Does Peace Remain After the Peacekeepers Leave? An Exploration of Peacekeeper (In)Effectiveness*

Sky Kunkel† Douglas B. Atkinson‡ Zach Warner§

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Abstract

Previous research has shown that peacekeeping operations (PKOs) reduce the intensity of the conflict. However, scholars have yet to examine whether this effect persists after peacekeepers leave. Do PKOs durably reduce violence even after they are withdrawn, or do they merely pause violent conflict? This paper uses fine-grained geolocated data on both PKO deployment and violence across all of Africa from 1999 through 2018 to answer this question. By leveraging a difference-in-differences approach, we are able to causally identify the effect of PKOs on local violent incidents. We find that peacekeepers increase local state political violence and displace it at an even higher rate. Further, we demonstrate that violence returns when peacekeepers depart, suggesting that PKOs may not even pause violence but rather temporarily *displace* it. Taken together, our results suggest that scholars and policymakers should reconsider how and when PKOs can effectively protect civilians from violence.

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†Ph.D. Candidate, Purdue University. Affiliate, Gender and Security Studies Lab, Cornell University. Corresponding author, email: kunkel3@purdue.edu, web: www.skytheacademic.com.

‡Postdoctoral University Assistant, University of Salzburg. email: douglasb.atkinson@sbg.ac.at, web: dougbatkinson.wordpress.com.

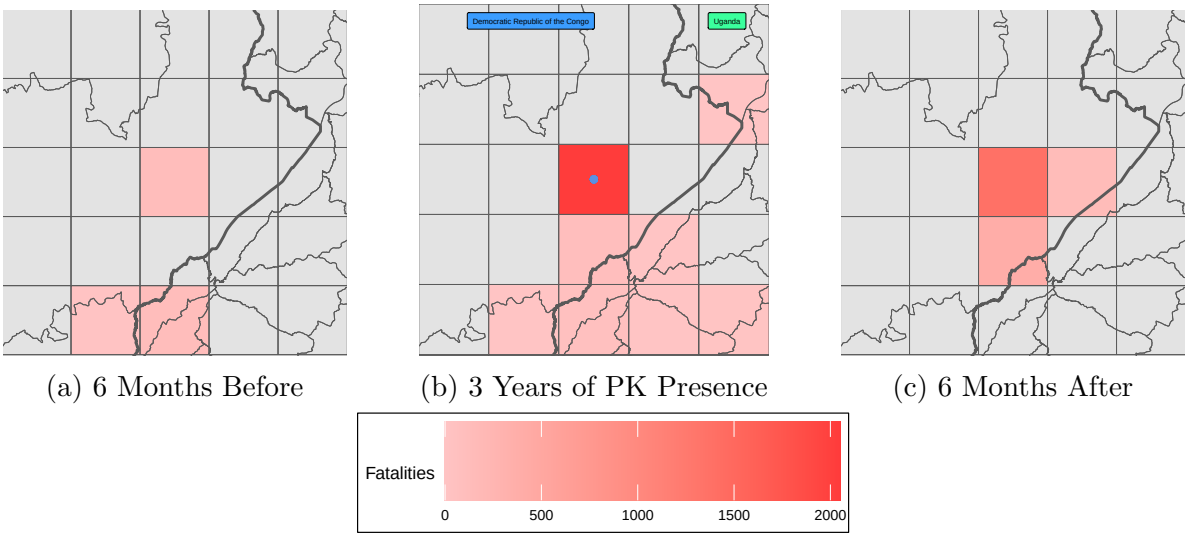
§Assistant Professor, Purdue University. email: zachwarner@purdue.edu, web: zachwarner.net.

1 Introduction

After the assassination of Laurent-Désiré Kabila, an important political figure in the Democratic Republic of the Congo (DRC), the UN deployed a peacekeeping force. In the face of widespread civilian violence, the UN Mission to the DRC was deployed around the country with the hopes that it would quell the violence. The UN peacekeepers were mandated to patrol locally, respond to violence around the country as it occurred, and were given the explicit authority to use force to protect civilians and stop combat.Their mission was met with a mix of success and failure. For example, over a period of six months in Djugu–a small city on the border with Uganda–, there were approximately fifty fatalities from clashes between ethnic militias and, even more troubling, intentional attacks on civilians. In response, peacekeepers deployed to Djugu, staying in the area for nearly three years in order to quell the violence. Yet, during the time that peacekeepers were present in Djugu the violence only increased. From when they arrived until they left, there were nearly 2,200 fatalities from battles and other political violence, an average of nearly sixty-two deaths per month. The situation only worsened after the peacekeepers left. In the six month following their departure, 1,100 people died, or about one hundred and sixty-six deaths per month.

But, this was not the only effect that UN Peacekeepers had on violence in the the area surrounding Djugu. Not only did their arrival and departure increase violence locally but it also caused it to spread to the surrounding areas, including over the border into Uganda. We graphically display the distribution of violence before, during, and after the arrival of peacekeepers in Djugu. As can be seen in figure 1a, 6 months prior to the arrival of the peacekeepers, the violence was relatively concentrated in Djugu. During the 3 years that the peacekeepers were present, the violence intensified within Djugu and spread to neighboring areas, as shown in figure 1b. In the six months after they left, the violence refocused on Djugu, with levels of violence remaining relatively high in two neighboring areas, further displayed in figure 1c. What explains this temporal and geographic variation?

While the ineffectiveness of this mission may not be surprising to many observers, it



(a) 6 Months Before (b) 3 Years of PK Presence (c) 6 Months After

Figure 1: Aggregate violence in the DRC six months before peacekeeper entrance, three years during peacekeeper presence, and six months after peacekeeper exit.

certainly runs counter to the expectations of much of the academic literature devoted to the study of the topic. In the last two decades, studies have consistently shown that the presence of peacekeepers are strongly associated with lower fatalities (Walter, Howard, and Fortna 2021). For example, several papers explore this at the state level and conclusively show that more peacekeepers lead to less violence and fewer deaths than those that do not (Hultman, Kathman, and Shannon 2013; Bara and Hultman 2020). The effectiveness of peacekeepers is all the more impressive given the fact that they consistently deploy to the hardest cases (Ruggeri, Dorussen, and Gizelis 2017). However, this leaves us with a pressing question: what happens when peacekeepers deploy, especially at a local level?

We argue that previous research into peacekeeper effectiveness misses the sub-national, temporal, and geospatial dynamics that occur where peacekeepers deploy. Moreover, there's an incomplete picture of what happens when peacekeepers leave. Existing answers show mixed results of peacekeeper departure. While some papers have examined the outcomes of localized peacekeeper exit (Beber et al. 2019; Karim 2020), none have done so systematically across all central and western African UN peacekeeping missions. Furthermore, each of the previous works examined the outcomes of UN missions wholly rather than examining the

direct outcomes of peacekeeper exit sub-nationally.

We contend that peacekeeper entrance changes the strategic incentives of government and state actors, both increasing local violence and displacing violence at a higher level. We further argue that with the ability to name and shame actors for violence, peacekeepers should displace violence at a higher rate than they increase it locally. After the peacekeepers withdraw and with the partial deterrent they offer now gone, actors previously displaced have increased incentives to return and violently recapture the bases of support and resources they once had. This suggests that the consequences of peacekeeping missions may not be as straightforward as once thought.

To test our contentions, we use data consisting of all Chapter VII UN Peacekeeping Operations (UNPKO) from 2000-2017 at a 50km^2 grid-cell level. This allows us to draw upon fine-grained, geolocated violence data. We then match incidents of violence to grid-cell-months, giving us a complete panel of deployments and violence for all Chapter VII missions[1] and twenty years across approximately 2.4 million observations.

To causally identify the effect of UNPKOs on violence, we use a difference-in-differences research design. Utilizing subnational geospatial analysis on a monthly basis allows us to answer our question with much greater confidence than previous country-year level data, where everything is aggregated and cannot account for spatial and temporal variation. Our findings shows that peacekeeper movement within-country increases violence levels locally and in neighboring areas at a higher rate. Then, when peacekeepers leave, we find greater levels of violence associated with their departure than when they entered. We find that the increase in violence is likely due to violence displacement; as peacekeepers leave an area, violence moves back into locations initially occupied by the offending actors before initial peacekeeper deployment. Together, these results suggest that peacekeeping has greater unintended consequences than initially theorized by other research, and future peacekeeper research should work to understand the findings in greater detail.

1. Abyei, Burundi, the Central African Republic, Chad, Côte d'Ivoire, the Democratic Republic of Congo, Liberia, Mali, Sierra Leone, South Sudan, and Sudan.

We make three substantive contributions to the existing literature on peacekeeping effectiveness. First, we provide the only empirical analysis of whether peacekeepers create durable peace at a subnational level. This contribution shows the importance of examining peacekeeper entrance and withdrawal at different levels of analysis. Second, we provide a better causal identification for more established questions, like whether PKOs work. This contribution adds a key new method to the peacekeeping effectiveness literature. Finally, we provide the implications of our research and discuss what the results mean for those deciding where to send peacekeepers. As Walter et al. point out, peacekeeping research needs to contribute to real-world debates (Walter, Howard, and Fortna 2021), and our research makes substantial contributions to that discussion.

Importantly, by focusing on personal levels of violence and in line with the suggestions of Kunkel and Nyseth Brehm et al., this paper addresses ethical concerns in the quantitative peacekeeping effectiveness literature (**kunkel˙conflict˙2023**; Nyseth Brehm, O'Brien, and Wahutu 2021). While the existing literature often measures political violence in binary outcomes of whether violence occurs, measuring outcomes in that way oversimplifies "people's lived experiences and can even directly harm individuals and communities during or after collective violence" (394). Academia, and more often than not quantitative and Global North scholars, can be unconsciously inclined to dehumanize those at the center of violence. While not intentional, it is easy to detach from the subjects of political violence when they appear as numbers on a screen. Our research builds on recent attempts to address the issue and protect those most vulnerable to political violence. Accordingly, we measure all forms of intentional political violence against civilians, specifically with models that consider all violent events.

We do not make the claim that peacekeepers should never be deployed. Vast quantities of robust evidence have established that, at the country level, peacekeeper presence causes lower levels of violence. However, our research provides a novel analysis in the peacekeeping effectiveness literature to explore one of many mechanisms that could be affecting violence

throughout a country. This paper broadly concludes that peacekeeper movement in chapter VII missions likely displaces violence and potentially increases the overall level of violence locally. We test the boundaries of peacekeeping effectiveness, and find that local patrols with violence authorizations increase violence.

This paper proceeds as follows. First, we review the previous contributions to the peacekeeping violence displacement literature, the peacekeeping withdrawal literature, and the unintended peacekeeping effects literature. Next, we explain our theoretical contributions to the existing literature, while building a novel causal mechanism to explain why violence increases upon peacekeeper exit. Third, we explain our research design and data and justify using a geospatially disaggregated approach while utilizing recent innovations in difference-in-differences research designs. Finally, we show how one of the effects of peacekeeping is the redistribution of violence, only for the violence to return to areas occupied by peacekeepers upon their exit.

2 Previous Literature

Our work draws upon the findings of two closely related strands of literature that address the effect that peacekeepers have on the location of violence and what happens after they leave.

While there is a large body of literature that utilizes country-level data to assess whether peacekeepers are effective (Hultman, Kathman, and Shannon 2014; Carnegie and Mikulaschek 2020), an emerging line of research suggests that it is essential to not only understand if overall violence is decreasing, but it is equally important to understand where this violence is occurring. The earliest work in this line of research finds that PKOs have the ability to limit the movement of rebels and government actors; this subsequently hinders their ability to engage in conflict within certain geographic areas. This diminished ability will force the actors to operate on the periphery and may subsequently strengthen rebel actors, portending

potentially high levels of conflict in the future (Beardsley and Gleditsch 2015).

Building upon the work of these previous researchers, scholars have further found that while PKOs can reduce the duration of episodes of violence within a specific area, there is not conclusive evidence of them being able to stop violence from occurring within that area in the first place (Ruggeri, Dorussen, and Gizelis 2017). Further research along these lines has found that PKOs can reduce local levels of battlefield violence. However, they have no discernible effect on levels of violence directed at civilians (Peitz and Reisch 2019).

There are a number of unanswered questions within the existing literature. Some evidence suggests that the local presence of peacekeepers may lead to more violence in the long term, especially when peacekeepers leave, as they are no longer there to prevent violence outbreaks and reduce conflict episode duration. While Peitz & Reisch find that peacekeepers reduce battlefield violence without spillover, their model is inconclusive in studying violence against civilians. In this paper, we anticipate that it does. Beyond this, we suggest that to understand the effect of peace-keepers on violence within an area, it is essential to broaden the time horizons under examination. To this end, we expect that the presence of peacekeepers will lead to higher levels of violence against civilians both when they are there and after they leave.

This brings us to the next strand of related literature. Research in this line explores what happens after peacekeepers leave. The research that explores what happens after peacekeepers withdraw is relatively small and presents the field with inconsistent findings. Beyond this, none of these works fully dig into the causal effect of peacekeepers.

Some research, using a survey with a limited sample size, has found that perceptions of security may improve in conflict zones after peacekeepers leave (Dorussen 2015). Other work finds that the presence of peacekeepers has a positive effect on the local economy when they are present, but that this effect dissipates and economic growth stagnates after they leave (Beber et al. 2017). Beyond this, scholars have sought to look at the effects of peacekeepers exiting, broadly. The first strand of research in this vein has employed descriptive statistics to

describe potential patterns across time and space. While these works offer a solid foundation upon which to build, they do not make, or test, causal claims (Di Salvatore 2020; Gledhill 2020). Other research seeks to remedy this with in-depth case studies on individual cases, and finds that peacekeeping may only temporarily pause violence and the deterioration of state institutions (Karim 2020; Kolbe 2020).

While both of these strands of research offer us an excellent path forward, they have several weaknesses for which we try to account for in this paper. First, like previous scholars, we suggest that violence against civilians is the indicator that best captures the effect of peacekeepers and the subsequent lived experiences of those that the missions are intended to help. Beyond this, our paper suggests, unlike previous papers, that violence should be considered both before and after peacekeepers are present, as the geographic redistribution of violence will have effects after the exit that are a product of strategic decisions made in the presence of peacekeepers. Ultimately, we contend that by treating this as part of an intimately interconnected process that we obtain a more complete picture of the relationship between the geographic location of violence and the introduction of peacemakers.

Finally, we contribute to both strands of literature by examining the temporal aspects of peacekeeper effects at a sub-national level. Other research holds time as a constant or merely controls for its passage. This paper accounts for this deficiency by utilizing an innovative difference-in-differences (DiD) research method; the panel-like structure of the RADPKO data gives an opportunity to utilize the benefits of a DiD while also looking at the timed effects of peacekeeper entrance and exit. As Card and Krueger show, fulfilling the parallel trends assumption of the model means potential unobservables in both areas can be held constant and thus controlled for (Card and Krueger 1994).

3 Mechanisms & Theory

What happens to levels of personal violence after peacekeepers arrive in an area? Beyond this, what happens after they leave? Answering these questions requires us to examine the mechanisms through which peacekeepers bring about peace between warring factions in the first place. The dominant logic suggests that peacekeepers, by their very presence, provide belligerents with a security guarantee as a third-party participant external of the conflict (Hinkkainen Elliott, Polo, and Eustacia Reyes 2021; Walter, Howard, and Fortna 2021). This guarantee gives belligerents confidence that they can put down their guns without imperiling their own survival. Peacekeepers achieve this effect by providing the warring parties some guarantee of safety and security through their ability to inflict violence on defectors as well as their ability to observe and record belligerent behavior (Hultman, Kathman, and Shannon 2014).

The process put into motion by the presence of peacekeepers, in turn, has the effect of driving rebel groups from centers of power and resources to the periphery. The rebel groups' relocation makes it more difficult for these groups to keep their power structures and lines of communication intact (Beardsley and Gleditsch 2015). The presence of peacekeepers will also decrease the ability of interstate actors to provide rebel groups with material support (Beardsley 2011). Ultimately, this state of resource deprivation will weaken the rebel group and leave them as a less viable threat to the state. With rebel groups weakened, the state will be able to re-group and rebuild its capacity to suppress and further weaken rebel groups and maintain order within its borders (Beardsley 2011).

As mentioned above, we anticipate that when peacekeepers are present, it will both alter the geographic distribution of the members of the rebel group and strengthen the government. However, the presence of the peacekeepers and the relocation of the rebels to the periphery does not diminish the desire of the rebels to achieve their goals. Because their desire to achieve their goals remains, rebel groups will need to acquire access to resources in their newfound environments. This will lead the members to build relationships with these new

populations. The government will want to ensure that the rebel group cannot maintain a long-term foothold in these new areas which would enable them to potentially pose a renewed threat to the government in the future as well as undermine the government's position of power in the peripheral areas. For both of these reasons, the government will continue to seek out opportunities to further weaken the capacity of the rebel groups when they are in an advantageous position.

Although the government is now the beneficiary of an advantageous shift in power, they face newfound difficulties in dealing with their adversaries. These difficulties will increase the chances that the government will intentionally, or unintentionally, perpetrate violence against civilians. The ultimate source of these difficulties stems from the fact that the government's efforts will take place among populations that are relatively less monitored. This will mean that the government is operating in a low information environment. In such an environment, they will have difficulty discerning who among the population is a friend and who is a foe, and even more difficulty in discerning who supports them and who supports the rebel group. This inability to distinguish between harmless civilians and rebels will increase the chances that the government, seeking to meet and destroy the threat posed by the rebel group, will engage in un-targeted and indiscriminate, rather than targeted, violence (Davenport 1995; Lyall 2009). The very nature of this violence, the fact that it is indiscriminate, will lead to a higher number of civilian victims. Because these areas were previously un-monitored, governments, regardless of their capabilities, will face these same informational limitations and thus will engage in similar behavior regardless of where they fall on the spectrum of state capacity. This brings us to our first hypothesis:

Hypothesis 1: The arrival of peacekeepers in an area will lead to increased levels of civilian violence in neighboring areas.

3.1 When the peacekeepers leave

As we mentioned above, peacekeepers will change the balance of power between the government and the rebels as well as the geographic location of the rebels. These changes also have implications for the strategic behavior of both the government and rebels after the peacekeepers leave. Ultimately, the means by which peacekeepers suppress the fighting suggests that after they leave, we can expect intense violence on the personal level in the areas that they occupied. Why is this the case?

After the peacekeepers have left, the costs of perpetrating violence are reduced, and the incentives for perpetrating it remain. While peacekeeping observation missions often balance the power between actors, Ch. VII missions give peacekeepers the authority and mandate to protect civilians, which peacekeepers often use to take violence to rebel groups in order to weaken them and diminish their capacity for violence. This contention relies upon the assumption that belligerent groups fight civil wars in order to control populations and that the violence perpetrated by the peacekeepers is intended to halt the rebel group's progress in reaching this objective (Hultman 2007). Rebel groups not only seek to govern these populations but are also dependent upon these groups for sanctuary, resources, and intelligence (Mason 1996). This is not to suggest that the war continues, as the diminished capacity of the rebel group may or may not allow a continuation of the war. However, it does suggest that the same goals that animated the group before the peacekeepers arrived are likely to still animate the group after the peacekeepers have left. In order for the group to achieve its objectives, it will have to defeat the government, which means that it will have to acquire resources and support (Conrad and DeMeritt 2013). The problem for the rebel group is that the most attractive source of goods and resources are likely to be in the areas that the rebel group abandoned when the peacekeepers arrived. To gain a foothold and acquire access to these resources the rebel group will have to engage in violence (Weinstein 2007; DeMeritt and Young 2013).

After peacekeepers have left, however, the type of violence that the rebel group has the

ability and the strategic incentives to engage in has changed. These changes are going to lead the government to respond by engaging in forms of violence that increase the chances of harm coming to civilians. This is a product of two sources. First, in terms of military capabilities, the rebel group will be in a relatively weaker position than it was when the peacekeepers arrived. Second, since it has been absent from the area for some extended period of time, each group will be facing an information problem. Which of its former friends and allies remain loyal to it remains unknown.

As we discussed earlier, the presence of the peacekeepers pushed the rebel group to the periphery. The time spent on the fringes of the territory is likely to leave the rebel group much weaker than it was prior to the arrival of the peacekeepers and with no, or a much diminished, foothold in the communities it left. Since the areas where the peacekeepers had just left are likely to be the most resource-rich, in order for the rebel group to grow, it must increase its presence and support among this population. Chief among the strategies that can be employed by the rebel group to gain the support of the population is to provide recruits with direct financial incentives and to distribute goods and services to supporters within the population (Gates 2002). The forms of support can include protection and security as well as monetary and material compensation. However, the fewer resources the rebel group has, the more difficult it is for the rebel group to provide potential recruits and supporters. This leaves the rebel group looking for alternatives to gain the population's support. They can do this by provoking the government to engage in violence, either intentionally or unintentionally, and then offering the civilians a form of security in exchange for support.

Rebel groups may or may not prefer, or may even attempt to refrain, from engaging in this strategy. However, their very presence in the population is likely to invoke the kinds of information problems that previous studies have shown to increase violence against civilians (Weinstein 2007; Kalyvas 2006). Beyond this, because the weakened group has a reduced ability to directly confront the government, they will have an incentive to exacerbate this information problem by seeking to blend into the civilian population and by extensively

using and co-opting civilian resources and infrastructure, thus making it increasingly difficult for the state to target or combat the rebel group, without inflicting harm on the civilian population. From this theoretical argument, we have derived the following hypotheses:

Hypothesis 2: *After peacekeepers leave, levels of violence by the state will increase in the area where the peacekeepers left.*

As peacekeepers withdraw, the violence that was originally displaced to neighboring areas when they arrived is now expected to return to the center of power or resources. Thus, not only do we expect violence to increase in the same area that peacekeepers left, we also expect violence in neighboring cells to decrease.

Hypothesis 3: *After peacekeepers leave, levels of violence will decrease in the areas surrounding where the peacekeepers left.*

4 Research Design

4.1 The Data

To understand what happens when peacekeepers leave, and to further the research of those who have examined country-level withdrawal of peacekeepers, we use two datasets previously underutilized in the peacekeeping effectiveness literature. The most prominent data source of violence within the existing literature is the UCDP's Georeferenced Events Dataset (GED) (Raleigh et al. 2010). Various authors such as Fjelde, Hultman, and Nilsson 2019; Beardsley and Gleditsch 2015; Ruggeri, Dorussen, and Gizelis 2017 and others routinely use the GED to geo-locate violence against civilians. The UCDP's data is useful for some tasks, especially when measuring violence as deaths. However, we use the Armed Conflict Location and Events Database (ACLED) for its focus on violent events and deaths rather than deaths alone. This allows us to better get at our causal mechanism.[2]

2. The GED measures fatalities in its data. As discussed by Nyseth Brehm et al. and Kunkel (**kunkel˙conflict˙2023**; Nyseth Brehm, O'Brien, and Wahutu 2021), ethical research into violence against civilians, especially quantitative, must approach topics from a critical perspective that works to understand

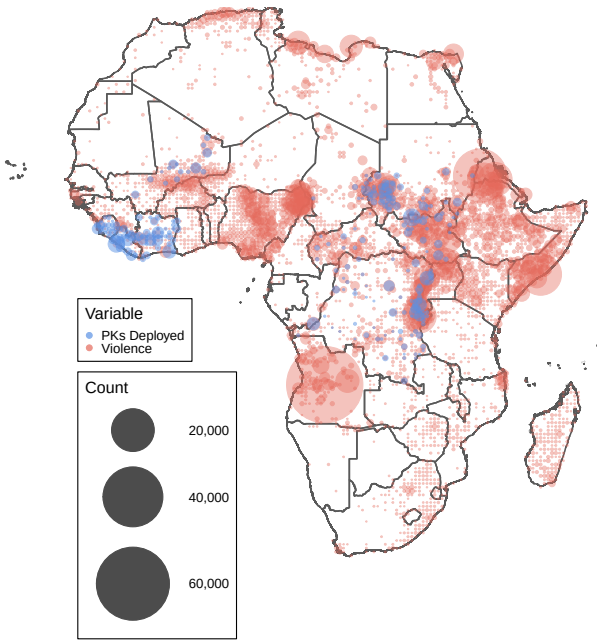


Figure 2: The dispersion of violence and Chapter VII Peacekeeping Operations throughout Africa from 1999-2018.

Important to our theory is that peacekeepers patrol locally and that they are authorized to stop combatants from committing violence against civilians. Necessarily, then, the peacekeeping missions covered cannot simply be observer missions that are the classic cases of UN Peacekeeping. The first UN PKO (UNTSO),[3] cannot be included in the peacekeeping missions explored in this paper since it is not mandated under Chapter VII of the UN Charter and thus cannot get in the way of belligerents or use force to protect civilians. In other words, the peacekeepers taking part in the UNTSO do not seek out violence and patrol locally, and so are not included in the cases of PKOs for this research.

The mechanism as defined in the theory section relies on two aspects of peacekeeping missions that are exclusive to Chapter VII missions and captured by the RADPKO data. First, peacekeepers must patrol locally; if they stay on base and never move around a country to prevent violence, then there can be no dispersion of violence. And without dispersion of violence, we cannot expect to see violence re-enter areas where peacekeepers left. Second,

the lived experiences of those at the heart of the conflict.

3. United Nations Truce Supervision Organization; see here: https://untso.unmissions.org/security-council-resolutions-and-statements-0

peacekeepers must have the authority and mandate to protect civilians and thus commit violence against local actors. As the violence and the threat of violence push actors to the periphery, they have incentives to move back into areas peacekeepers have recently vacated. Hence, the peacekeeping deployments for this paper cover all Chapter VII missions throughout their authorization up until RADPKO's latest date.

Ultimately, the RADPKO data contains every Chapter VII UN PKO, since 1999, from the start of the mandate until either the mandate ended, changed to a different mandate such as Chapter VI, or was ongoing through the end of 2017. RADPKO's data encompasses the deployed Chapter VII missions in the following countries and regions: Abyei, Burundi, the Central African Republic, Chad, Côte d'Ivoire, the Democratic Republic of Congo, Liberia, Mali, Sierra Leone, South Sudan, and Sudan.

4.2 Dependent Variables

The Armed Conflict Location and Event Database (ACLED) is an event-based dataset introduced by Raleigh et al. (Raleigh et al. 2010). ACLED utilizes intercoder reliability checks, has dedicated coders for countries, and receives information from four different types of sources.[4] Whereas other prominent databases typically focus on traditional media, ACLED also relies on local sources that provide them with initial information that is verified by additional information. Additionally, ACLED also uses institutional and NGO-based data, which allows them to get as many comprehensive counts as possible. ACLED's data covers the years of interest from 2000-2017 for all violence in Africa.

From ACLED's violence data, we code several different types of violence that, each of which are run as dependent variables in separate models. Our classifications of violence are broadly divided into fatalities and violent events. Within each of these categories, we measure government and rebel violence against civilians as separate outcomes. The dependent variable is also measured as the probability of violence as well as the total amount of violence.

4. ACLED further explains how its database is sourced and constructed here: https://acleddata.com/

Finally, we measure each of these outcomes in the same cell, and in the neighboring cells.[5] We measure each of these when peacekeepers arrive and leave the same and neighboring cells.

By using several different measures of political violence, we seek to understand the variation in violence outcomes, and to capture all possible variation in the violence that peacekeepers are deployed to stop.

4.3 Independent Variables

Of the prior research examining peacekeeper movement and withdrawal, none has utilized data at either a more comprehensive local level than a single case study, or at a large-N (but subnational) level. Until recently, comprehensive PKO data has simply not existed anywhere outside of the UN Archives. However, with recent scholarship from Hunnicutt & Nomikos, we now have a substantively significant amount of peacekeeping data, granular to the PRIO-grid[6] level (Hunnicutt and Nomikos 2020). The Robust Africa Deployments for Peacekeeping Operations' (RADPKO) contains nearly 400,000 observations spread out over twenty years in every Chapter VII UN PKO.

Early research on peacekeeping effectiveness had to make assumptions about the temporal and geospatial distribution of peacekeepers given the missions they deployed to (Greig and Diehl 2005; Diehl, Reifschneider, and Hensel 1996). Because of the coarseness in data quality and granularity available, this research focused on yearly variables and measures of peacekeepers. RADPKO, on the other hand, has data aggregated to the monthly level, and geospatially disaggregated to 50km^2 grids known as PRIO grids. Since the data comes from the UN, and reports to the Secretary-General of peacekeeping forces are rarely provided more frequently than monthly, this represents the most comprehensive level of peacekeeper data available to the public. RADPKO also breaks down the gendered counts of peacekeepers, which prior research has established as important to the effectiveness of peacekeeping

5. Neighbors are defined with queen contiguity, i.e. there are eight neighboring grid cells.
6. A PRIO-grid is approximately a 50 km x 50 km grid, distributed randomly throughout the world.

operations (Narang and Liu 2021). Peacekeeper presence, and thus the treatment variable, is coded as *PKO Deployed*, which is a binary measure of peacekeeper presence.

4.4 Methods

Other research has examined the effects of peacekeeping operations (PKOs) and their residual effects on the chances of a country falling back into civil war or conflict. However, none have examined the temporal and spatial dependencies present or have examined the direct level of violence when peacekeepers depart. In answering the question, *what happens when peacekeepers leave?*, we use several novel and innovative approaches to the peacekeeping effectiveness literature that include recent advances in causal inference. This section begins with an explanation of the data structure of RADPKO and how a difference-in-differences (DiD) research design gives us the most leverage to answer our research question. Then, we discuss recent trends with the generalized DiD two-way fixed effects (TWFE) model that would normally be seen as appropriate for this data, and the DiD model that we use to address the contemporary critiques. Finally, we conclude the research design section with an explanation of Callaway and Sant'Anna's Group-time Average Treatment Effect model, including a description of how control groups are selected in the data.

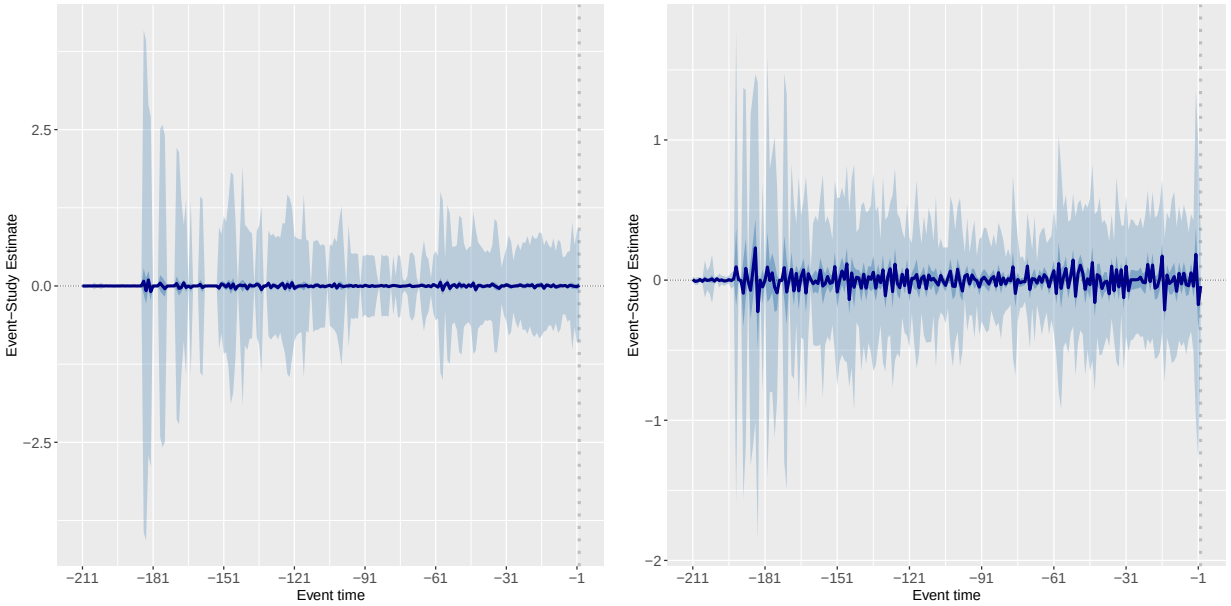
We employ a DiD design to answer our research question because it gives the greatest leverage to make the strongest causal claim with the data available. We justify our use of a DiD with a parallel trends test located in Section 4.5. In other words, we must assume that if peacekeepers did not deploy to, or leave, a grid, then the amount of violence would have stayed on a similar trajectory than if they did not. Thus, the grids that received peacekeepers should have been on a similar trajectory than grids that did not receive the treatment. When the parallel trends assumption is met, DiD research designs replicate a natural experiment in that the treatment is as-if randomly assigned. Thus, we can assume that any differences related to the treatment assignment are randomly distributed and thus bias the data evenly. Our treatment is when PKs *enter* or *leave*, measured as a dichotomous

indicator with separate models.

Since the data is structured over the course of many years and includes many temporary measures of the treatment,[7] the TWFE model seems most appropriate. However, recent scholarship has unveiled TWFE models as not robust to treatment effect heterogeneity. A TWFE model makes three sets of comparisons. First, it compares newly treated units to "never-treated" units, which are grids in the model that never received peacekeepers. Second, TWFE models compare newly treated units to "not-yet treated" units, which are grids that have not yet received peacekeepers but will be treated eventually. According to various scholars, most notably Callaway and Sant'Anna, the first two comparisons are robust to treatment effect heterogeneity. However, a TWFE model with multiple time periods where treatment timing varies inevitably makes a third type of comparison of newly treated units to already treated units. This comparison biases the results, as units that have already received the treatment cannot be expressed as part of the control group.

To address the comparison issues made by the TWFE models, Callaway and Sant'Anna construct a different method to estimate the treatment effects. Their method, the Group-time Average Treatment Effect (GTATE), is a more appropriate way to approach staggered DiD designs. The treatment effect of the GTATE model is "the average treatment effect for group g at time t, where a 'group' is defined by the time period when units are first treated" (Callaway and Sant'Anna 2021: 201). The GTATE assigns each grid a time period of t and $t + 1$, $t + 2$..., and so on until the end of the data. To make comparisons then, the GTATE would group all treatment effects of the groups first treated at time t and then compare that to the "not-yet treated" and "never-treated" groups at identical time t. This resolves the aforementioned issues of the TWFE models. The GTATE can be further aggregated beyond group-time comparisons to a single average treatment effect on the treated (ATT), interpreted identically to canonical DiD analyses.

7. I.e., one grid may go into the "treated" category, back into the "control" category when peacekeepers leave, and then return to the "treated" category when peacekeepers return to the same grid.



(a) Same grid cell.

(b) Neighboring grid cell.

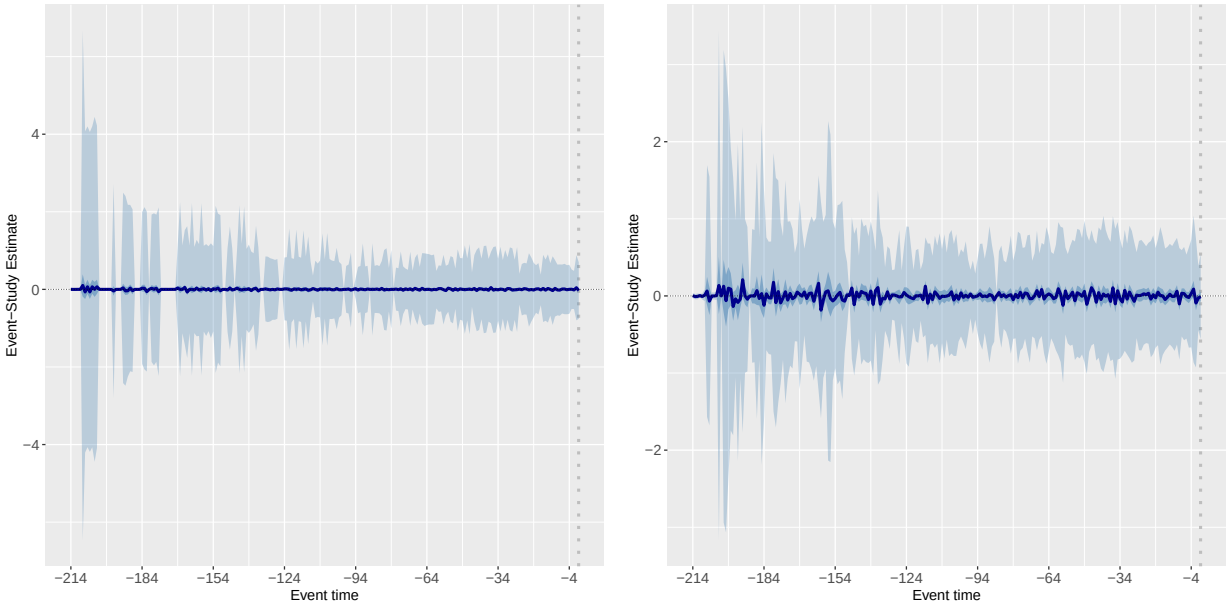
Figure 3: Estimates and confidence intervals of violence for pre-treatment of peacekeeper entrance, based on length of exposure.

4.5 Parallel Trends Test

While GTATE models are more robust to treatment heterogeneity than TWFE models, the most important factor in any difference-in-differences research design is still the parallel trends test. The parallel trends test posits a simple assumption, in the absence of treatment, that the trend lines would have remained parallel. To verify this assumption, we examine the parallel trends via Callaway and Sant'Anna's unconditional parallel trends test.

Our plots of the unconditional parallel trends test are found in Figures 3 and 4. These plots show event-study analyses of four of our models: each uses a dependent variable on the probability of state political violence, as Figures 3a and 3b show the plots on peacekeeper entrance, while Figures 4a and 4b show the plots on peacekeeper exit. For the event-study plots of the other models run in our analysis, please see the Online Appendix.

To interpret these models, we focus on the *pre*-period. The unconditional parallel trends test plots the GTATE across groups and treatments, and tests the following null hypothesis. *H0*: The parallel trends test is violated across all pre-treatment periods. In other words, a



(a) Same grid cell.

(b) Neighboring grid cell.

Figure 4: Estimates and confidence intervals of violence for pre-treatment of peacekeeper entrance, based on length of exposure.

violation of this test before the "treatment" of peacekeepers provides support for the parallel trends assumption. Visual confirmation is provided by examining all pre-treatment periods where the confidence interval crosses zero.

As shown in Figures 3 and 4, the confidence intervals in all pre-treatment trends cover zero. Hence, we reject the null hypothesis and conclude that the parallel trends assumptions are met in the pre-treatment periods of these models.

While we use the event-study plots above to examine the parallel trends, they are less helpful when aggregating the GTATE. The *post*-treatment period in Figures 3 and 4 show the effect of treatment by length of exposure, which can be misleading to interpret as the average treatment effect in GTATE models. In the next section, we aggregate the estimates in each time period into the Aggregate Group-Time Average Treatment Effects (AGGTE).

5 Analysis/Discussion

What happens in the month when peacekeepers enter a cell, and when they leave? Through our various models, we draw several conclusions on how peacekeeper movement within countries changes local and nearby violence. Broadly, these results suggest that peacekeeper arrival leads to an increase in state violence against civilians locally and nearby, followed by a decrease in violent events when they leave. Peacekeepers have a zero or near zero effect on rebel violence, on the other hand, suggesting that they increase state violence upon entrance and have little to no effect on rebel violence overall.

When peacekeepers enter a cell, the probability of state violence in that cell increases by more than 5%, and the amount of total civilian fatalities increases as well. These results, as shown in Table 1, illustrate how peacekeepers can increase the chances of violent outcomes upon entrance. Even more important is that when peacekeepers enter a grid, the probability *and* amount of state violence more than triples for each outcome in neighboring cells relative to same-cell violence. We thus conclude that peacekeepers not only increase violence in the cell they enter, but that they displace violence at an even higher rate.

The coarseness of the data, combined with peacekeeper attacks on rebel groups, leads us to believe that peacekeeper short-term violence often leads to longer-term violence. In other words, the following story emerges after peacekeepers arrive at an area. Upon arrival, either to protect civilians or in conjunction with incumbent forces, peacekeepers use force to attack rebel groups. Take, for example, the UN Mission to the Democratic Republic of the Congo (MONUSCO). After several years of severe rebel violence against civilians and government targets, the UN shifted its approach. Rather than simply watching the combat, MONUSCO now takes active, offensive actions against rebels, often in conjunction with state forces (Sweet 2019). The mission shifted towards a counterinsurgency phase, where peacekeepers directly assisted attacked rebels. A specific example can be found in the Central African Republic, where UN Forces in conjunction with the French military, bombed rebel positions and killed seven insurgents (Dembassa-Kette 2015).

While this violence against rebels may cause a decrease in rebel violence in the short term, this violence likely increases the incentives for incumbent political violence. By committing violence against rebel groups, peacekeepers inherently change how power is distributed within an area, which changes the incentives for both sides. Rebels are harmed, thus lowering their capacity to compete with state forces. While their temporary decrease in capacity may also suggest a lower likelihood to commit violence, because they now have less ability to do so, it is this lower capacity itself that may lead to increased violence.

Now that peacekeepers have lowered the capacity of the rebels to compete with the incumbent, government forces have less competition from the rebel group locally. Two factors may initially present as obstacles to government violence, especially against civilians, but we argue that peacekeeper presence and violence change the nature of these obstacles. Rebels who may have competed with and lowered the incumbent capacity and willingness to commit political violence now have less ability to compete with the state. With the power imbalance now leaning more heavily towards the incumbent, rebel inability to compete lowers the costs of state political violence (Schelling 1966). The second barrier to violence, peacekeepers, will be unlikely to prevent local violence outcomes from incumbents even when present, as peacekeepers inherently operate with the consent of state forces (Hultman, Kathman, and Shannon 2014). With consent to operate within the country required, peacekeepers are much less likely to use force against government actors (Fjelde, Hultman, and Nilsson 2019). So, peacekeeper violence against rebel forces can increase the rewards for incumbent forces to commit further violence, even when peacekeeper initial presence may lower short-term violence incentives, especially by rebels. Our empirical results support these theories, as not only does peacekeeper entrance lead to increased violence against civilians locally, it leads to a relatively higher amount in neighboring cells.

The increase in neighboring violence upon peacekeeper entrance, we argue, is also explained by the knowledge that peacekeepers lower rebel violence capacity in the cell they enter. Rebel resources decreasing in the cell peacekeepers enter will likely decrease overall

Table 1: The main findings of our models. "C-B" refers to whether the DV is a count or binary outcome. Robust standard errors are clustered at the PRIO-Grid level.

Time	Cell	ACTOR	C — B	DV	ATT	SE	CI Lower	CI Upper	Statistically Significant
Enter	Same	GOV	Total	Event	0.1539	0.0294	0.0962	0.2116	YES
Enter	Same	REB	Total	Event	-0.0356	0.0285	-0.0913	0.2020	NO
Enter	Neighbor	GOV	Total	Event	0.5082	0.1010	0.3103	0.7061	YES
Enter	Neighbor	REB	Total	Event	-0.3407	0.1787	-0.6910	0.0096	NO
Leave	Same	GOV	Total	Event	0.0566	0.0390	-0.0199	0.1331	NO
Leave	Same	REB	Total	Event	-0.0193	0.0385	-0.0947	0.0561	NO
Leave	Neighbor	GOV	Total	Event	0.3646	0.0634	0.2404	0.4889	YES
Leave	Neighbor	REB	Total	Event	-0.3767	0.1426	-0.6562	-0.0972	YES
Enter	Same	GOV	Pr()	Event	0.0483	0.0119	0.0250	0.0717	YES
Enter	Same	REB	Pr()	Event	-0.0281	0.0220	-0.0713	0.0151	NO
Enter	Neighbor	GOV	Pr()	Event	0.1426	0.0454	0.0537	0.2315	YES
Enter	Neighbor	REB	Pr()	Event	-0.1586	0.0657	-0.2784	-0.0298	YES
Leave	Same	GOV	Pr()	Event	0.0074	0.0111	-0.0143	0.0291	NO
Leave	Same	REB	Pr()	Event	-0.0034	0.0071	-0.0173	0.0105	NO
Leave	Neighbor	GOV	Pr()	Event	0.0867	0.0189	0.0498	0.1237	YES
Leave	Neighbor	REB	Pr()	Event	-0.1040	0.0300	-0.1627	-0.0452	YES
Enter	Same	GOV	Total	Death	0.3356	0.1049	0.1300	0.5412	YES
Enter	Same	REB	Total	Death	-0.2976	0.4377	-1.1555	0.5603	NO
Enter	Neighbor	GOV	Total	Death	0.6123	0.2745	0.0743	1.1503	YES
Enter	Neighbor	REB	Total	Death	-0.5135	0.2446	-0.9929	-0.0340	YES
Leave	Same	GOV	Total	Death	-2.2703	3.0240	-8.1972	3.6567	NO
Leave	Same	REB	Total	Death	0.1139	0.0818	-0.0464	0.2743	NO
Leave	Neighbor	GOV	Total	Death	-4.4112	2.8813	-10.0584	1.2360	NO
Leave	Neighbor	REB	Total	Death	-2.4842	1.2361	-4.9069	-0.0616	YES
Enter	Same	GOV	Pr()	Death	0.0483	0.0119	0.0250	0.0717	YES
Enter	Same	REB	Pr()	Death	-0.0156	0.0163	-0.0475	0.0164	NO
Enter	Neighbor	GOV	Pr()	Death	0.1426	0.0454	0.0537	0.2315	YES
Enter	Neighbor	REB	Pr()	Death	-0.1586	0.0657	-0.2874	-0.0298	YES
Leave	Same	GOV	Pr()	Death	0.0074	0.0111	-0.0143	0.0291	NO
Leave	Same	REB	Pr()	Death	-0.0034	0.0071	-0.0173	0.0105	NO
Leave	Neighbor	GOV	Pr()	Death	0.0867	0.0189	0.0498	0.1237	YES
Leave	Neighbor	REB	Pr()	Death	-0.1040	0.0300	-0.1627	-0.0452	YES

rebel capacity of the same rebel groups overall (Hinkkainen Elliott, Polo, and Eustacia Reyes 2021). Thus, rebels in neighboring cells are also now on weaker footing than they otherwise would be if peacekeepers did not enter. Moreover, we argue that the state is incentivized to go after those rebel groups that are now on the defensive, and so the incumbent will be more likely to recommit itself to areas surrounding peacekeeping missions. While the state may have some reservations about committing political violence in the area where peacekeepers deploy, they will have fewer reservations about committing violence in neighboring areas outside the purview of peacekeepers (Fjelde, Hultman, and Nilsson 2019).

Regarding peacekeeper exit, Table 1 shows statistical insignificance across most models. We believe our results show these outcomes for two reasons. First, the granularity of the peacekeeping movement data cannot account for within-month variations in rates of violence. While important for theoretical reasons, data on peacekeeper movement below a month-level aggregation does not currently exist. The second point, which builds on the lack of data granularity and availability, is that the dependent variable may be under-counted, especially when peacekeepers leave. It is near impossible to account for all possible factors and to count violence with 100% accuracy. However, we contend that our results hold, in large part because the data availability for neighboring cells likely remains unchanged upon peacekeeper entrance and exit.

While our difference-in-differences GTATE accounts for potential confounders by passing the parallel trends test (Card and Krueger 1994), we also acknowledge other potential threats to inference. For example, existing research established that peacekeepers are sent to hard cases that may bias them as less effective, even though they may be reducing violence compared to if they were not deployed (Ruggeri, Dorussen, and Gizelis 2017; Fjelde, Hultman, and Nilsson 2019). If peacekeepers are deploying to where violence is expected, and there is substantial reason to think that is occurring, our models may be mis-estimating the outcome.

While it is possible that our results in the cells peacekeepers enter may be overestimated,

we believe that it is unlikely that this anticipation effect is as strong in the areas next to where peacekeepers deploy. In other words, there is little reason to believe that the diffusion of violence is overestimated in neighboring cells. We also emphasize that our research is a departure from previous methods examining peacekeeping effectiveness, and our models account for endogeneity in ways that previous subnational research on peacekeeping has not addressed (Fjelde, Hultman, and Nilsson 2019; Kunkel 2023), in large part by accounting for confounding variables via passing the parallel trends test.

6 Conclusion

Our paper explores what happens when peacekeepers arrive and when they leave. While others have explored peacekeeper effectiveness at a subnational level, those studies miss the temporal effects of peacekeeper entrance and exit. That literature established that the local presence of peacekeepers protects civilians from violence. However, we suggest, and our models provide evidence of, a more complicated story than previously reported. Instead of finding that peacekeepers reduce violence, our analyses show that peacekeeper entrance displaces violence that later returns when those peacekeepers leave.

The UN deploys Ch. VII missions in the hopes of reducing violence against civilians, often with explicit violent actions taken against various factions within the conflict to achieve those ends. The expectations, however, that peacekeeper violence against rebels may lead to lower levels of violence are misguided. These new types of peacekeeping missions, upon arrival, scatter the violence to neighboring areas. When the peacekeepers leave, these groups return to where they were initially located. These results further indicate that peacekeepers do not in fact create a durable peace but that their actions may increase the overall violence in local and neighboring areas.

Rather than focusing on peacekeeper movement within a country as the causal mechanism, future research should examine how other mechanisms affect the distribution of vio-

lence throughout a country. We also know that PKOs are multidimensional and often arrive in concurrence with other forms of international intervention. For example, Beber et al. explore what happens to local economies when peacekeepers leave (Beber et al. 2019). Little research explores other forms of peacekeeping intervention, such as the economic impacts of peacekeeper presence. Future research should dive into not only how peacekeepers affect institutional aspects of the country they deploy to, but also in how they affect the civilians they interact with.

Competing interests. The authors declare none.

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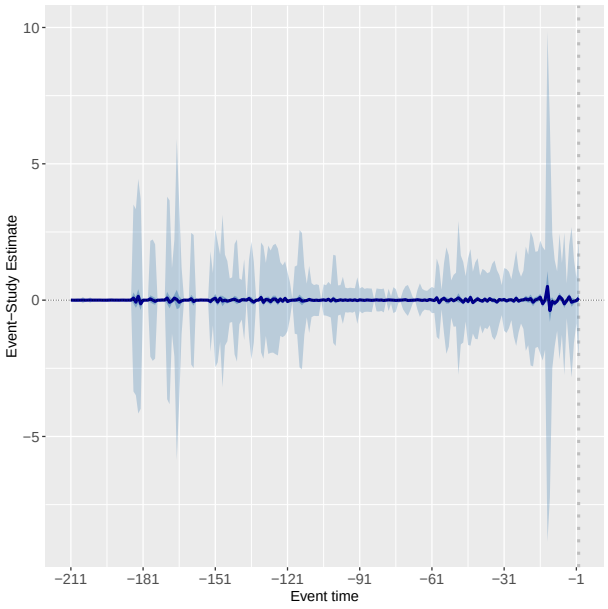
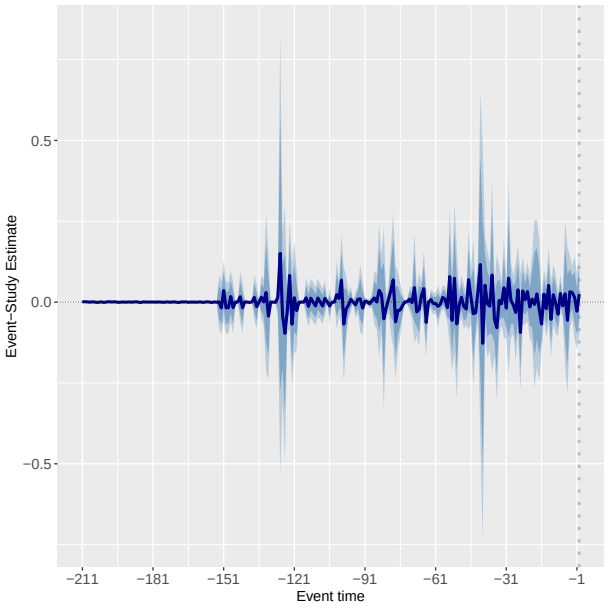
Appendices

A Parallel Trends Plots.

In this section, we plot the parallel trends test (via event study models) for all of our GTATE models before the treatment of peacekeeper entrance or exit. In the models, we describe which model the plot refers to by the description of the dependent variable and the cell. When the cell is listed as "same," the unit of analysis is the cell peacekeepers entered (or exited). When the cell is listed as "neighbor," the unit of analysis is the cell neighboring where peacekeepers entered (or exited). Recall from the parallel trends section in the main paper that these event study plots test the null hypothesis from Callaway and Sant'Anna; in other words, when the confidence intervals in pre-treatment periods cover zero, the model provides strong evidence that parallel trends hold. See below for results.

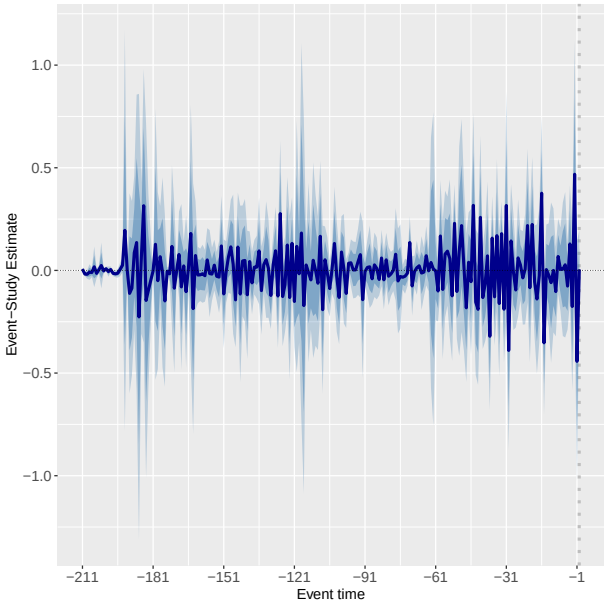


(a) DV - Total violent events by the state. Cell - same.

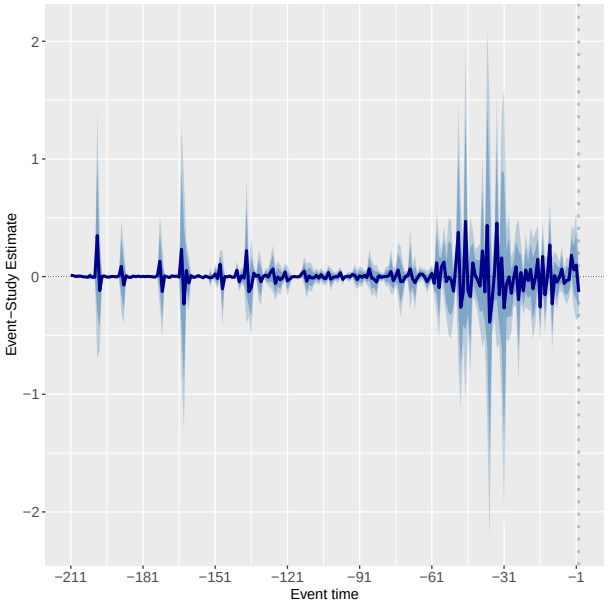


(b) DV - Total violent events by rebels. Cell - same.

Figure 5: Timing - entrance.

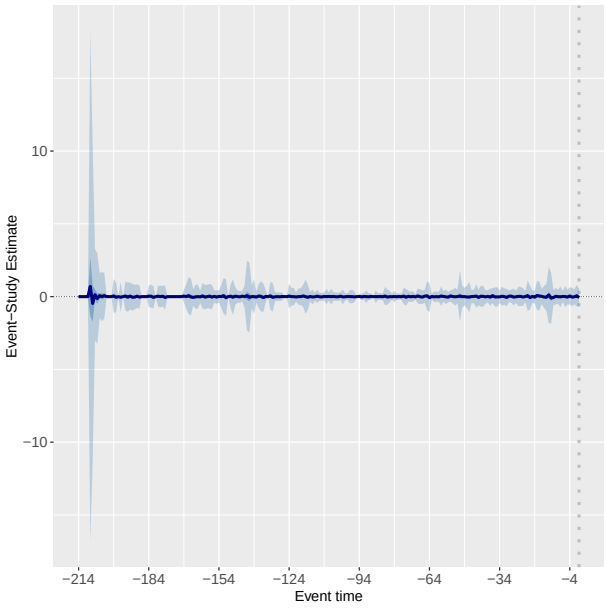


(a) DV - Total violent events by the state. Cell - neighbor.

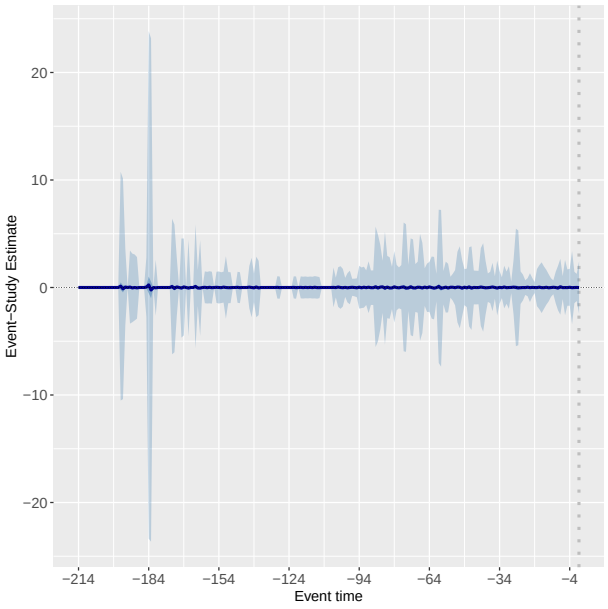


(b) DV - Total violent events by rebels. Cell - neighbor.

Figure 6: Timing - entrance.

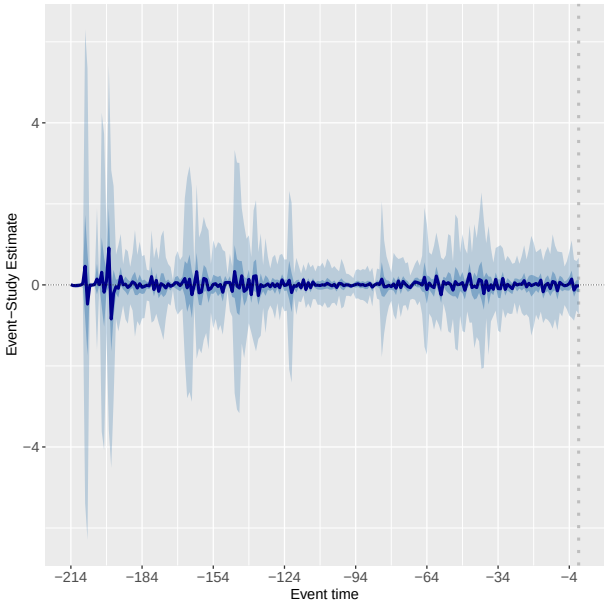


(a) DV - Total violent events by the state. Cell - same.

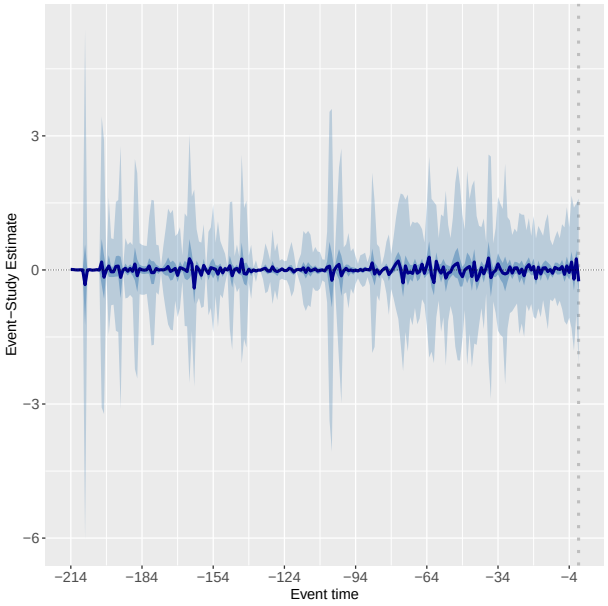


(b) DV - Total violent events by rebels. Cell - same.

Figure 7: Timing - leave.

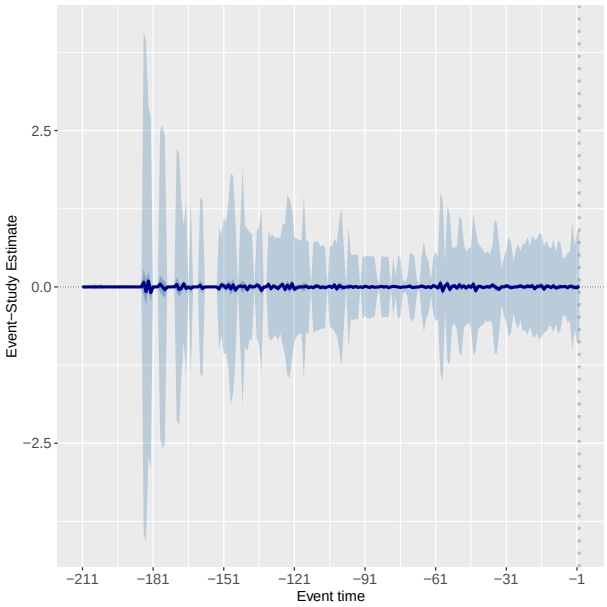


(a) DV - Total violent events by the state. Cell - neighbor.

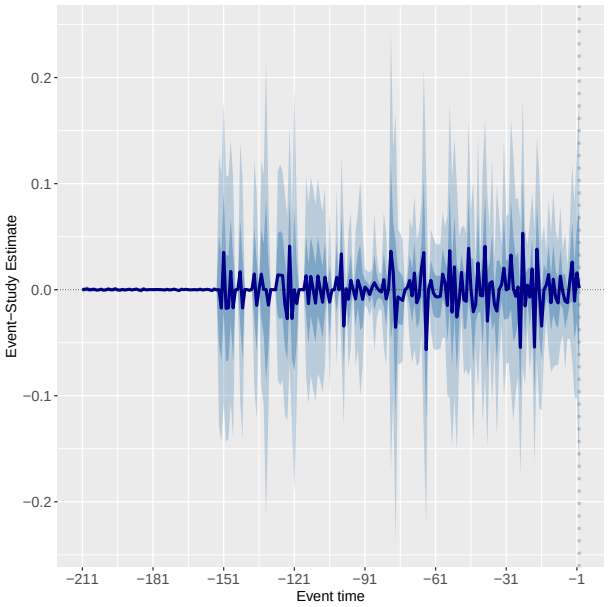


(b) DV - Total violent events by rebels. Cell - neighbor.

Figure 8: Timing - leave.

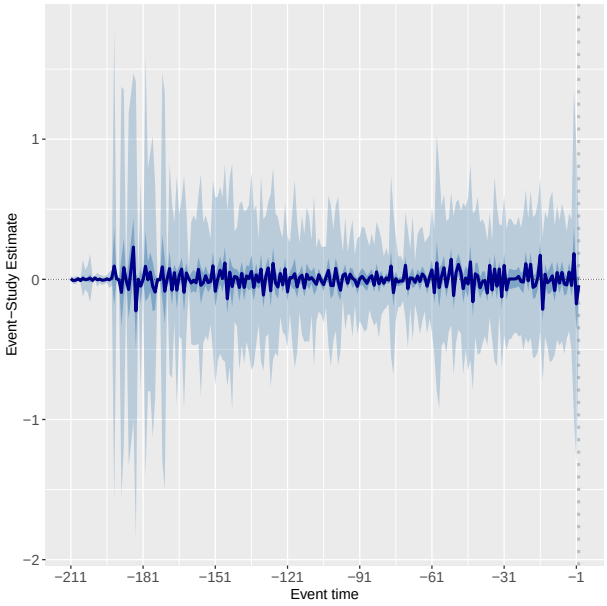


(a) DV - Pr(violent event) by the state. Cell - same.

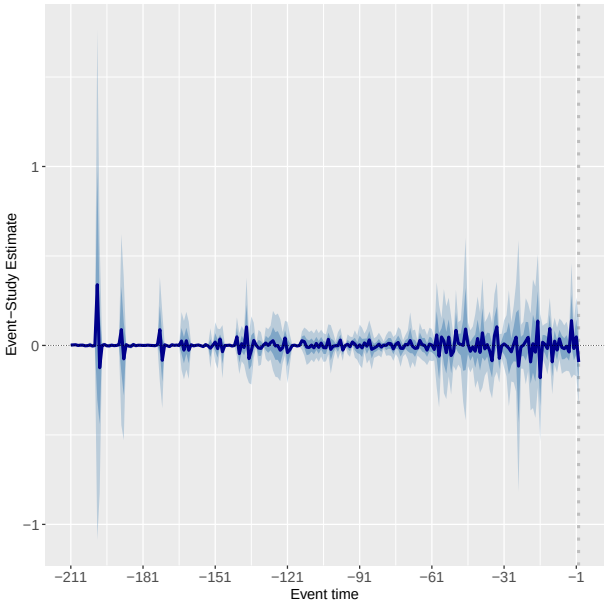


(b) DV - Pr(violent event) by rebels. Cell - same.

Figure 9: Timing - entrance.

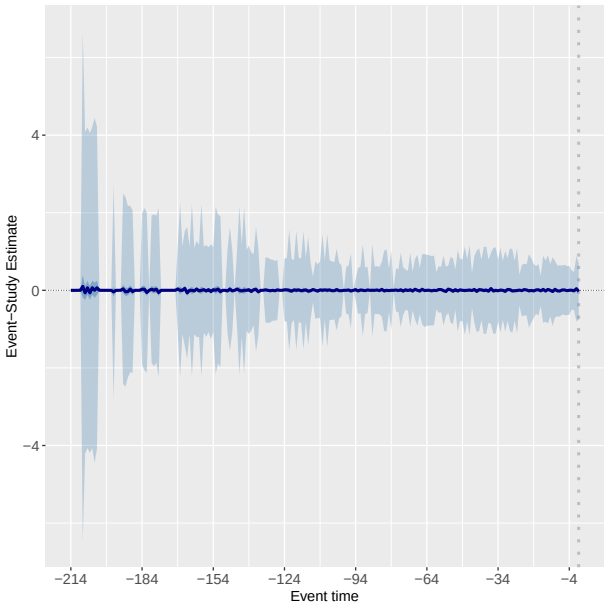


(a) DV - Pr(violent event) by the state. Cell - neighbor.

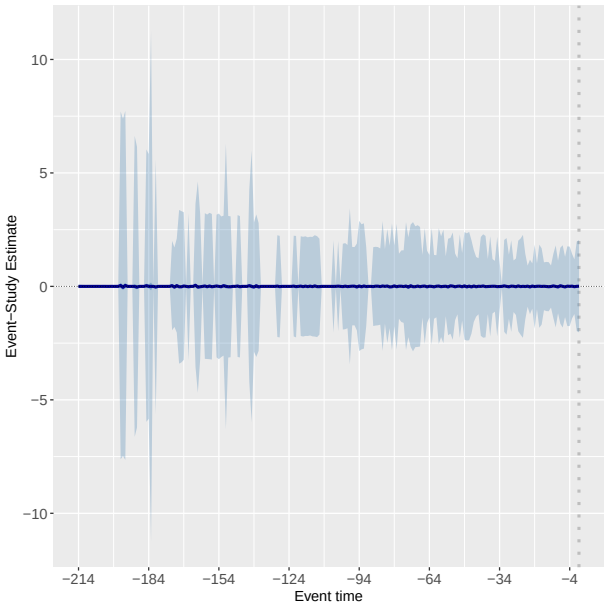


(b) DV - Pr(violent event) by rebels. Cell - neighbor.

Figure 10: Timing - entrance.

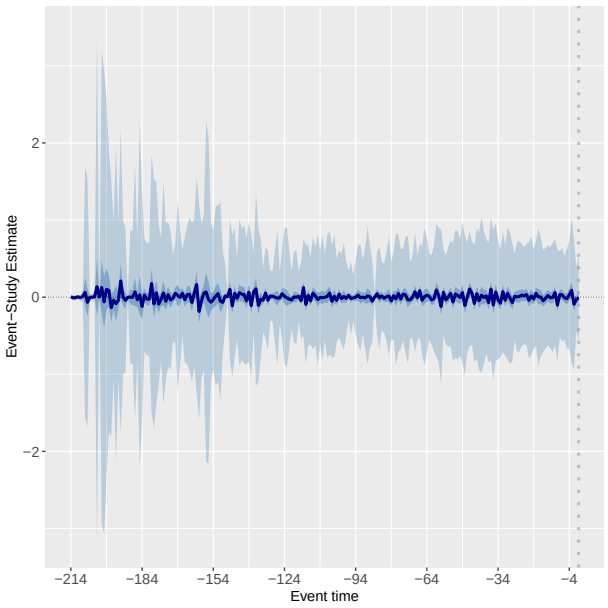


(a) DV - Pr(violent event) by the state. Cell - same.

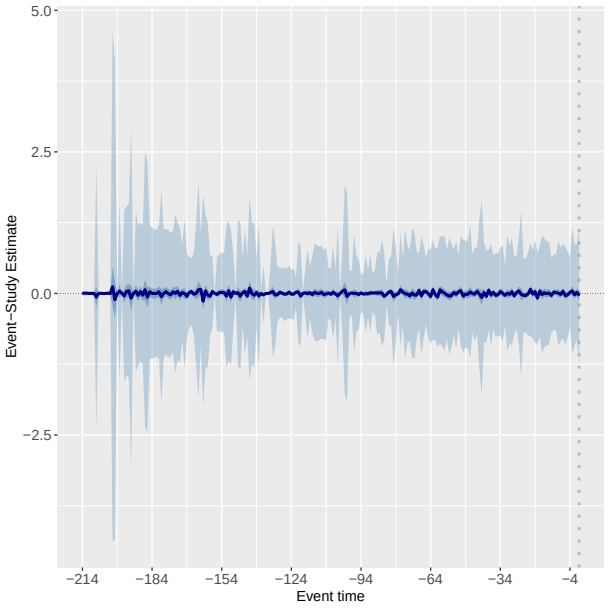


(b) DV - Pr(violent event) by rebels. Cell - same.

Figure 11: Timing - exit.

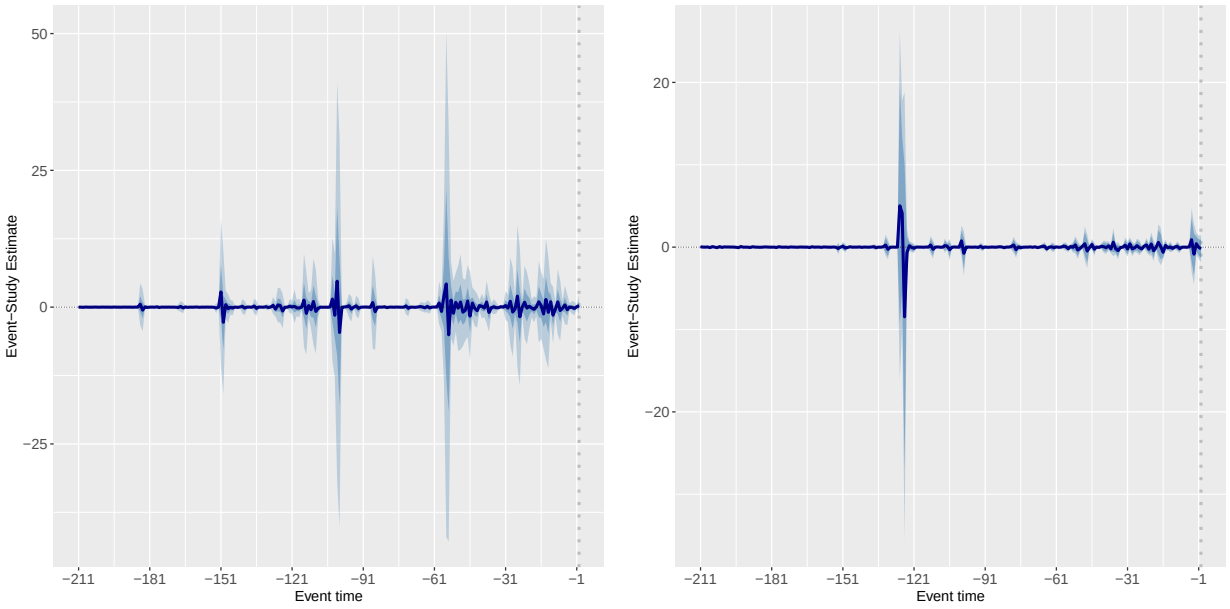


(a) DV - Pr(violent event) by the state. Cell - neighbor.



(b) DV - Pr(violent event) by rebels. Cell - neighbor.

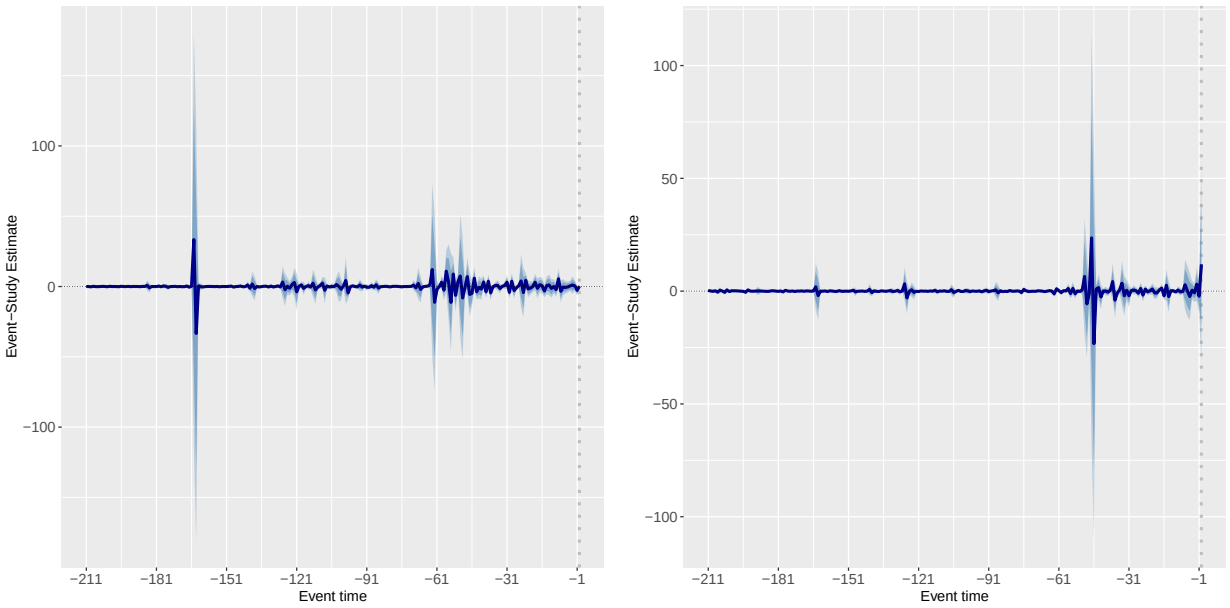
Figure 12: Timing - exit.



(a) DV - Total deaths by the state. Cell - same.

(b) DV - Total deaths by rebels. Cell - same.

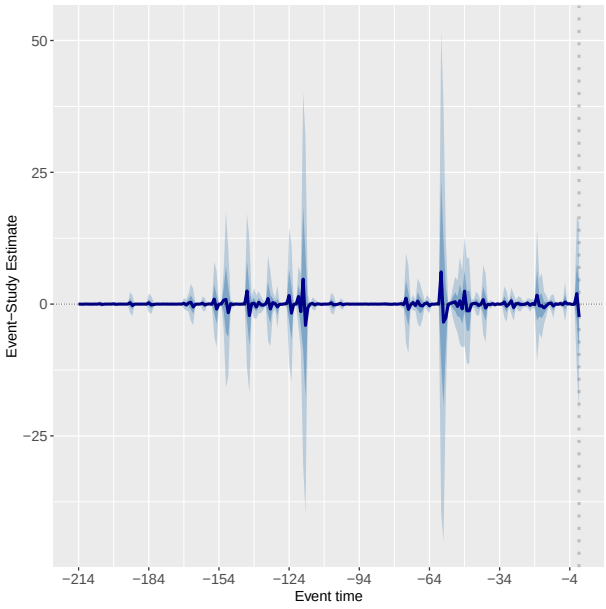
Figure 13: Timing - entrance.



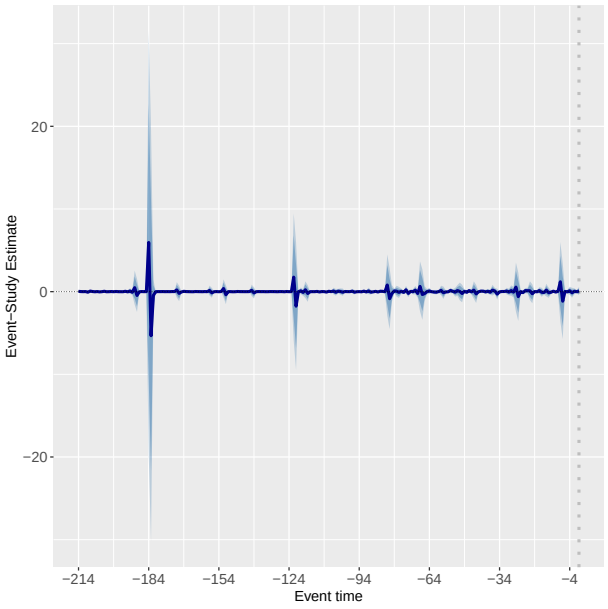
(a) DV - Total deaths by the state. Cell - neighbor.

(b) DV - Total deaths by rebels. Cell - neighbor.

Figure 14: Timing - entrance.

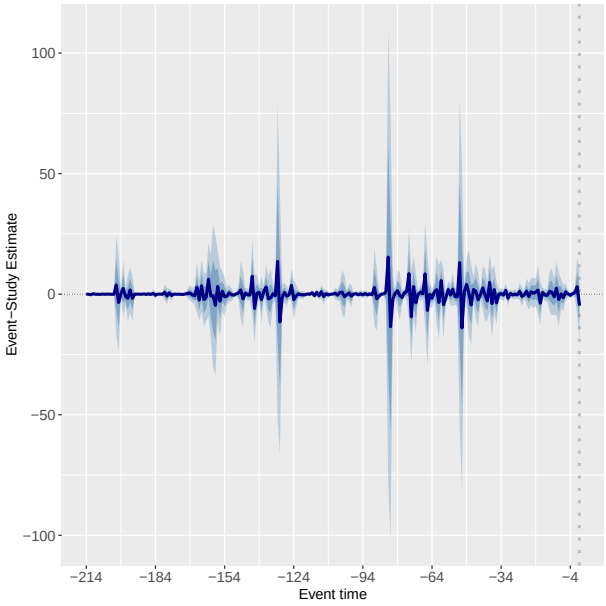


(a) DV - Total deaths by the state.
Cell - same.

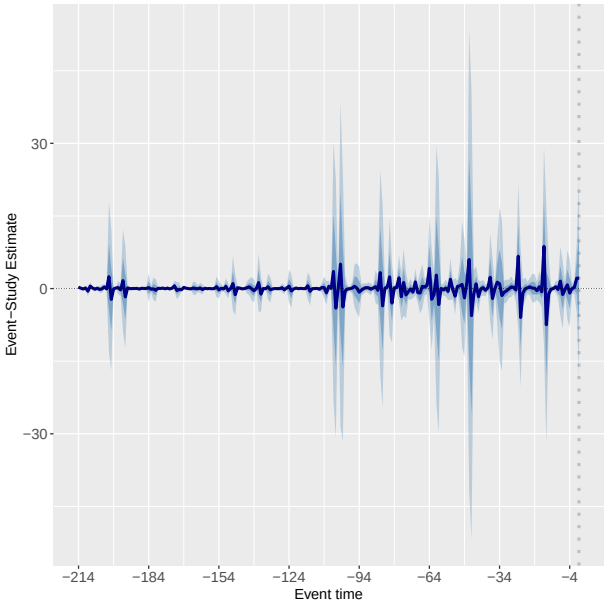


(b) DV - Total deaths by rebels.
Cell - same.

Figure 15: Timing - leave.

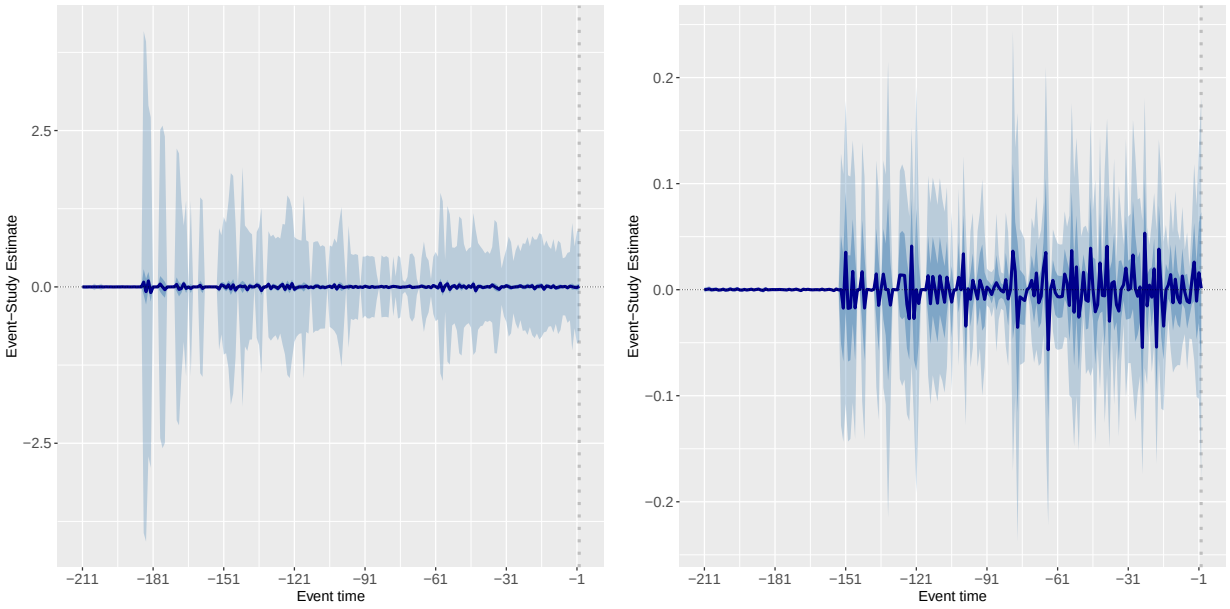


(a) DV - Total deaths by the state.
Cell - neighbor.



(b) DV - Total deaths by rebels.
Cell - neighbor.

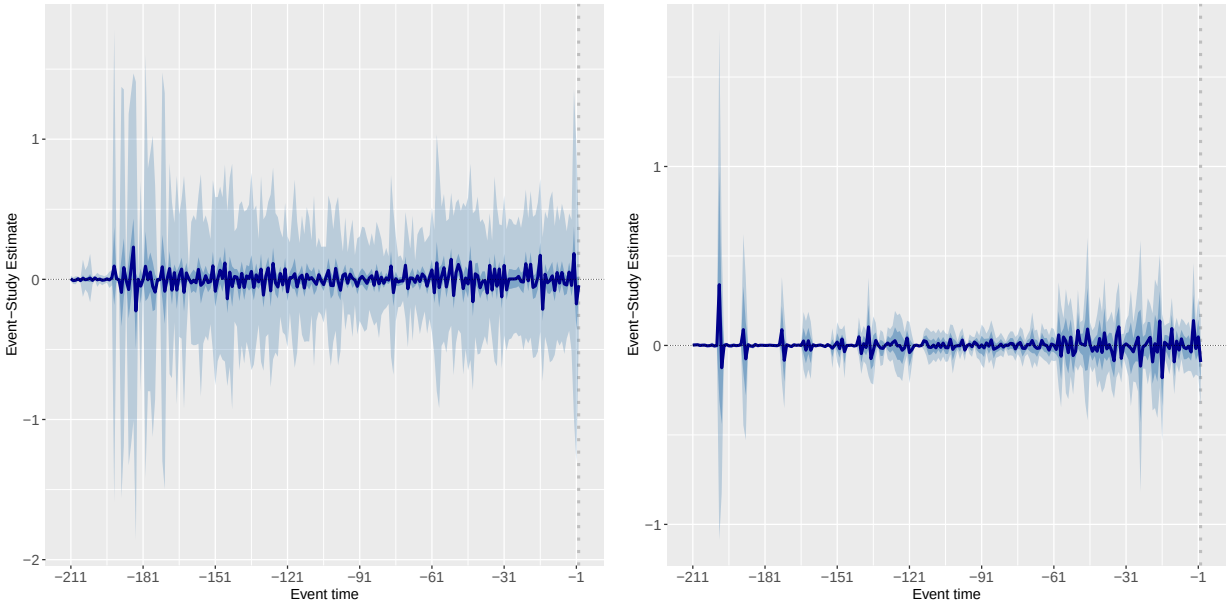
Figure 16: Timing - leave.



(a) DV - Pr(death) by the state.
Cell - same.

(b) DV - Pr(death) by rebels.
Cell - same.

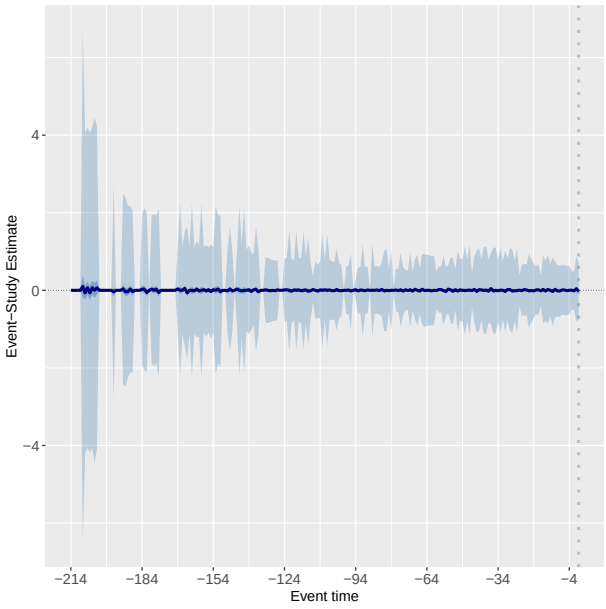
Figure 17: Timing - entrance.



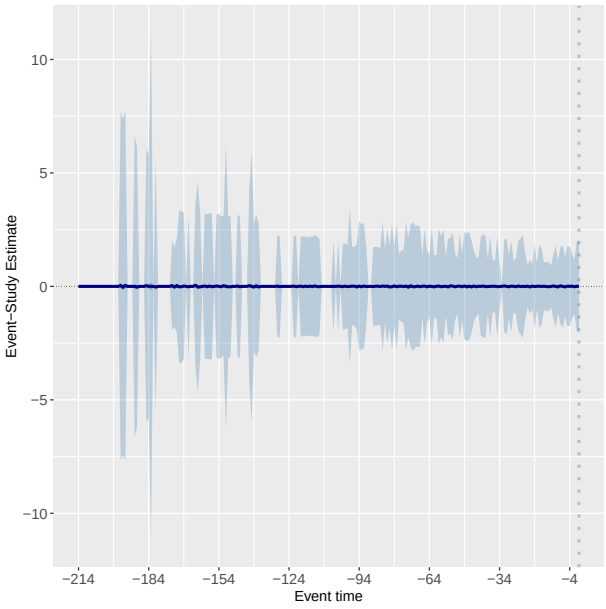
(a) DV - Pr(death) by the state.
Cell - neighbor.

(b) DV - Pr(death) by rebels.
Cell - neighbor.

Figure 18: Timing - entrance.

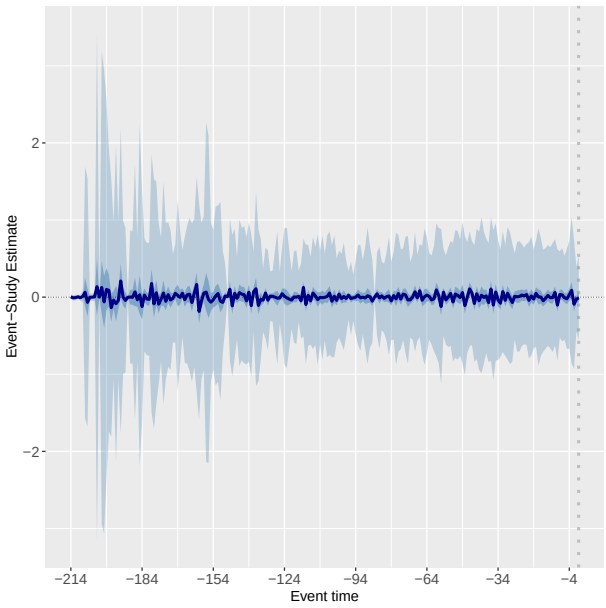


(a) DV - Pr(death) by the state.
Cell - same.

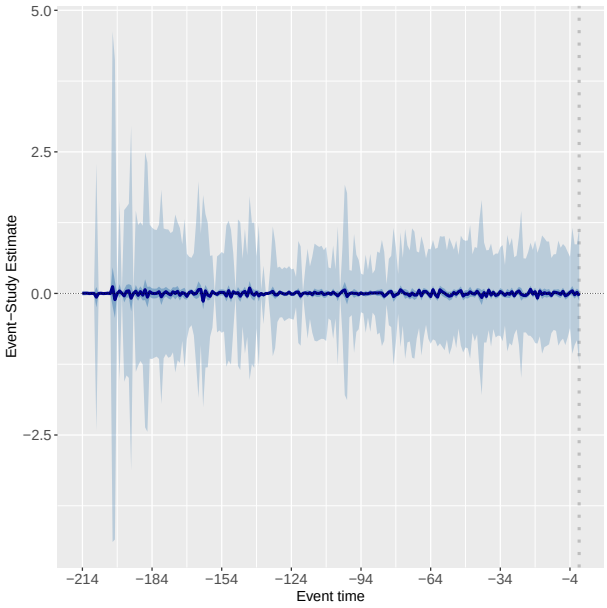


(b) DV - Pr(death) by rebels.
Cell - same.

Figure 19: Timing - exit.



(a) DV - Pr(death) by the state.
Cell - neighbor.



(b) DV - Pr(death) by rebels.
Cell - neighbor.

Figure 20: Timing - exit.