## <tr><td colspan="2" style="border-bottom: 1px solid black"></td></tr><tr><td style="text
-align:left"><em>Note:</em></td><td style="text-align:right"><sup>*</sup>p<0.1; <sup>**</su
p>p<0.05; <sup>***</sup>p<0.01</td></tr>
## <tr><td style="text-align:left"></td><td style="text-align:right">Hazard ratios reported
. A ratio with a value above 1 indicates an increased risk for conflict recurrence, while a
value below 1 indicates a decreased risk for conflict recurrence. Standard errors are clust
ered on dyad and actor in parenthesis.</td></tr>
## </table>

# All other tables are manually made by rerunning changing the code with different half-lif
e values.

#--- Coefficient plots ---#
#== Coefficient plot on the effect of hard and soft external support ==#

# Tidy the model outputs to extract log-hazard ratios.
tidy_log_cox_model_HS <- broom::tidy(cox_model_HS, conf.int = TRUE)



# Define the specific variables to show for each model.
coefficient_plot_HS_variables <- c("g_ext_hard", "g_ext_soft", "r_ext_hard", "r_ext_soft")

# Custom labels for the y-axis.
variable_labels_coefficient_plot_HS <- c(
  "g_ext_hard" = "Hard external support to government",
  "g_ext_soft"  = "Soft external support to government",
  "r_ext_hard"  = "Hard external support to rebel group",
  "r_ext_soft" = "Soft external support to rebel group"
)

# Filter and combine the data for plotting.
tidy_cox_HS <- bind_rows(
  tidy_log_cox_model_HS %>%
    filter(term %in% coefficient_plot_HS_variables)
) %>%
  mutate(
    term = factor(term, levels = rev(c(coefficient_plot_HS_variables)))  # Reverse order ex
plicitly
  )

# Plot the log-hazard ratios.
ggplot(tidy_cox_HS, aes(x = estimate, y = term)) +
```

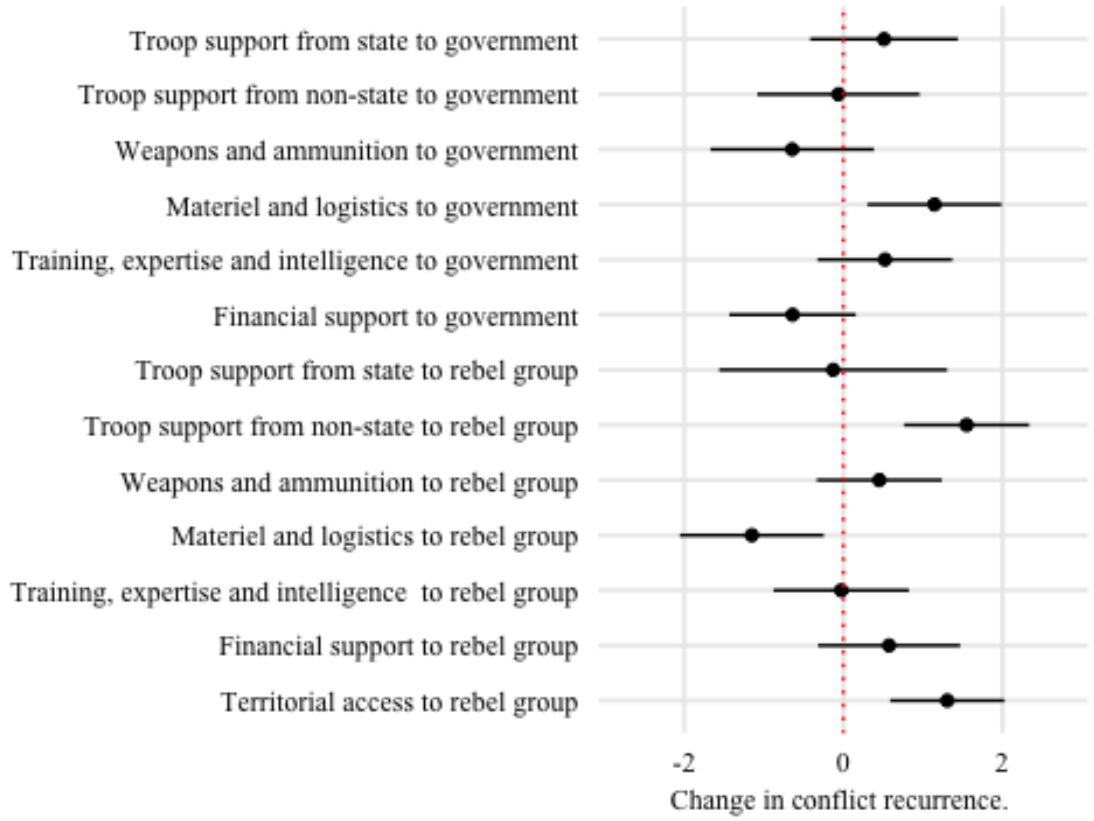
```
  geom_point(size = 1.5, color = "black") +  # Single colour for points
  geom_errorbarh(aes(xmin = conf.low, xmax = conf.high), height = 0, color = "black") +  #
Single colour for error bars
  geom_vline(xintercept = 0, linetype = "dotted", color = "red") +
  scale_x_continuous(limits = c(-2, 2), breaks = seq(-2, 2, by = 2)) +  # Adjust breaks if
needed
  scale_y_discrete(labels = variable_labels_coefficient_plot_HS) +  # Apply custom labels f
or y-axis
  labs(
    title = "",
    x = "Change in conflict recurrence",
    y = ""
  ) +
  theme_minimal(base_size = 14) +
  theme(
    panel.grid.minor = element_blank(),  # Remove minor grid lines
    text = element_text(family = "Times New Roman"),  # Use Times New Roman font
    axis.text = element_text(family = "Times New Roman", size = 9, color = "black"),  # Set
axis text font, size, and colour
    axis.title.x = element_text(family = "Times New Roman", size = 9, color = "black"),  #
Match size and colour of x-axis title
    axis.title.y = element_blank(),
    plot.title = element_text(family = "Times New Roman", face = "bold", size = 9)  # Adjus
t plot title font and size
  )
```




```
# Save plot.
ggsave(
  filename = "cox_log_plot_HS.jpg",  # File name
  plot = last_plot(),                    # The plot object to save
  width = 6,                             # Width of the plot in inches
  height = 3,                            # Height of the plot in inches
  dpi = 900                              # Resolution
```

```
)


#== Coefficient plot on the effect of external support types on conflict recurrence ==#

# Tidy the model outputs to extract log-hazard ratios.
tidy_log_cox_model_all_types <- broom::tidy(cox_model_all_types, conf.int = TRUE)


# Define the specific variables to show for each model.
coefficient_plot_all_types_variables <- c("g_ext_xp", "g_ext_y", "g_ext_w", "g_ext_m",
                                          "g_ext_ti", "g_ext_f","r_ext_xp", "r_ext_y", "r_e
xt_w",
                                          "r_ext_m", "r_ext_ti", "r_ext_f", "r_ext_l")


# Custom labels for the y-axis.
variable_labels_coefficient_plot_all_types <- c(
  "g_ext_xp" = "Troop support from state to government",
  "g_ext_y"  = "Troop support from non-state to government",
  "g_ext_w"  = "Weapons and ammunition to government",
  "g_ext_m"  = "Materiel and logistics to government",
  "g_ext_ti"  = "Training, expertise and intelligence to government",
  "g_ext_f"  = "Financial support to government",
  "r_ext_xp" = "Troop support from state to rebel group",
  "r_ext_y"  = "Troop support from non-state to rebel group",
  "r_ext_w"  = "Weapons and ammunition to rebel group",
  "r_ext_m"  = "Materiel and logistics to rebel group",
  "r_ext_ti"  = "Training, expertise and intelligence  to rebel group",
  "r_ext_f"  = "Financial support to rebel group",
  "r_ext_l"  = "Territorial access to rebel group"
)

# Filter and combine the data for plotting.
tidy_cox_all_types <- bind_rows(
  tidy_log_cox_model_all_types %>%
    filter(term %in% coefficient_plot_all_types_variables)
) %>%
  mutate(
    term = factor(term, levels = rev(c(coefficient_plot_all_types_variables)))  # Reverse o
rder explicitly
  )

# Plot the log-hazard ratios.
ggplot(tidy_cox_all_types, aes(x = estimate, y = term)) +
  geom_point(size = 1.5, color = "black") +  # Single colour for points
  geom_errorbarh(aes(xmin = conf.low, xmax = conf.high), height = 0, color = "black") +  #
Single colour for error bars
  geom_vline(xintercept = 0, linetype = "dotted", color = "red") +
  scale_x_continuous(limits = c(-2.8, 2.8), breaks = seq(-2, 2, by = 2)) +  # Adjust breaks
if needed
  scale_y_discrete(labels = variable_labels_coefficient_plot_all_types) +  # Apply custom l
abels for y-axis
  labs(
    title = "",
    x = "Change in conflict recurrence. ",
    y = ""
  ) +
  theme_minimal(base_size = 14) +
  theme(
    panel.grid.minor = element_blank(),  # Remove minor grid lines
    text = element_text(family = "Times New Roman"),  # Use Times New Roman font
    axis.text = element_text(family = "Times New Roman", size = 9, color = "black"),  # Set
axis text font, size, and colour
```

```
    axis.title.x = element_text(family = "Times New Roman", size = 9, color = "black"),  #
Match size and colour of x-axis title
    axis.title.y = element_blank(),
    plot.title = element_text(family = "Times New Roman", face = "bold", size = 9)  # Adjus
t plot title font and size
  )
```




```
# Save plot.
ggsave(
  filename = "cox_log_plot_all_types.png",  # File name
  plot = last_plot(),                       # The plot object to save
  width = 8,                                # Width of the plot in inches
  height = 6,                               # Height of the plot in inches
  dpi = 900                                 # Resolution
)


#---  Multicollinearity  ---#

# Create correlation matrices
CM_cox_model_HS_WC <- final_dataset[, c("g_ext_hard", "g_ext_soft", "r_ext_hard", "r_ext_so
ft")]

CM_cox_model_HS <- final_dataset[, c("g_ext_hard", "g_ext_soft", "r_ext_hard", "r_ext_soft"
,
                                     "dyad_episode_intensity", "dyad_episode_duration",
                                     "country_intensity_level", "territory", "ethnic",
                                     "frozen", "peace_agreement", "victory", "state_capa
city",
                                     "peacekeeping_dyad_episode", "peacekeeping_peace_ep
isode")]
```

```r
CM_cox_model_all_types <- final_dataset[, c("g_ext_xp", "g_ext_y", "g_ext_w", "g_ext_m", "g
_ext_ti",
                                            "g_ext_f",
                                            "r_ext_xp", "r_ext_y", "r_ext_w", "r_ext_m", "
r_ext_ti",
                                            "r_ext_f", "r_ext_l",
                                            "dyad_episode_intensity", "dyad_episode_durati
on",
                                            "country_intensity_level", "territory", "ethni
c", "frozen",
                                            "peace_agreement", "victory", "state_capacity"
,
                                            "peacekeeping_dyad_episode", "peacekeeping_pea
ce_episode")]

# Calculate correlation matrix.
cor_matrix_HS_WC <- cor(CM_cox_model_HS_WC, use = "complete.obs")
cor_matrix_HS <- cor(CM_cox_model_HS, use = "complete.obs")
cor_matrix_all_types <- cor(CM_cox_model_all_types, use = "complete.obs")
print(cor_matrix_HS_WC)
```

```
##            g_ext_hard g_ext_soft r_ext_hard r_ext_soft
## g_ext_hard  1.0000000  0.7641762  0.3741531  0.4205373
## g_ext_soft  0.7641762  1.0000000  0.3619022  0.4292670
## r_ext_hard  0.3741531  0.3619022  1.0000000  0.6718224
## r_ext_soft  0.4205373  0.4292670  0.6718224  1.0000000
```

```r
print(cor_matrix_HS)
```

```
##                              g_ext_hard   g_ext_soft  r_ext_hard  r_ext_soft
## g_ext_hard                    1.00000000  0.764176219  0.37415313  0.42053734
## g_ext_soft                    0.76417622  1.000000000  0.36190217  0.42926700
## r_ext_hard                    0.37415313  0.361902167  1.00000000  0.67182241
## r_ext_soft                    0.42053734  0.429266999  0.67182241  1.00000000
## dyad_episode_intensity        0.05981921  0.032977330  0.10886988  0.08457994
## dyad_episode_duration         0.06838681  0.076017967  0.15142894  0.15760141
## country_intensity_level       0.09913474  0.114321366  0.04426695  0.08058931
## territory                     0.03749441  0.053621983  0.02664822  0.01435631
## ethnic                        0.02475488  0.028285158  0.03810112  0.04789995
## frozen                        0.07830421  0.090630596 -0.01463334  0.06198249
## peace_agreement               0.01561034  0.026367539  0.11392736  0.08834078
## victory                      -0.09254499 -0.115032385 -0.11393597 -0.14444089
## state_capacity               -0.06936338 -0.047697067 -0.09701721 -0.07909252
## peacekeeping_dyad_episode     0.46787560  0.482947654  0.39745881  0.43519641
## peacekeeping_peace_episode    0.02272795  0.004670287  0.09594771  0.08357466
##                              dyad_episode_intensity dyad_episode_duration
## g_ext_hard                            0.059819206            0.06838681
## g_ext_soft                            0.032977330            0.07601797
## r_ext_hard                            0.108869881            0.15142894
## r_ext_soft                            0.084579939            0.15760141
## dyad_episode_intensity                1.000000000            0.13774077
## dyad_episode_duration                 0.137740772            1.00000000
## country_intensity_level               0.009118285            0.00960419
## territory                            -0.019643074            0.07110934
## ethnic                                0.003362403            0.04053366
## frozen                               -0.147453162            0.02380517
## peace_agreement                       0.086420385            0.19661749
## victory                               0.077201703           -0.20344134
## state_capacity                       -0.168986573            0.01406790
## peacekeeping_dyad_episode            -0.006745397            0.02074696
## peacekeeping_peace_episode            0.105097123            0.02784555
##                              country_intensity_level   territory       ethnic
## g_ext_hard                             0.099134737  0.03749441  0.024754877
## g_ext_soft                             0.114321366  0.05362198  0.028285158
## r_ext_hard                             0.044266952  0.02664822  0.038101116
## r_ext_soft                             0.080589313  0.01435631  0.047899949
```

```
## dyad_episode_intensity                0.009118285 -0.01964307  0.003362403
## dyad_episode_duration                 0.009604190  0.07110934  0.040533663
## country_intensity_level               1.000000000  0.19963824  0.046528577
## territory                             0.199638240  1.00000000  0.532502658
## ethnic                                0.046528577  0.53250266  1.000000000
## frozen                                0.231486257  0.16971379  0.082134348
## peace_agreement                      -0.102571740 -0.01553687  0.104647132
## victory                              -0.121773999 -0.24048436 -0.276281822
## state_capacity                       -0.071395308  0.29835007  0.171049537
## peacekeeping_dyad_episode             0.046110680  0.07715280  0.048824249
## peacekeeping_peace_episode           -0.081370652 -0.13515732 -0.046923511
##                                 frozen peace_agreement     victory
## g_ext_hard                   0.07830421     0.015610340 -0.09254499
## g_ext_soft                   0.09063060     0.026367539 -0.11503239
## r_ext_hard                  -0.01463334     0.113927357 -0.11393597
## r_ext_soft                   0.06198249     0.088340781 -0.14444089
## dyad_episode_intensity      -0.14745316     0.086420385  0.07720170
## dyad_episode_duration        0.02380517     0.196617490 -0.20344134
## country_intensity_level      0.23148626    -0.102571740 -0.12177400
## territory                    0.16971379    -0.015536871 -0.24048436
## ethnic                       0.08213435     0.104647132 -0.27628182
## frozen                       1.00000000    -0.331322060 -0.56991883
## peace_agreement             -0.33132206     1.000000000 -0.32589896
## victory                     -0.56991883    -0.325898964  1.00000000
## state_capacity               0.02099277    -0.001067075 -0.05587544
## peacekeeping_dyad_episode    0.08470803    -0.013662257 -0.08759936
## peacekeeping_peace_episode  -0.06620848     0.178618968 -0.04052045
##                             state_capacity peacekeeping_dyad_episode
## g_ext_hard                    -0.069363379                0.467875599
## g_ext_soft                    -0.047697067                0.482947654
## r_ext_hard                    -0.097017205                0.397458807
## r_ext_soft                    -0.079092515                0.435196408
## dyad_episode_intensity        -0.168986573               -0.006745397
## dyad_episode_duration          0.014067897                0.020746963
## country_intensity_level       -0.071395308                0.046110680
## territory                      0.298350073                0.077152797
## ethnic                         0.171049537                0.048824249
## frozen                         0.020992770                0.084708034
## peace_agreement               -0.001067075               -0.013662257
## victory                       -0.055875441               -0.087599365
## state_capacity                 1.000000000               -0.023713617
## peacekeeping_dyad_episode     -0.023713617                1.000000000
## peacekeeping_peace_episode    -0.351453880                0.013391804
##                             peacekeeping_peace_episode
## g_ext_hard                                0.022727952
## g_ext_soft                                0.004670287
## r_ext_hard                                0.095947707
## r_ext_soft                                0.083574663
## dyad_episode_intensity                    0.105097123
## dyad_episode_duration                     0.027845555
## country_intensity_level                  -0.081370652
## territory                                -0.135157318
## ethnic                                   -0.046923511
## frozen                                   -0.066208478
## peace_agreement                           0.178618968
## victory                                  -0.040520452
## state_capacity                           -0.351453880
## peacekeeping_dyad_episode                 0.013391804
## peacekeeping_peace_episode                1.000000000

print(cor_matrix_all_types)

##                                g_ext_xp      g_ext_y      g_ext_w      g_ext_m
## g_ext_xp                   1.000000000  0.110952253  0.305824031  0.289681488
## g_ext_y                    0.110952253  1.000000000  0.166496693  0.231736145
## g_ext_w                    0.305824031  0.166496693  1.000000000  0.781374833
```

```
## g_ext_m                     0.289681488  0.231736145  0.781374833  1.000000000
## g_ext_ti                    0.338500097  0.243488157  0.733583950  0.751455674
## g_ext_f                     0.242712286  0.116741985  0.658742569  0.650914569
## r_ext_xp                    0.221644294  0.085744780  0.164630531  0.113098344
## r_ext_y                     0.069197774  0.118527356  0.071289316  0.099793454
## r_ext_w                     0.292436520  0.166501121  0.288097017  0.251961582
## r_ext_m                     0.242816990  0.168851346  0.260277602  0.251760390
## r_ext_ti                    0.156583431  0.105000639  0.255087808  0.222294339
## r_ext_f                     0.237088890  0.070890131  0.266983339  0.205952394
## r_ext_l                     0.147078527  0.162691951  0.310499881  0.282229501
## dyad_episode_intensity      0.077723987 -0.001922739  0.083239640  0.030728157
## dyad_episode_duration       0.066067227 -0.023774622  0.076145934  0.063041945
## country_intensity_level     0.008456942 -0.022224303  0.131122724  0.093284388
## territory                  -0.116827965  0.019467078  0.065592302  0.055421850
## ethnic                     -0.060687862  0.005827326  0.021365720  0.004734042
## frozen                      0.016721470  0.030995952  0.099464519  0.090732146
## peace_agreement             0.025274895  0.018575922  0.002428782  0.019081175
## victory                    -0.038289696 -0.035542931 -0.107288487 -0.104423702
## state_capacity             -0.159130716 -0.017717946 -0.035964327 -0.016260837
## peacekeeping_dyad_episode   0.245924651  0.225255584  0.398854405  0.397930665
## peacekeeping_peace_episode  0.043018933  0.025061878  0.001707020  0.012119316
##                                 g_ext_ti     g_ext_f     r_ext_xp      r_ext_y
## g_ext_xp                    3.385001e-01  0.24271229  0.221644294  0.069197774
## g_ext_y                     2.434882e-01  0.11674199  0.085744780  0.118527356
## g_ext_w                     7.335839e-01  0.65874257  0.164630531  0.071289316
## g_ext_m                     7.514557e-01  0.65091457  0.113098344  0.099793454
## g_ext_ti                    1.000000e+00  0.64083797  0.116884847  0.166230538
## g_ext_f                     6.408380e-01  1.00000000  0.025441478  0.080493139
## r_ext_xp                    1.168848e-01  0.02544148  1.000000000  0.002025646
## r_ext_y                     1.662305e-01  0.08049314  0.002025646  1.000000000
## r_ext_w                     2.830410e-01  0.24411145  0.361679957  0.191624874
## r_ext_m                     2.428782e-01  0.24666840  0.387641820  0.152263954
## r_ext_ti                    2.458773e-01  0.21895500  0.309500400  0.252696294
## r_ext_f                     2.393468e-01  0.28510707  0.328677683  0.125452385
## r_ext_l                     2.830318e-01  0.23561140  0.182911458  0.094269083
## dyad_episode_intensity      2.631654e-02  0.03524155  0.149925072  0.025211866
## dyad_episode_duration       6.372428e-02  0.12060847 -0.028637374  0.021419943
## country_intensity_level     1.237863e-01  0.08681077 -0.047907224  0.040348332
## territory                   5.937964e-02  0.04894330 -0.006082926  0.074658204
## ethnic                      2.768735e-02  0.02613646  0.007811694  0.043733750
## frozen                      9.336199e-02  0.09696885 -0.030571137 -0.002433506
## peace_agreement             9.002978e-05  0.01796019  0.045250154  0.038283881
## victory                    -9.443593e-02 -0.12478970 -0.019375146 -0.053808849
## state_capacity             -3.679525e-02  0.03576017 -0.079602276  0.030217521
## peacekeeping_dyad_episode   4.573219e-01  0.33859136  0.149426123  0.233362008
## peacekeeping_peace_episode -7.421090e-03 -0.01042038  0.072543693  0.013323781
##                                 r_ext_w      r_ext_m     r_ext_ti       r_ext_f
## g_ext_xp                    0.292436520  0.242816990  0.156583431  2.370889e-01
## g_ext_y                     0.166501121  0.168851346  0.105000639  7.089013e-02
## g_ext_w                     0.288097017  0.260277602  0.255087808  2.669833e-01
## g_ext_m                     0.251961582  0.251760390  0.222294339  2.059524e-01
## g_ext_ti                    0.283041020  0.242878215  0.245877326  2.393468e-01
## g_ext_f                     0.244111450  0.246668396  0.218955002  2.851071e-01
## r_ext_xp                    0.361679957  0.387641820  0.309500400  3.286777e-01
## r_ext_y                     0.191624874  0.152263954  0.252696294  1.254524e-01
## r_ext_w                     1.000000000  0.733164075  0.637297196  4.869686e-01
## r_ext_m                     0.733164075  1.000000000  0.590551077  5.163547e-01
## r_ext_ti                    0.637297196  0.590551077  1.000000000  4.966142e-01
## r_ext_f                     0.486968617  0.516354697  0.496614205  1.000000e+00
## r_ext_l                     0.415979558  0.379662992  0.376811075  3.724474e-01
## dyad_episode_intensity      0.102696473  0.127726969  0.074990525  6.009874e-02
## dyad_episode_duration       0.171505608  0.163124076  0.154105835  1.699940e-01
## country_intensity_level     0.046942781  0.008364812  0.057151807  6.458912e-02
## territory                   0.003783230 -0.007775580  0.040126981 -2.478538e-05
## ethnic                      0.042905469  0.036045667  0.053232357  1.251461e-02
## frozen                     -0.005754147 -0.012987340  0.006008094  5.455545e-02
```

```
## peace_agreement             0.129730520  0.178403235  0.122886315  4.239603e-02
## victory                    -0.123413137 -0.125974238 -0.119960435 -9.824805e-02
## state_capacity             -0.114355553 -0.096615944 -0.060138865 -5.832453e-02
## peacekeeping_dyad_episode   0.335998527  0.271294604  0.317158771  2.783326e-01
## peacekeeping_peace_episode  0.103896544  0.142806264  0.091419999  4.978975e-02
##                               r_ext_l dyad_episode_intensity
## g_ext_xp                   0.14707853            0.077723987
## g_ext_y                    0.16269195           -0.001922739
## g_ext_w                    0.31049988            0.083239640
## g_ext_m                    0.28222950            0.030728157
## g_ext_ti                   0.28303185            0.026316543
## g_ext_f                    0.23561140            0.035241550
## r_ext_xp                   0.18291146            0.149925072
## r_ext_y                    0.09426908            0.025211866
## r_ext_w                    0.41597956            0.102696473
## r_ext_m                    0.37966299            0.127726969
## r_ext_ti                   0.37681108            0.074990525
## r_ext_f                    0.37244735            0.060098737
## r_ext_l                    1.00000000            0.025198306
## dyad_episode_intensity     0.02519831            1.000000000
## dyad_episode_duration      0.10342292            0.137740772
## country_intensity_level    0.01299139            0.009118285
## territory                 -0.02770527           -0.019643074
## ethnic                     0.03361943            0.003362403
## frozen                     0.06597649           -0.147453162
## peace_agreement            0.04283476            0.086420385
## victory                   -0.08994374            0.077201703
## state_capacity            -0.02086917           -0.168986573
## peacekeeping_dyad_episode  0.32213688           -0.006745397
## peacekeeping_peace_episode 0.04686880            0.105097123
##                           dyad_episode_duration country_intensity_level
## g_ext_xp                             0.06606723             0.008456942
## g_ext_y                             -0.02377462            -0.022224303
## g_ext_w                              0.07614593             0.131122724
## g_ext_m                              0.06304194             0.093284388
## g_ext_ti                             0.06372428             0.123786299
## g_ext_f                              0.12060847             0.086810767
## r_ext_xp                            -0.02863737            -0.047907224
## r_ext_y                              0.02141994             0.040348332
## r_ext_w                              0.17150561             0.046942781
## r_ext_m                              0.16312408             0.008364812
## r_ext_ti                             0.15410584             0.057151807
## r_ext_f                              0.16999401             0.064589116
## r_ext_l                              0.10342292             0.012991392
## dyad_episode_intensity               0.13774077             0.009118285
## dyad_episode_duration                1.00000000             0.009604190
## country_intensity_level              0.00960419             1.000000000
## territory                            0.07110934             0.199638240
## ethnic                               0.04053366             0.046528577
## frozen                               0.02380517             0.231486257
## peace_agreement                      0.19661749            -0.102571740
## victory                             -0.20344134            -0.121773999
## state_capacity                       0.01406790            -0.071395308
## peacekeeping_dyad_episode            0.02074696             0.046110680
## peacekeeping_peace_episode           0.02784555            -0.081370652
##                              territory       ethnic       frozen
## g_ext_xp                  -1.168280e-01 -0.060687862  0.016721470
## g_ext_y                    1.946708e-02  0.005827326  0.030995952
## g_ext_w                    6.559230e-02  0.021365720  0.099464519
## g_ext_m                    5.542185e-02  0.004734042  0.090732146
## g_ext_ti                   5.937964e-02  0.027687352  0.093361993
## g_ext_f                    4.894330e-02  0.026136462  0.096968851
## r_ext_xp                  -6.082926e-03  0.007811694 -0.030571137
## r_ext_y                    7.465820e-02  0.043733750 -0.002433506
## r_ext_w                    3.783230e-03  0.042905469 -0.005754147
## r_ext_m                   -7.775580e-03  0.036045667 -0.012987340
```

```
## r_ext_ti                    4.012698e-02  0.053232357  0.006008094
## r_ext_f                    -2.478538e-05  0.012514613  0.054555452
## r_ext_l                    -2.770527e-02  0.033619426  0.065976492
## dyad_episode_intensity     -1.964307e-02  0.003362403 -0.147453162
## dyad_episode_duration       7.110934e-02  0.040533663  0.023805165
## country_intensity_level     1.996382e-01  0.046528577  0.231486257
## territory                   1.000000e+00  0.532502658  0.169713793
## ethnic                      5.325027e-01  1.000000000  0.082134348
## frozen                      1.697138e-01  0.082134348  1.000000000
## peace_agreement            -1.553687e-02  0.104647132 -0.331322060
## victory                    -2.404844e-01 -0.276281822 -0.569918827
## state_capacity              2.983501e-01  0.171049537  0.020992770
## peacekeeping_dyad_episode   7.715280e-02  0.048824249  0.084708034
## peacekeeping_peace_episode -1.351573e-01 -0.046923511 -0.066208478
##                            peace_agreement     victory state_capacity
## g_ext_xp                      2.527489e-02 -0.03828970   -0.159130716
## g_ext_y                       1.857592e-02 -0.03554293   -0.017717946
## g_ext_w                       2.428782e-03 -0.10728849   -0.035964327
## g_ext_m                       1.908117e-02 -0.10442370   -0.016260837
## g_ext_ti                      9.002978e-05 -0.09443593   -0.036795249
## g_ext_f                       1.796019e-02 -0.12478970    0.035760172
## r_ext_xp                      4.525015e-02 -0.01937515   -0.079602276
## r_ext_y                       3.828388e-02 -0.05380885    0.030217521
## r_ext_w                       1.297305e-01 -0.12341314   -0.114355553
## r_ext_m                       1.784032e-01 -0.12597424   -0.096615944
## r_ext_ti                      1.228863e-01 -0.11996043   -0.060138865
## r_ext_f                       4.239603e-02 -0.09824805   -0.058324534
## r_ext_l                       4.283476e-02 -0.08994374   -0.020869169
## dyad_episode_intensity        8.642038e-02  0.07720170   -0.168986573
## dyad_episode_duration         1.966175e-01 -0.20344134    0.014067897
## country_intensity_level      -1.025717e-01 -0.12177400   -0.071395308
## territory                    -1.553687e-02 -0.24048436    0.298350073
## ethnic                        1.046471e-01 -0.27628182    0.171049537
## frozen                       -3.313221e-01 -0.56991883    0.020992770
## peace_agreement               1.000000e+00 -0.32589896   -0.001067075
## victory                      -3.258990e-01  1.00000000   -0.055875441
## state_capacity               -1.067075e-03 -0.05587544    1.000000000
## peacekeeping_dyad_episode    -1.366226e-02 -0.08759936   -0.023713617
## peacekeeping_peace_episode    1.786190e-01 -0.04052045   -0.351453880
##                            peacekeeping_dyad_episode peacekeeping_peace_episode
## g_ext_xp                                 0.245924651                 0.04301893
## g_ext_y                                  0.225255584                 0.02506188
## g_ext_w                                  0.398854405                 0.00170702
## g_ext_m                                  0.397930665                 0.01211932
## g_ext_ti                                 0.457321876                -0.00742109
## g_ext_f                                  0.338591358                -0.01042038
## r_ext_xp                                 0.149426123                 0.07254369
## r_ext_y                                  0.233362008                 0.01332378
## r_ext_w                                  0.335998527                 0.10389654
## r_ext_m                                  0.271294604                 0.14280626
## r_ext_ti                                 0.317158771                 0.09142000
## r_ext_f                                  0.278332581                 0.04978975
## r_ext_l                                  0.322136880                 0.04686880
## dyad_episode_intensity                  -0.006745397                 0.10509712
## dyad_episode_duration                    0.020746963                 0.02784555
## country_intensity_level                  0.046110680                -0.08137065
## territory                                0.077152797                -0.13515732
## ethnic                                   0.048824249                -0.04692351
## frozen                                   0.084708034                -0.06620848
## peace_agreement                         -0.013662257                 0.17861897
## victory                                 -0.087599365                -0.04052045
## state_capacity                          -0.023713617                -0.35145388
## peacekeeping_dyad_episode                1.000000000                 0.01339180
## peacekeeping_peace_episode               0.013391804                 1.00000000
```

```r
# Create excel-file of Model 2.
cor_matrix_HS_df <- as.data.frame(cor_matrix_HS)
cor_matrix_HS_df <- cbind(Variable = rownames(cor_matrix_HS_df), cor_matrix_HS_df)
write_xlsx(cor_matrix_HS_df, "correlation_matrix.xlsx")


# End of script.
```

10. Appendix B: Table 6

Table 6: Summary statistics for the second robustness test.

Variable	*Observations*	*Mean*	*Std. dev.*
Conflict recurrence	6027	0.03	0.17
Peace episode duration	6027	23	10
Troop support from state to government*	6027	0.028	0.14
Troop support from non-state to government*	6027	0.018	0.11
Weapon and ammunition to government*	6027	0.071	0.21
Materiel and logistics to government*	6027	0.067	0.2
Training, expertise and intelligence to government*	6027	0.085	0.23
Financial support to government*	6027	0.048	0.18
Troop support from state to rebel group*	6027	0.012	0.09
Troop support from non-state to rebel group*	6027	0.018	0.11
Weapon and ammunition to rebel group*	6027	0.055	0.18
Materiel and logistics to rebel group*	6027	0.041	0.16
Training, expertise and intelligence to rebel group*	6027	0.044	0.17
Financial support to rebel group*	6027	0.032	0.15
Territorial access to rebel group*	6027	0.042	0.17
Conflict episode intensity	6027	0.097	0.3
Conflict episode duration	6027	3.1	3.8
Country intensity level	6027	0.52	0.66
Territory	6027	0.32	0.47
Ethnic dimension	6027	0.51	0.5
Frozen	6027	0.37	0.48
Peace agreement	6027	0.16	0.37
Military victory	6027	0.36	0.48
State capacity	6027	-0.2	0.77
Peacekeeping during conflict episode	6027	0.085	0.28
Peacekeeping during peace episode	6027	0.15	0.36

* Variables with decay functions.