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### Peacekeepers against ethnic and criminal violence

*Unintended consequences of UN peacekeeping*

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# **Peacekeepers Against Ethnic and Criminal Violence Unintended Consequences of UN Peacekeeping**

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor

aan de Universiteit van Amsterdam

op gezag van de Rector Magnificus

prof. dr. ir. K.I.J. Maex

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## SUMMARY

This dissertation examines the unintended and collateral effects of third-party interventions in war-torn countries. Building on the most recent findings in peacekeeping literature that suggests an overall conflict-reducing effect of military interventions, this thesis explores ways in which this laudatory effect might be compromised by key features of conflict settings. It explores, in particular, four main questions about peacekeeping's unintended consequences. First, does the presence of armed ethnic groups constrain the effectiveness of peacekeeping efforts? Second, does irregular warfare and lack of demarcated frontlines make armed ethnic groups more likely to escalate violence against civilians when peacekeepers are deployed? Third, are peacekeepers as good in reducing criminal violence as they are in reducing political violence? And finally, which external interventions are more effective in tackling criminal violence and crime in conflict and post-conflict countries?

Given this set of questions, the dissertation distinguishes between ethnic and criminal violence, which exhibit specific dynamics that point toward a more complex relationship between peacekeeping and violence. To begin with, almost all studies on peacekeeping have looked at conflict violence on the aggregate level. This approach overlooks the possibility that armed groups shift from one type of violence toward another, in response to the arrival of peacekeepers. To shed more light on this problem, I first establish to what extent the territorial distribution of ethnic groups in conflict can explain the geographic location of violence. In the first paper entitled "Inherently Vulnerable? Ethnic Geography and the Intensity of Violence in Bosnian Civil War", in my analysis of the Bosnian conflict I argued that ethnic groups are more likely to escalate violence against ethnic minorities when they are sizeable and easy targets. Especially, since ethnic groups aim at achieving solid control over ethnically homogeneous areas, they will perceive isolated pockets of ethnic minorities as a threat. While ethnic minority settlements that are territorially contiguous to larger co-ethnic areas are easier to protect, isolated enclaves are vulnerable to ethnic cleansing. The measure of vulnerability proposed in the paper is derived from concepts such as geographic concentration and ethnic dominance, which are important determinants for ethnic violence. The findings support the proposed argument that micro-level ethnic patterns explain macro-level conflict dynamics.

Having established this relationship, I take a further step to explore the consequences of peacekeeping deployment on the groups' perceptions of territorial control. The second paper of this dissertation, "Peacekeepers against ethnic violence", investigates how the arrival of peacekeepers constraints the use of violence with potentially harmful consequences for civilians. Indeed, the armed groups' preference for battlefield combat over civilian victimization

is a function of territorial control and thus of the distribution of ethnic groups on the local level. An important implication of this finding is that in ethnically polarized areas armed groups will tend to fight along more or less defined frontlines. In this context, peacekeeping has an advantage because it is easier to interpose, separate combatants and monitor their behaviour. On the other hand, when territorial control is fragmented and power is distributed asymmetrically among groups, more irregular tactics will predominate. In particular, lack of clear frontlines, many involved parties and high level of ethnic intermingling makes it more difficult for peacekeepers to effectively separate armed groups. It is also very challenging to monitor their behaviours, especially in the rear guards. The risk of peacekeeping is that armed ethnic groups prevented from fighting along frontlines will try to impose costs on each other by escalating violence against civilians. I test this expectation using time-series, cross-sectional data from Sierra Leone. I analyse to what extent UNAMSIL peacekeepers succeeded in reducing civilian killings and whether their performances were conditional on local sources of violence, namely ethnic polarization. Notwithstanding UNAMISL is considered one of the most successful UN missions in terms of protection of civilians, ethnicity reduced UN blue helmets' capacity to curb one-sided violence. Peacekeepers are more successful in locations with high polarization, namely with two large and similarly sized groups. The statistical effect of their presence in low-polarized areas is at best insignificant.

The second part of this dissertation continues exploration of unintended consequences of peacekeeping, but turns to a focus on criminal violence and crime. Moving beyond political violence, I explore potential collateral effects of UN missions on violence perpetrated by non-politically motivated actors or for non-political reasons. Existing research has focused mainly on how peacekeeping affects conflict violence; peacekeeping's effects on criminal violence are unknown, even though both intuition and our understanding of political side effects of power vacuums suggest important effects. The third chapter of this dissertation, entitled "Peacekeepers against criminal violence," builds upon the intuition that the narrow focus of peacekeeping mandates on political actors and on security concerns may unintentionally spark increases in criminal violence. I outline three main possible mechanisms that can give rise to such increases. First, at the individual level, UN-peacekeeping programs focused on so-called "Disarmament, Demobilization, and Reintegration (DDR) tend to create sizeable groups of unemployed individuals trained in violence. These individuals are vulnerable to join criminal groups in order to re-use their violent skills. At the group level, peacekeeping can have three major problems that accommodate or foster criminality. First, peacekeeping's focus on political groups and ignore or neglect attention to criminal groups; DDR programs, for example, do not target organized crime. Second, peacekeeping can provide the operational security that

organized crime needs to operate. Third, deployments are associated with the emergence of local peacekeeping economies, namely more or less informal economies that often entail illicit trafficking. Peacekeeping economies thus create more business opportunities for organized crime and, as consequence, more violent competition among different groups. The final mechanism is triggered by the fact that from the perspective of peacekeepers, crime is a domestic problem that national state or sub-national governmental institutions should deal with it. However, peace missions usually replace the state's monopoly of power in order to tackle armed group, but only "political" ones. This partial monopoly of power is harmful and leaves the state unable to effectively persecute criminals. Using a two-fold empirical strategy moving from country-year sample to subnational unit-month in South Sudan, I show that the stationing of UN troops is associated with higher homicide rates. However, the stationing of UN *police* and UN support for national policing is associated with *less* criminal violence, and has the added benefit of tending to mitigate the tendencies of UN troop deployments to spur criminal violence. The logic, here, is that UN police deals more directly with rule of law functions and national police training, yielding an important curbing effect upon criminal violence.

The conclusion that criminal violence and crime can be tackled only if explicitly addressed is consistent with the argument developed in the last paper of this dissertation, "Containing crime: diffusion and counter-diffusion mechanisms of piracy in Somalia", where I look at maritime piracy as instance of transnational organized crime. The aim of the paper is to assess which theoretical mechanisms better explain the geographic diffusion of piracy in the Indian Ocean and the counter-diffusion effect of the EU maritime mission (EUNAVFOR). In other words, the paper tests which decision-making strategy is used by criminal actors, and it investigates the effectiveness of the EUNAVFOR counterpiracy initiative in reducing incidence. This is one of only a handful of studies on diffusion of social phenomena that simultaneously consider diffusion and counter-diffusion factors. Using very detailed data on the location of piracy attacks and EUNAVFOR interventions off Somalia from 2005 to 2013, the empirical results reveal several implications. First, piracy spreads not only in proximity to locations where attacks already occurred, but also in proximity to locations where more successful attacks occurred. Guided by learning-based decision-making that focuses on risk reduction, pirates prefer to attack locations associated with higher success rates. In addition, the EUNAVFOR mission established in 2008 has successfully decreased the incidence of piracy. Rescue operations of vessels under attack, in particular, are very effective and reduce the likelihood of future attacks also in the most at-risk locations. Hence the empirical research of this chapter unearths how crime can be deterred by external military intervention, but only if the latter explicitly targets criminal actors. This returns our attention to the theme of unintended consequences of

peacekeeping: In Somalia, as in South Sudan, focusing on conflict-related violence uniquely has not solved the piracy problem, but might actually have contributed to its exacerbation.

Taken together, the studies comprised by this dissertation contribute to existing understanding of peacekeeping in two important ways. First, by acknowledging that there are different “types” of violence with specific dynamics, it unpacks the effect of peacekeeping and reveals potentially worrisome patterns. In the case of ethnic violence, peacekeeping can backfire and lead to escalation of violence against civilians instead of their protection. In the case of criminal violence, while political violence is reduced the collateral effect is the creation of favourable conditions for criminal activities. These findings may cast a shadow on the recent optimism for peacekeeping as tool of conflict resolution; however, they do not undermine the general finding that peacekeeping is beneficial for alleviating conflict. Instead, the bottom line is that peacekeeping works at the aggregate level but in ways that are not homogeneous in the broader political settings they target, and not without collateral damage in those settings. Peacekeepers are not equally effective in all cases; their impact is mediated by local conditions that shape the dynamics of violence, such as distribution of armed ethnic groups. Similarly, physical security is not limited to political conflict but is also impacted by criminal violence. For this reason, it is widely acknowledged that peacekeeping should develop more comprehensive strategies to counter crime instead of adjusting mandates *ad hoc* when perceived as necessary (as in Kosovo).

The second contribution of the dissertation is methodological. Selection bias is always an issue when studying peacekeeping and external interventions. Peacekeepers are not randomly assigned across the globe, and this type of endogeneity needs to be accounted for to improve the statistical analysis and forecast of effects. Two main techniques are used in this dissertation, Coarsened Exact Matching (CEM) and Conditional Mixed Processes models (CMP). They do not solve the endogeneity problem but can contribute to alleviating it. CEM is performed on the sample to assign weights to observations that display similar observable features. Once the dissimilarity (or imbalance) in explanatory variables between control group and treatment group is reduced, the matched sample can be used for regression analysis. CMP models, on the other hand, are used to model selection bias on unobservable factors. This is achieved by estimating two equations that are seemingly unrelated, meaning their error terms are correlated. For example, peacekeepers are usually sent to more violent conflict. Since violence intensity can be measured, CEM can match the sample based on conflict killings. But if peacekeepers are sent to conflict areas or countries for additional reasons that are not known and thus cannot be operationalized, we need to estimate the two equations, one that explain deployment and another that explains violence intensity. By relaxing the assumption of

uncorrelated disturbances, CMP adjusts the coefficients to account for this endogenous relationship, reporting the extent as a rho parameter. Another empirical approach reiterated in this dissertation is the subnational focus. Spatio-temporal disaggregation is commonly applied in conflict research, but only a few quantitative studies have utilized the subnational lens. The risk of country-level aggregations is that we cannot establish unambiguously to what extent peacekeeping actually reduced violence. It might be, for example, that violence as a whole decreased slightly in action areas because it shifted to regions without peacekeepers.

In the concluding chapter of the dissertation, I elaborate on a future research agenda that builds on the implications of the findings. In particular, I argue in favour of a shift in the study of UN peace missions toward a more political and long-term orientation. There are signs that peacekeeping will increasingly focus more on state-building processes as preconditions for sustainable peace. For this reason, there is a need for a more systematic assessment of the long-term political, economic and social implications of UN peacekeeping in host countries.

## Samenvatting

In dit proefschrift onderzoek ik de onbedoelde en bijkomende effecten van vredesmissies in door oorlog verscheurde landen. Voortbouwend op recente literatuur die stelt dat deze interventies veiligheid op allerlei vlakken vergroten, laat ik zien dat dit niet altijd opgaat, afhankelijk van specifieke aspecten van de conflicten. Hierbij staan vier vragen centraal: ten eerste, staat de aanwezigheid van gewapende etnische groepen de effectiviteit van vredesmissies in de weg? Ten tweede, zorgen irreguliere oorlogsvoering en gebrek aan afgebakende frontlinies ervoor dat gewapende etnische groepen meer geweld gebruiken tegen burgers als er vredesmissies aanwezig zijn? Ten derde, zijn vredesmissies even effectief in het bestrijden van crimineel geweld als in het bestrijden van militair geweld? En tenslotte, welke soorten interventies zijn het meest effectief in het tegengaan van crimineel geweld en criminaliteit in conflict- en post-conflictgebieden?

Ik maak in dit onderzoek onderscheid tussen etnisch geweld en crimineel geweld, die beiden hun eigen dynamiek hebben en daarmee laten zien dat de relatie tussen vredesmissies en geweld complexer is dan vaak gedacht. Om te beginnen onderzoeken bijna alle studies op dit gebied conflict op geaggregeerd, meestal nationaal, niveau. Hierdoor wordt een verschuiving van het soort geweld na de komst van vredesmissies over het hoofd gezien. Om hier meer inzicht in te krijgen, onderzoek ik eerst of de territoriale verdeling van etnische groepen een verklaring kan zijn voor de geografische locatie van het geweld. In mijn eerste artikel "Inherently vulnerable? Ethnic geography and the intensity of violence in Bosnian civil war", waarin ik de Bosnische Burgeroorlog onderzoek, stel ik dat etnische groepen sneller over gaan tot een intensivering van het geweld als etnische minderheden zich in kleine en gescheiden gebieden bevinden en daardoor gemakkelijke doelwitten vormen. Met name omdat etnische groepen erop uit zijn om duurzame controle te krijgen over homogene gebieden zullen zij andere geïsoleerde groepen etnische minderheden als een bedreiging zien. Hoewel nederzettingen die geografisch aangesloten zijn aan grotere gebieden met dezelfde etnische samenstelling makkelijker te beschermen zijn, maakt dit ze ook kwetsbaarder voor etnische zuiveringen. De meting van kwetsbaarheid die ik in dit artikel gebruik komt voort uit concepten als geografische concentratie en etnische dominantie, die belangrijke verklaringen vormen voor de mate van etnisch geweld. Deze bevindingen ondersteunen de stelling dat etnische patronen op microniveau implicaties hebben op conflictdynamiek op macroniveau.

Na dit verband te hebben onderzocht, ga ik een stap verder en bestudeer ik de gevolgen van ontwikkelingen omtrent vredesmissies voor de percepties van groepen op territoriale controle. Het tweede paper van deze dissertatie, "Peacekeepers against ethnic violence", behandelt hoe

de komst van vredesmissies het gebruik van geweld inperkt en wat de mogelijk negatieve gevolgen voor burgers daarvan kan zijn. Of gewapende groepen liever op slagvelden vechten of over gaan tot het aanvallen van de burgerbevolking is het gevolg van de mate van controle over het gebied, dus van de lokale verdeling van etnische groepen. Een belangrijke implicatie van deze bevinding is dat in langs etnische lijnen gespleten gebieden gewapende groepen vooral op duidelijk afgebakende fronten vechten. Dit gegeven werkt in het voordeel van de vredesmissies, omdat het voor hen makkelijker is om tussen de strijdende groepen in te staan, ze van elkaar te scheiden en ze in de gaten te blijven houden. Aan de andere kant, als controle over het gebied gefragmenteerd is en de macht asymmetrisch verdeeld is, dan zullen partijen eerder naar onconventionele middelen grijpen. Met name het gebrek aan duidelijke fronten, verschillende strijdende partijen en een hoge mate van etnische vermenging bemoeilijken vredesmissies de strijdende groepen uit elkaar te houden. Ook het toezichthouden op het gedrag van de partijen is in deze context extra uitdagend, met name in de achterhoede. Het risico dat de vredesmissie loopt is dat de strijdende etnische groepen die niet meer op duidelijke fronten kunnen vechten zich op elkaars burgers zullen richten. Ik toets deze stelling door middel van tijdreeksanalyse en cross-sectionele analyse met data over Sierra Leone. Ik analyseer in hoeverre het de UNAMSIL vredesmissie is gelukt om geweld tegen burgers in te perken en of hun optreden afhankelijk was van de lokale geweldsverspreiding, met name etnische polarisering. UNAMSIL staat bekend als een van de succesvolste VN-vredesmissies in het beschermen van burgers, toch konden etnische verschillen de slagkracht van de blauwhelmen ondermijnen. Het statistische effect van hun aanwezigheid in minder-gepolariseerde gebieden is hooguit niet significant.

Het tweede deel van dit proefschrift vervolgt de bestudering van de onbedoelde gevolgen van vredesmissies, maar verlegt het accent naar crimineel geweld en criminaliteit. Door verder te kijken dan alleen politiek geweld onderzoek ik de mogelijke neveneffecten van VN-missies op geweld begaan door niet-politiek gemotiveerde actoren, of voor niet-politieke redenen. Bestaande studies richten zich voornamelijk op hoe vredesmissies gewapend conflict beïnvloeden, maar het effect van vredesmissies op crimineel geweld is vooralsnog onbekend, terwijl op basis kennis over de politieke bijwerkingen van machtsvacuüms we belangrijke implicaties mogen veronderstellen. Het derde hoofdstuk, getiteld "Peacekeepers against criminal violence", is gestoeld op het vermoeden dat de nauwe focus van vredesmissiemandaten op politieke actoren en op veiligheid onbedoeld crimineel geweld aanwakkert. Ik draag drie mogelijke causale mechanismen aan die een rol kunnen spelen. Ten eerste, op individueel niveau ligt de focus van VN-vredesmissies op ontwapening, demobiliseren en re-integreren van de strijders, waardoor grote groepen jonge werkloze mannen, getraind in geweld, weer in de samenleving terecht komen. Deze mensen zijn kwetsbaar om zich aan te sluiten bij criminele

groeperingen om hun gewelddadige vaardigheden weer in te kunnen zetten. Op groepsniveau kunnen vredesmissies tegen drie grote problemen aanlopen die criminaliteit kunnen faciliteren en stimuleren. Eén: vredesmissies' focus op politieke groepen kan criminele groepen over het hoofd zien; VN-programma's houden zich niet bezig met georganiseerde misdaad. Twee: vredesmissies kunnen voor veilige omstandigheden zorgen waar criminele groepen in kunnen opereren. Drie: rond vredesmissies ontstaat er een lokale economie die voor een groot deel informeel is en illegale handel stimuleert. De vredesmissie-economie is een kans voor georganiseerde criminele bendes en kan zo een gewelddadige concurrentiestrijd aanwakkeren. Het laatste causale mechanisme dat een rol speelt is de convictie van vredesmissies dat criminaliteit een binnenlands probleem is dat opgelost dient te worden door de staat zelf, of sub-nationale overheden. Hierbij verliezen de missies uit het oog dat zij het geweldsmonopolie van de staat hebben overgenomen om gewapende groepen te bestrijden, echter richten zij zich alleen "politieke" entiteiten. Dit gedeeltelijk invullen van het geweldsmonopolie is schadelijk, omdat het ertoe leidt dat de staat niet effectief haar taak van criminaliteitsbestrijding kan vervullen. Door middel van een tweeledige empirische benadering waarbij ik zowel onderzoekseenheden op land-jaar niveau als op lager niveau per maand in Zuid-Soedan hanteer, laat ik zien dat de plaatsing van VN-troepen samenvalt met een stijging van het aantal moorden. Echter, VN-politiemacht en VN-ondersteuning van de plaatselijke politie correleren juist met minder crimineel geweld en heeft het bijkomend voordeel dat het de aanjagende gevolgen van VN-vredesmissies voor criminaliteit dempt. Dit komt doordat de VN-politie zich directer richt op ordehandhaving en het trainen van de lokale politie, wat voor een belangrijk temperend effect heeft op crimineel geweld.

De conclusie dat crimineel geweld en criminaliteit alleen effectief bestreden kan worden als er specifiek op wordt ingezet valt samen met het argument uitgewerkt in het laatste paper van dit proefschrift, "Containing crime: diffusion and counter-diffusion mechanisms of piracy in Somalia", waarin ik onderzoek doe naar moderne piraterij als vorm van transnationale georganiseerde criminaliteit. Het doel van dit deel is de geografische verdeling van piraterij in de Indische Oceaan en de poging van de EU maritieme missies (EUNAVFOR) om de verspreiding van piraterij tegen te gaan theoretisch beter te begrijpen. Met andere woorden, ik onderzoek welke strategie gebruikt wordt door criminelen en hoe effectief de EUNAVFOR anti-piraterijmissie is. Dit is een van de weinige studies die zowel de verspreiding van een sociaal fenomeen als de bestrijding daarvan behandelt. Analyses van zeer gedetailleerde data van de locatie van aanvallen van piraten en EUNAVFOR interventies bij Somalië tussen 2005 en 2013 leveren verschillende interessante bevindingen op. Ten eerste, piraterij verspreidt zich vooral vanaf de plaatsen waar aanvallen van piraten eerder succesvol zijn geweest. In de strategie van

piraten speelt ervaring met succes een belangrijke rol bij het kiezen van de volgende plek om aan te vallen. De EUNAVFOR-missie die in 2008 begon is succesvol geweest in het bestrijden van piraterij. Met name reddingsoperaties van vaartuigen die aangevallen worden door piraten in risicogebieden zorgen voor een daling van het aantal aanvallen in dezelfde gebieden. Het empirische onderzoek van dit hoofdstuk laat duidelijk zien hoe criminaliteit op een goede manier kan worden bestreden door een interventie, maar vooral indien deze expliciet gericht is op de criminelen. Dit brengt mij terug bij de onbedoelde gevolgen van vredesmissies: zowel in Somalië als in Zuid-Soedan heeft de focus op het verminderen van het oorlogsgeweld niet het piraterijprobleem opgelost, maar misschien juist versterkt.

Samen dragen de papers van deze dissertatie op twee belangrijke manieren bij onze kennis over vredesmissies. In de eerste plaats door te erkennen dat er verschillende soorten geweld bestaan met verschillende dynamieken blijkt dat vredesmissies negatieve bijeffecten kunnen hebben. Bijvoorbeeld bij etnische conflicten kan de inzet van vredesmissies juist een verschuiving van geweld richting burgers veroorzaken. Daarnaast kan de afname van politiek geweld gunstige omstandigheden creëren voor crimineel geweld. Deze bevindingen kunnen een schaduw werpen op het optimisme dat recentelijk rond vredesmissies is ontstaan. Echter ondermijnen mijn conclusies de stelling dat over de bank genomen vredesmissies een positieve invloed hebben op de gebieden waarin zij opereren niet. Uiteindelijk zijn vredesmissies effectief op geaggregeerd niveau, maar is dit effect niet in alle conflicten hetzelfde en zijn er onbedoelde negatieve gevolgen. Vredesmissies zijn niet altijd effectief en lokale omstandigheden die de dynamiek van geweld beïnvloeden spelen een belangrijke rol, zoals de verspreiding van verschillende etnische gewapende groeperingen. Ook is het belangrijk te erkennen dat veiligheid verder gaat dan alleen politiek conflict en dat crimineel geweld meegenomen dient te worden in de analyse van de effectiviteit van vredesmissies. Daarom is het nodig dat vredesmissies in de toekomst ook strategieën met betrekking tot crimineel geweld ontwikkelen in plaats van ad hoc, wanneer het plotseling nodig blijkt (zoals in Kosovo).

De tweede bijdrage van dit proefschrift is methodologisch van aard. Selectiebias is altijd een probleem bij het bestuderen van vredesmissies en andere militaire interventies. Vredesmissies zijn niet willekeurig over de wereld verdeeld, waardoor endogeniteit altijd een punt van zorg is in bij dit soort statistische toetsen. Twee technieken heb ik toegepast om deze endogeniteit het hoofd te bieden: *Coarsened Exact Matching* (CEM) en *Conditional Mixed Processes* (CMP) modellen. De technieken lossen endogeniteit niet volledig op, maar kunnen bijdragen bij inperken van de gevolgen ervan. CEM is toegepast om gewicht aan de waardes toe te kennen die gelijke eigenschappen hebben. Zo wordt een mogelijke disbalans tussen de controlegroep en de experimentele groep verkleind. De nieuwe waardes worden vervolgens in de regressieanalyse

gebruikt. CMP modellen zorgen er juist voor dat de selectiebias van niet-geobserveerde eigenschappen wordt aangepakt. Er worden twee formules berekend die gerelateerd lijken; hun foutmarges correleren. Een voorbeeld van hoe deze technieken zijn toegepast in deze dissertatie is het modelleren van het effect van vredesmissies op de intensiteit van gewapend conflict en het probleem voor causaliteit dat vredesmissies logischerwijs juist naar brandhaarden worden gestuurd; wat is nu oorzaak en wat is gevolg? De intensiteit van het geweld kan gemeten worden, CEM kan de variabelen matchen op basis van het aantal slachtoffers. Echter, als vredesmissies voor andere redenen dan intensiteit naar landen of gebieden worden gestuurd die niet gemeten of niet meetbaar zijn, dan moeten er twee formules worden opgesteld: een om de missie zelf te verklaren en een om de intensiteit van het geweld te verklaren. Door de assumptie van gecorreleerde fouttermen los te laten, corrigeert CMP de coëfficiënten die de endogeniteit veroorzaken, de grootte ervan wordt gerapporteerd. Een andere empirische innovatie toegepast in dit proefschrift is focus op sub-nationaal niveau. De-aggregatie van ruimte of tijd wordt wel vaker toegepast in conflictstudies, maar zelden in kwantitatief onderzoek. Het risico dat onderzoek op nationaal niveau met zich meebrengt is dat het heel moeilijk vast te stellen is of vredesmissies ook echt geweld verminderen. Het is namelijk mogelijk dat het totale geweld lijkt af te nemen, maar dat het zich in werkelijkheid verplaatst naar gebieden waar de vredesmissie niet aanwezig is.

In het laatste hoofdstuk doe ik op basis van mijn bevindingen suggesties voor toekomstig onderzoek. Mijn belangrijkste aanbeveling is een verschuiving binnen onderzoek naar VN-vredesmissies naar een meer politieke en langere termijn visie. Er zijn tekenen dat vredesmissies zich in de toekomst meer richten op staatsontwikkeling als belangrijkste basis van duurzame vrede. Daarom is het nodig systematisch onderzoek te doen naar de langetermijngevolgen van VN vredesmissies, op politiek, economisch en sociaal gebied.

## INTRODUCTION

Since the end of the Cold War, peacekeeping operations (PKO) have featured prominently as external intervention to tackle civil wars. The Cold War had deadlocked the United Nations (UN) Security Council and limited the use of peacekeeping to consensus-based interventions in interstate conflicts, with a few exceptions such as Congo, Lebanon and Cyprus (Fortna 2003). With the end of the superpower rivalry, the UN became more active with more than 30 new missions approved in the 1990s, a tremendous growth compared to 13 missions deployed during the Cold War.<sup>1</sup> Not only has the UN intervened in more conflicts, but it has also shifted its attention to civil wars and post-conflict settings. There is consensus that peacekeeping is an effective tool to establish peace. The literature on peacekeeping assesses the impact of missions based on the reduction of political violence. The assumption is that sizeable contingents operating under robust mandates signal commitment to peace and deter political actors from resorting to violence. However, the theoretical mechanisms neglect two crucial issues. First, the extent to which peacekeeping curbs violence depends on local sources of violence and the balance of power between armed groups. Second, the literature has ignored the effect of peacekeeping on non-political forms of violence, such as criminal violence.

This dissertation is centred on the conceptual distinction between ethnic and criminal violence. By looking at these specific types separately, it aims to assess the effectiveness of interventions by factoring in local sources of conflict (i.e. power distribution between ethnic groups) and possible collateral effects of peace missions on non-political violence (i.e. escalating criminal violence). In this introduction, I will present the main empirical findings on the effectiveness of peacekeeping missions, and then illustrate why this distinction matters and how it sheds light on the success rates and collateral effects of peacekeeping.

### 1. Does Peacekeeping Work?

Peacekeeping has become a prominent conflict resolution and conflict prevention tool. The UN is the main provider of peacekeeping with more than 16 ongoing missions.<sup>2</sup> Figure 1 shows the temporal trends in peacekeeping deployment. The blue line describes the total number of UN personnel (UN Troops, UN Police, and observers) deployed in UN missions per month from January 1990 to June 2016. The data from 1990 to 2011 is from Kathman (2013); I updated the

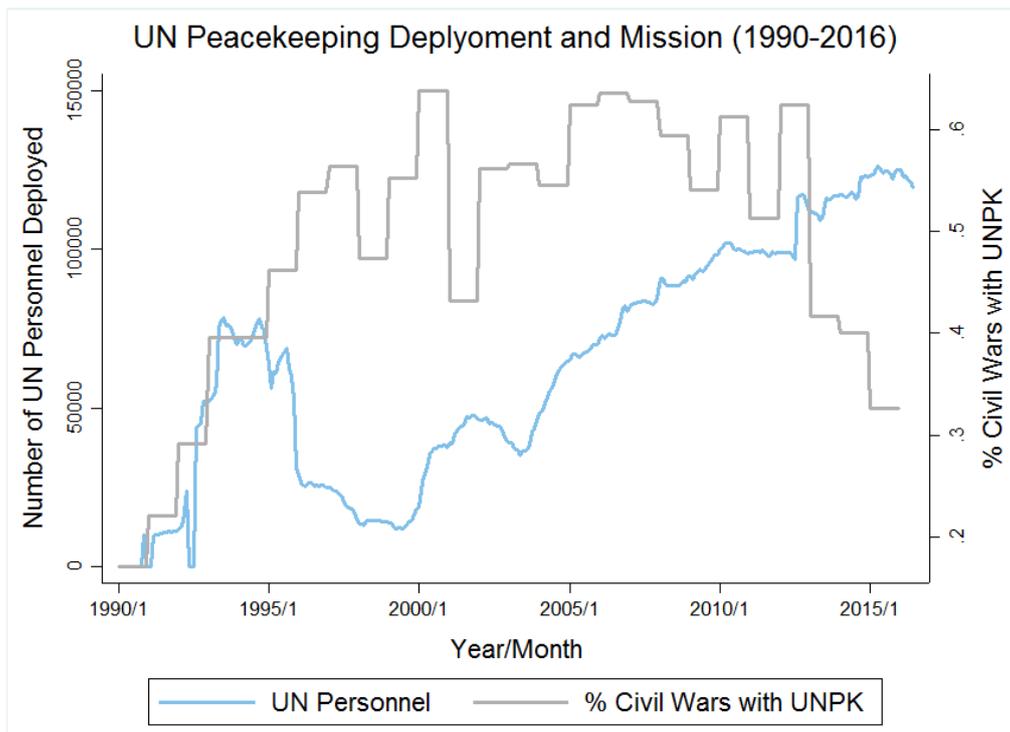
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<sup>1</sup> A list of all UN peacekeeping missions is available here: <http://www.un.org/en/peacekeeping/documents/operationslist.pdf>.

<sup>2</sup> This number only includes peace missions under the UN Department of Peacekeeping Operation. It does not cover peace missions led by the UN Department of Political Affairs, which do not include a military component and are more accurately defined as political missions rather than peacekeeping missions.

remaining month/year observations using the same data sources, namely UN peacekeeping factsheet.<sup>3</sup> In addition, the grey line in Figure 1 traces the share of ongoing conflict that received UN peace missions each year, based on UCDP/PRIO yearly conflict data (Melander et al. 2016). With the end of the Cold War, there was a quick rise in the number of peace personnel deployed to conflicts, and also the ratio of missions per conflict increased rapidly. Notwithstanding the failures of UN blue helmets in preventing ethnic cleansing and large scale massacres in Bosnia and Herzegovina and Rwanda, in April 2015 there were more peacekeepers deployed than ever (>126,000). The growth in peacekeeper deployment is related to the fact that recent missions are larger, with more complex operations than before. Indeed, Figure 1 indicates that the increasing number of UN peacekeepers is not the result of more missions being authorized by the UN Security Council. In fact, there are 16 peacekeeping missions currently deployed, compared to 23 in 2000, the highest number ever. The most recent generation of peace operations is called multidimensional or integrated peacekeeping. Figure 2 illustrates this expansion in UN mandates more clearly.

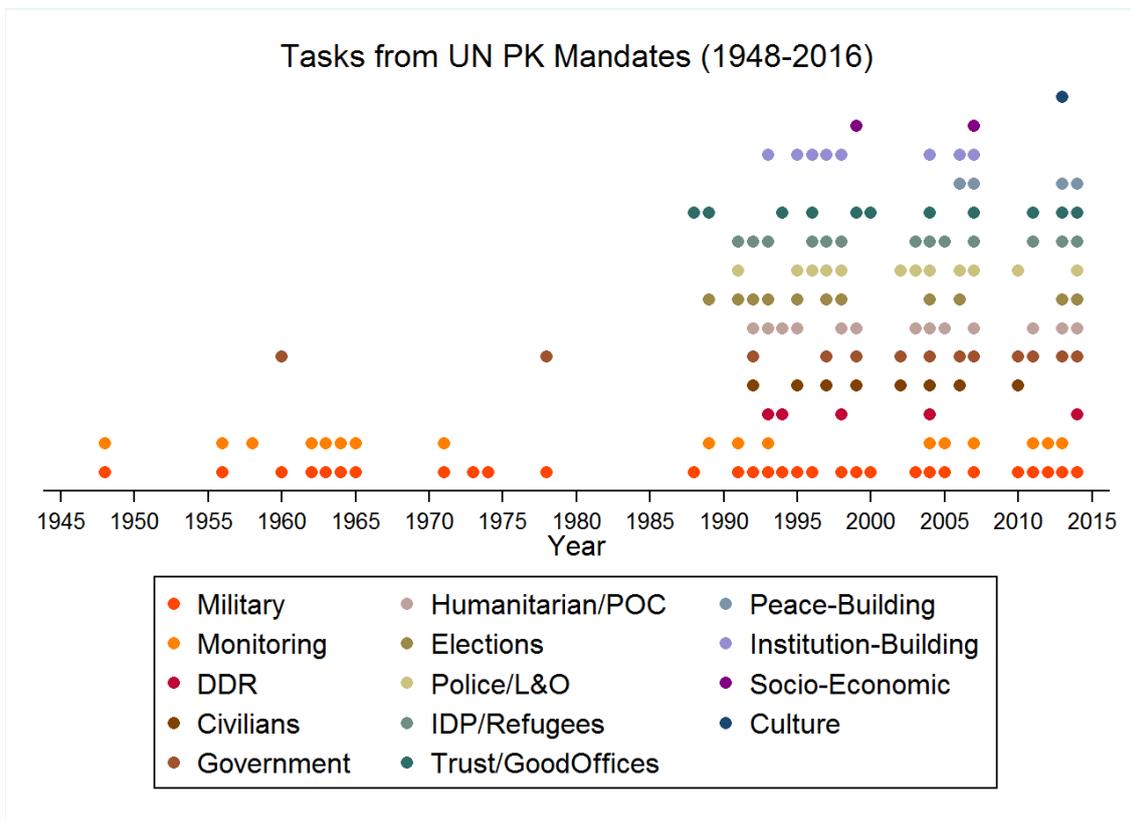
**Figure 1. Temporal trends in UN Peacekeeping**



<sup>3</sup> Monthly factsheet on UN peacekeeping are available online at [http://www.un.org/en/peacekeeping/resources/statistics/factsheet\\_archive.shtml](http://www.un.org/en/peacekeeping/resources/statistics/factsheet_archive.shtml).

The plot shows the type of tasks included in mission mandates since the end of World War II. I only used the mandates that authorized the mission and did not include mandates that upgraded existing missions. The figure also does not show the frequency of each task in a given year; rather, it only shows whether one of the tasks was included in any mandate for a mission authorized in that year. While the Cold War missions were uniquely military missions concerned with monitoring of ceasefire and disengagement, the end of the Cold War corresponded to an explosion in mandate tasks. Now UN peacekeepers are authorized to deal with economic and social development, institution-building, policing, law and order, and elections. For the first time, the 2013 MINUSMA mission mandate in Mali also included cultural preservation among the mandated tasks.

**Figure 2. Changing mandates of UN Peacekeeping Missions**



With the evolution of peacekeeping mandates, the empirical studies have tried to assess whether old and new missions differ in terms of conflict-related performances and whether contemporary peacekeeping is effective in addressing violent conflicts. Doyle and Sambanis (2006) distinguish three types of interventions: traditional, multidimensional, and

enforcement.<sup>4</sup> Traditional peacekeeping adequately describes most UN Cold War missions, which were based on consent by warring parties and composed of neutral, lightly armed personnel. Multidimensional missions move beyond military function to entail state-building measures (economic and justice reforms, for example). Lastly, enforcement missions differ from the traditional approaches as they do not need the parties' consent, and the troops are entitled to use violence in order to implement the mandate. However, the mandate of enforcement missions is limited to military operations and, therefore, less extensive than multidimensional deployments. Together, multidimensional and enforcement missions are referred to as "transformational approaches" to peacekeeping.

Testing the impacts of the different types of missions on effective peacebuilding, Doyle and Sambanis (2006) find that enforcement and multidimensional missions have a positive impact on peacebuilding in contrast to traditional peacekeeping. This is consistent with the argument on the robustness of the mandates as enforcement missions usually have the strongest mandates (Kreps and Wallace 2009). Robust mandates favour a proactive approach to peace and allow peacekeepers to use all necessary means to achieve the objective of the mission. The implementation of the mandate and the type of mission define, in turn, the composition and the size of the deployed personnel. Deployment of enforcement missions, for example, results usually in more troops and armed police, while multidimensional missions envisage more extensive functions for civilian staff.

It is also important to consider variations in mission size. Missions of the same type and even with the same mandate may differ significantly in size and composition, which affects success rates, as confirmed by existing scholarship. Moving beyond examining the simple presence of peacekeepers, Hultman et al. (2014) find that armed personnel are particularly effective for intervention during ongoing conflict because they are better equipped to separate and demobilize combatants while providing security guarantees. Police and unarmed observers, on the other hand, do not reduce violence because they usually are deployed behind frontlines and cannot significantly affect battlefield activity. The conclusion drawn from the empirical the analysis is that 10,000 troops could reduce violence by 73%. Heavier troop presence is also linked to reduced violence against civilians in Africa (Hultman, Kathman, and Shannon 2013), suggesting that substantial deployment of armed peacekeepers should almost always decrease both violence against civilians (one-sided) and violence on the battlefield (two-sided). Indeed, the literature consistently highlights that large armed forces are important determinants of

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<sup>4</sup> Observer missions can be added to this taxonomy; similar to traditional missions they require consensus, but the deployed personnel are unarmed.

peacekeeping success – not only in reducing violence but also for furthering cooperation with peacekeepers (Hultman et al. 2014; Kreps 2010; Ruggeri et al. 2012). This finding highlights the importance of looking at which types and how many peacekeepers are deployed; simply considering mandate type does not recognize this important variation. In addition, it is clearly relevant to identify the locations where peacekeepers are deployed. Ruggeri et al. (2016b) find that at the local level, peacekeepers reduce the duration of conflict episodes but are less effective in reducing the likelihood of conflict onset. The containment effect of peacekeeping forces is consistent with Beardsley and Gleditsch's (2015) finding that peace missions with robust mandates can obstruct rebel movements in conflict areas. Most of the studies discussed here disaggregate the statistical analysis per month, thus improving the quality of the inferential analysis. However, with a few exceptions that consider the geographic and subnational implications of peacekeeping, spatial disaggregation and specific location of deployment are mostly absent. One of the contributions of this dissertation is its disaggregated perspective on both temporal and spatial dynamics of violence and peacekeeping deployment.

In addition to disaggregating space and time, a more important distinction proposed in this dissertation concerns typologies of violence. In the remaining part of this introduction, I will illustrate why distinguishing between types of violence is important by focusing on ethnic and criminal violence. I will argue that some dynamics are specific to each form of violence, and military intervention may create conditions for escalation, both as backfiring and as collateral effect. Ethnically driven violence and criminal violence are used as prominent examples of violence typologies because the first one can spiral into large-scale civilian massacres, and the second one produces insecure environments and long-term damage to the political and economic development of host countries.

## **2. Which Violence?**

The role of ethnicity in facilitating collective action is one of the two key concepts in this dissertation. Civil war scholarship has devoted significant attention to how ethnicity affects the risk of civil wars and its dynamics. In particular, ethnic civil wars are commonly defined as wars “among communities (ethnicities) that are in conflict over the power relationship that exists between those communities and the state” (Kaufmann 1996, 138). The most common approach to ethnicity stresses ethnic diversity as source of violence, arguing that more diverse and polarized societies exhibit higher risk of civil war. The argument is that societies with deep cleavages are more unstable and vulnerable to unrests; however, what precisely makes ethnic cleavages much more prominent than other factors in explaining civil wars is not addressed

(Buhaug et al. 2014). Some scholars push the axiom of ethnicity as a cause of wars to the point of arguing that the only possible solution to ethnic civil wars is the separation of ethnic groups (Kaufmann 1996). However, the idea that ethnic pluralism per se initiates the onset of civil war does not find robust empirical support (Wimmer et al. 2009, Hegre et al. 2001, Montalvo and Reynal Querol 2005, Fearon and Laitin 2003, Collier and Hoeffler 2004). As Fearon and Laitin note, ethnic diversity is the norm in African countries, and it has not produced the ubiquitous large-scale violence one would expect (Fearon and Laitin 1996). In line with this view, more recent studies have shown that it is not ethnicity per se that increases the risk and duration of civil wars, rather it is the combination of ethnic cleavages and existing political and economic grievances (Cederman et al. 2013; Wucherpfennig et al. 2012).

There is consensus that ethnic diversity increases the intensity of violence during civil wars. Again, the argument is not that diversity inherently makes wars more violent, as a primordialist approach would suggest, but rather that ethnic cleavages shape the opportunity structures for collective action. This mechanism unfolds in two ways. First, ethnic kinship facilitates communication and reduces coordination costs. Intra-group homogeneity and inter-group differences strengthen the capacity of groups to mobilize significant resources, especially if these groups live in concentrated geographic areas (Toft 2003). Second, ethnicity may become a focal point for coordination even if the root causes of the conflict are not related to ethnic divisions or inequalities. Once conflict erupts, ethnic identity may become more salient as the violence unfolds. Selective violence during wars poses the problem of identifying opponents and supporters, which requires information that oftentimes is not available. If ethnicity can be used as feature for solving the identification problem and fostering loyalty, it becomes a salient trait that is further reinforced by the conflict dynamics. These two factors together suggest that the geography of ethnicity relates to the groups' resources and degree of territorial control. In other words, ethnic patterns may explain not only how much support groups have from the local population but also how much violence they are willing to use to punish opponents and coerce that support. Consistent with these ideas, ethnicity is conceptualized in this dissertation as an important determinant of temporal and spatial dynamics of civil wars, as it shapes the opportunity structure for violence. Even in conflicts not marked by unambiguous ethnic strife, the unravelling of violence may induce separation along ethnic lines that affects the conduct of war and, in particular, the instrumentalization of civilian victimization. For this reason, and partly echoing Brubaker and Laitin's (1998) distinction between conflict and violence, I use the label "ethnic violence" rather than "ethnic conflict" to avoid conflating the causes of the conflict with the specific form the conflict can take.

It is often argued that the end of the Cold War produced an explosion of ethnic violence and that ethnicity became the prominent feature of civil wars during the 1990s. In fact, the apparent prevalence of civil violence during the 1990s was the result of the accumulation of unresolved civil conflict worldwide, rather than a sudden outburst (Fearon and Laitin 2003). Hence, it is inaccurate to believe that ethnic violence as such is a new challenge for UN peacekeepers. Some UN missions deployed during the Cold War, like in Cyprus or Lebanon, dealt with ethnic violence, mostly by separating parties (Mac Ginty and Robinson 2001). The element of novelty is on the peacekeeping side: differently from traditional Cold War mission, new mandates entail a more proactive role for the military and broader functions involving civilian personnel. The experiences in Bosnia and Herzegovina and Rwanda clearly showed how the salience of ethnicity in civil wars can escalate into massacres and severe humanitarian crisis. Therefore, the international community has become increasingly concerned with civil wars that carry ethnic violence risks. The UNAMSIL mission in Sierra Leone was the first mission with a “Protection of Civilians” mandate. The inclusion of explicit mandates to protect civilians has pushed peacekeepers from passive interposition into actively engaging perpetrators. This task cannot be achieved by assuming that the presence of UN peacekeepers in a country will deter abuses and ethnic cleansing. Massacres in Rwanda and Bosnia Herzegovina occurred while UN peacekeepers were stationed there. Therefore, curbing ethnic violence requires careful consideration of the dynamics of violence and how blue helmets can alter them. Far from being an entirely new phenomenon, ethnic violence still challenges new peacekeeping for its complex dynamics. As argued in this dissertation, local knowledge of ethnic geography plays a crucial role, both in identifying pockets of population that are exposed to violence and need protection, and in mitigating unintended escalations against civilians.

A second important and relatively new challenge to UN activities in conflict-torn countries is crime and criminal violence. Similar to my argument in the ethnic violence case, I do not proposit that the incidence of criminal violence in unstable countries (during and after civil wars) is a consequence of the end of the Cold War. The crime–conflict nexus is not a post–Cold War phenomenon, although it can be argued that it intensified thereafter. First, the end of the bipolar rivalry between the United States and the Soviet Union sharply reduced the material assistance provided to rebel groups. As coping strategy, insurgent groups moved toward illicit activities to fund and sustain their struggle. This process not only blurred the lines between rebel and criminal groups, but also made crime a pervasive feature of war economies. Nonetheless, the rise of organized crime as a global threat is only partly the result of the end of the Cold War and can be traced back to the gradual process of economic globalization that began much earlier.

Organized crime enjoyed the many benefits of globalization: economic openness, deregulation, and rapid communication. Organized crime and peace operations have evolved since World War II in ways that determined their ultimate convergence in the contemporary security landscape (Kemp et al. 2013). While criminal actors have seized the opportunity of diversifying markets and expanding through transnational networks to the point of becoming a security threat, UN peacekeeping also expanded its domain to deal with non-state actors and other peace spoilers. Indeed criminal actors that benefit from disorder and state weakness act as peace spoilers in the short term, but also interfere with societal and economic development in the long run (W. Hansen 2014). Therefore, it makes sense for contemporary peacekeeping to incorporate targeted strategies to curtail organized crime and criminal violence in conflict and post-conflict countries. Several UN missions were deployed in the context of criminal violence, including Bosnia, Guatemala, Haiti, Kosovo and Ivory Coast. In all these cases, civil war contributed to the emergence of clandestine trafficking and black markets before UN arrival, and often even before the conflict erupted. Even though the UN is well aware of the threat posed by crime, there is still no clear strategy how peacekeepers should deal with criminal violence and criminal actors (Kemp et al. 2013).

The overlapping and often blurred boundaries between crime and insurgency pose significant challenges, both from a theoretical and a policy perspective. When rebels engage in criminal activities, it is challenging to pin down which violence instance is criminal and which is political. However, one can still delineate a theoretical framework where identifying motivations for violence differentiates politically and criminally motivated killings. While this approach has several shortcomings and is far from perfect, it constitutes an important starting point for further investigation. Another important distinction is the aim of the violence. Rebels can commit violence for purely economic reasons and criminals can kill for political reasons, but the core rationale for resorting to violence differs. Whether criminal or political, rebel groups will use violence as tool to challenge the status quo and subvert it; criminals, on the other hand, tend to use violence to safeguard the status quo and forestall dramatic changes in the economic and political environment that could disadvantage their businesses (Osorio 2013). Separating criminal violence from political violence has policy implications. Despite its evolution and broader scope, peacekeeping primarily focuses on political violence and political armed groups. For example, disarmament and demobilization programs target combatants, even when non-political violence is perpetrated by other groups. Criminals are seen as a rule of law problem, which the government should address. As is often the case, enduring internal war weakens the capacity of state authorities to project power, which makes criminal activities more attractive,

especially in the immediate aftermath of conflict when legal economic alternatives are rarely available.

As mentioned, those benefitting from relative instability have all reasons to hinder a peace process that would strengthen the state's capacity and rule of law. Criminal actors will likely engage in spoiler-like behaviour and use violence instrumentally, to disrupt any peacebuilding effort. Besides this short-term effect, ignoring the pervasiveness of crime in fragile countries increases the risk of state capture by organized crime, which has long-term nefarious consequences on the political and economic development of countries coming out of civil wars. The lack of a strategic perspective on explicitly tackling crime during peacekeeping missions creates a severe risk of "corrupting peace" (Le Billon 2008).

Given the challenges posed by ethnic and criminal violence, have peacekeepers tackled these threats? Is it possible to outline peacekeeping operations' mandates, policies, and interventions that curb both ethnic tensions and crime? The current commitment of the UN to protect civilians and curb organized crime is politically relevant, but it is also possible that the UN is overstretching its capacity and cannot rise to meet these new challenges. Could this overstretching produce any unwanted effects by peacekeeping missions on the prospects for peace? These are the central questions of this dissertation, further examined in four papers: the first two focus on ethnic violence in civil wars and peacekeeping, while the last two look at the effectiveness of interventions in settings permeated by widespread crime.

### **3. Ethnic Geography and Peacekeeping**

The first two papers link the geographical distribution of ethnic groups within countries to the dynamics of violence and the effectiveness of interventions to reduce ethnic violence. Which geographic configurations of ethnic settlements are most susceptible to violence in ethnic conflict? Existing research on ethnic conflict focuses on regional configurations of ethnicity, thus neglecting how vulnerable local pockets of minorities may become primary targets. This paper thus argues that the presence of vulnerable ethnic minorities in areas dominated by other ethnic groups heightens the perception of threat, suggesting that the implications of the ethnic security dilemma are more pronounced. When two or more groups live in very intermingled areas, settlements that are both concentrated *and* isolated may actually provide incentives for attacks because of their vulnerability. Distant, difficult to defend enclaves are essentially left "to the mercy" of the opponent. I define vulnerable settlements as areas of concentrated ethnic minorities that are geographically isolated from their ethnic brethren and surrounded by an

adversary ethnic majority. The presence of more enclaves implies a greater threat to control, but also greater likelihood of successful elimination due to their exposed, vulnerable position.

The ultimate objective of the hegemonic group in this context are to gain strength by *i)* removing alien elements that could attack first and *ii)* deterring and weakening the opponent. Achieving territorial control and removing the threat posed by members of the other ethnic group reinforce each other. Indeed, the strategic use of ethnic cleansing, for example, results in both stronger territorial control and elimination of opponents. Hence, majoritarian ethnic groups have incentives to attack local minority areas and establish territorial homogeneity. This motivation is more compelling when groups have exclusive identities and if demographic configurations have long-term implications for the share of future spoils. The size of the local minority plays a role in this mechanism, because larger minority groups are perceived as a more acute threat. Violence is expected to be high because removing the threat requires large-scale attacks. Even surrender may not be a viable option for the enclave population because of serious commitment problems. While this mechanism is not necessarily limited to ethnic conflict, it is arguably more compelling in this context because ethnic affiliation is easier to detect. Political support can also be inferred by preferences expressed in elections occurring before or during wars, especially in non-ethnic wars (Steele 2009), but ascriptive cleavages such as ethnicity facilitate the identification of opponents. This enables the group to act against the supporters of its enemy selectively and on a collective scale, which is expected to result in higher intensity of violence compared to selective targeting of political opponents. The hypothesis formulated is that vulnerable settlements with larger populations increase the local intensity of violence.

The first paper, entitled “Inherently Vulnerable ? Ethnic Geography and the Intensity of Violence in Bosnian Civil War,” uses fine-grained data on ethnicity and GIS software to develop measures of isolated and vulnerable minority enclaves. This novel measure captures local (micro) and regional (macro) patterns of ethnic settlements that remain veiled behind a focus on ethnicity in larger administrative units. In a quantitative case study of the Bosnian war (1992–1994), I show that the presence of local minorities within territories controlled by an enemy ethnic majority is associated with more violence. The results remain robust when accounting for the presence of the UN peacekeeping mission (UNPROFOR) and across several robustness checks. This paper makes two contributions to the existing literature on ethnic civil wars. First, it shows that both regional *and* local ethnic group distribution are important for understanding how ethnic intermingling produces intense ethnic violence. The proposed mechanism posits that local sources of insecurity (micro level) affect the strategic objectives of regionally dominant ethnic groups (macro level). Second, the paper introduces a novel measurement of ethnic

intermingling that captures how ethnic vulnerability emerges from geographic and demographic concentration. This specific configuration of local ethnic enclaves cannot be determined by existing measures of ethnicity that evaluate intermixing at more aggregate levels.

In the first paper, the presence of the UN peace mission UNPROFOR is included in the empirical analysis of the paper, although no hypothesis is formulated with regard to its effect on violence. Indeed, the primary objective of this paper is to show how ethnic groups' distribution matters for understanding the dynamics of ethnic violence. Understanding these dynamics has meaningful implications for peacekeeping strategies. The deployment of a mission alters the existing conditions that produced violence in ways that can be unexpected and tragic. Existing research finds that some external peace initiatives may even spur more civilian victimization instead of deterring it. This dynamic unfolds for two reasons. First, interventions that do not signal commitment and have no mandate to persecute perpetrators can worsen civilian killings (Hultman 2010; Kuperman 2008). Second, the arrival of peacekeepers alters the strategic environment that shapes the armed groups' consideration of trade-offs between one-sided and two-sided violence. Indeed targeting unarmed civilian when not explicitly useful for achieving military objectives (for example, when groups have complete territorial control over a location) may backfire and galvanize locals against the perpetrator and for supporting the opponent (Stathis N Kalyvas 2006; Zhukov 2013). Armed groups try to avoid using indiscriminate violence if it does not deliver advantages. The risk for peacekeeping is that it can potentially change this balance and provoke escalation under certain circumstances.

The second paper of this dissertation, entitled "Peacekeepers against ethnic violence," aims to identify these specific local configurations of power between ethnic groups that would spur one-sided violence when peacekeepers are deployed. The main issue is whether the dramatic outcomes seen in Bosnia and Herzegovina and Rwanda can be avoided by improving our understanding of how peacekeeping affect the local, territorial conditions for armed conflict. Considering the complex dynamics of ethnic violence outlined in the first paper, it is argued that peacekeepers face a complex environment with severely curtailed cooperation, where traditional peacekeeping cannot reduce violence and foster peace. The literature on peacekeeping and civil wars has so far examined which mission features improve its violence-mitigation effect, focusing on mission size and personnel type in particular. Hultman et al. show that large military contingents successfully decrease violence by improving mission capacity to separate, demobilize and enforce agreements (Hultman et al. 2014). Yet an explanation focusing on the size of a mission neglects local sources of violence. As Ruggeri et al. argue, deployment of robust and large missions improves cooperation with peacekeepers, and this effect is largely conditional on the existing balance of power (Ruggeri et al. 2012).

The second paper seeks to bridge the theories on how territorial control affects violence in civil wars and the literature on the effectiveness of peacekeeping missions. The focus of the study is neither uniquely on the peacekeeping side (i.e. composition of the mission, type of mandate etc.) or on the conflict side (i.e. type of conflict, duration etc.). Both factors interact and produce joint effects on the ground. Peacekeepers, as the literature suggests, can inadvertently create incentives for violence against civilians by signalling insufficient commitment and changing the balance of power between fighting parties. This signalling argument finds empirical support when commitment is measured as a function of mission size. However, how peacekeeping changes the balance of power and thus shapes the armed groups' preferences of one type of violence over another is debatable. Accordingly, my argument is that the capacity of peacekeepers to reduce violence against civilians is conditional on the balance of power and territorial control by the warring parties. Moving from Tilly's definition of territorial control as capacity to extract resources (Tilly 1985), including support and recruit from the local population, one would expect that largest co-ethnic population is associated with a larger pool of resources and, consequently, broader territorial control.

Therefore, I propose the ethnic polarization index as a measure of how territorial control is distributed among groups. Ethnic polarization approximates the local balance of power. In absence of peace missions, civilian killings are expected both at high and low levels of polarization, though in different ways. Under conditions of high polarization and stable balance of power, one-sided violence is mostly complementary to large-scale military clashes. Conversely, when there are large power asymmetries (low polarization) civilian victimization is the main tool for the weaker parties to coerce support and for the stronger parties to remove potential threats. When peacekeepers are deployed, the configuration changes. Traditional peacekeeping activities such as interposition and separation are more effective with large groups that are easier to identify and divide. Also, monitoring activities are more efficient and can discourage one-sided violence. But when groups are intermingled and irregular warfare dominates, effectively deterring parties from victimizing local population is less feasible. It follows that when the balance of power is dominated by asymmetries, blue helmets are less successful at reducing violence against civilians because frontlines are blurred and separation and monitoring more problematic. The disaggregated approach adopted and the use of new fine-grained data on ethnic patterns and peacekeeping deployment allows close scrutiny of these very local dynamics.

#### **4. Criminal Violence and Peacekeeping**

The two remaining papers focus on the relationship between external interventions and criminal violence. The main question addressed by the third paper, “Peacekeepers against criminal violence”, is whether peacekeeping inadvertently increases criminal violence. Research shows that peacekeepers reduce conflict intensity; however, the effects of deployment on violence perpetrated by non-political actors are not yet known. Several countries hosting UN missions have experienced rapid increases in criminal violence, both during the conflict and in its aftermath. The central argument of this paper is that the presence of peacekeepers and their activities inadvertently increase criminal violence through three mechanisms operating at group, individual and government level.

The first mechanism involves the level of organized crime. The mechanism posits that UN Troops, by reducing conflict intensity, simultaneously improve security and provide the “operational security” that organized criminal groups need to run their businesses. Organized crime, especially in Africa, does not resemble mafia-like organizations that have the capacity to guarantee their own security. In addition to the security effect there is also an economic effect. Local peacekeeping economies that emerge where UN personnel are deployed create more opportunities for illegal activities, including black market goods and human trafficking. Organized criminal groups compete over these new opportunities, thus producing higher levels of criminal violence. The second mechanism is that peacekeeping economies encourage predatory behaviours not only by organized criminal groups but also by individuals. Disarmament, demobilization, and reintegration programmes implemented during peacekeeping missions can create a large pool of unemployed and disaffected individuals trained in warfare. Without any other marketable skills, former combatants have incentives to adapt their war skills for crime. The third mechanism works on the aggregated institutional level. To reduce violence, peacekeepers establish a partial monopoly of violence, focused on pacifying political armed fractions. Criminal groups, on the other hand, are largely neglected with the expectation that they are the state’s problem; however, states engaged in internal conflicts or recover from war are weak and lack the capacity to effectively project policing and judicial power. During active conflict periods, the central authority can also be unwilling to divert resources from fighting political opponents to fighting crime. Hence, by only partially replacing the state’s monopoly of violence, peacekeeping can weaken state capacity without deterring criminal actors. Different from the impact of peacekeeping troops, presence of UN Police should have a countervailing effect. By cooperating and assisting local police through training and joint operations, UN Police can enhance the capacity of national forces to counter crime.

Based on this theoretical framework, I formulate three hypotheses. The first hypothesis is the most general one, namely that peacekeeping increases criminal violence in the immediate aftermath of deployment. I expect missions to gradually adapt to new challenges, thus eventually including justice-related functions at later stages, if necessary. The second hypothesis is that since UN Troops are associated with reduction of violence and implementation of disarmament programmes, large military deployment increases criminal violence. The third hypothesis focuses on UN Police, which is expected to reduce criminal violence. The empirical analysis explores the effect of peacekeeping on criminal violence on the country level (per year) and at the subnational level (per month). The aggregated data on homicides is collected by UNODC, while the subnational data was collected by the national police with the assistance of UNDP.

The case of South Sudan is interesting since most crime was not related to smuggling of natural resources or other activities commonly also carried out by rebel groups. Most homicides in South Sudan are the result of cattle raids, one of the main forms of organized crime in the country. The data also shows that there is no significant overlap between areas that experienced very intense conflict and those that recorded high levels of homicides in the aftermath of independence from Sudan. The last UNODC Global Study on Homicides highlighted that in South Sudan “high levels of impunity, combined with ill-conceived DDR programs, the wide availability of weapons, and criminal opportunities associated with illicit markets can lead to other forms of violence, such as increased rates of homicides” (UNODC 2013, 12). Interestingly, the same trend is also visible in Haiti, Afghanistan, Guatemala, Sierra Leone and Liberia – all countries that hosted UN peacekeeping missions. The case study exhibits features that support the theoretical argument outlined and the empirical evidence found within the global sample. Overall, the empirical analysis confirms the hypothesis that peacekeepers increase homicide, with the positive statistical effect being mainly driven by UN Troops. UN Police, on the other hand, has a negative effect on homicides and can mitigate the undesirable side effect of peacekeeping troops. In line with the implications of the second paper on local conditions among ethnic groups, the results advise for a more cautious approach in designing the composition of UN peacekeeping missions.

The fourth and final paper “Containing Crime: Diffusion and Counter-Diffusion Mechanisms of Piracy in Somalia” explores third party intervention against crime at sea. Research on political violence finds that contagiousness is a feature of conflict, terrorism, and protests. Similarly, criminologists report that crime and criminal violence also cluster geographically. However, two aspects related to crime and criminal violence are still unclear. First, we do not know whether diffusion is the consequence of contiguity, competition, learning or other mechanisms. Instead

of focusing on the outcome, I aim to explore the factors that favour the process of diffusion. Second, diffusion of social phenomena is likely accompanied by containment efforts. Some factors may favour diffusion, but others can inhibit contagion. I address these two gaps by focusing on maritime piracy off Somalia as instance of crime.

Somalia is a typical example of the nexus between crime and instability, with coastal communities turning to piracy as a source of income, given the characteristic lack of alternative livelihoods in war economies. In addition, there is some evidence that piracy windfalls are used to fund Al-Shabaab terrorists. Although Somalia hosted two UN missions in the 1990s (UNOSOM I and II) and despite the currently deployed African Union mission (AMISOM), peace operations never acted to counter different typologies of crime that dominated and ultimately shaped the Somali economy. Counterfeiting and piracy, already widespread in the 1990s, were tolerated and to some extent considered beneficial for the population (Marchal 2011). Currently, the core counterpiracy effort in the region is not led by UN or AU peacekeepers, but by the European Union Naval Force Somalia. As form of “peacekeeping at sea”, the EUNAVFOR initiative has been deployed in the Indian Ocean and off the Somali coast since the end of 2008. One convenient aspect of focusing on piracy instead of other crimes is that data on piracy is very fine-grained and allows exact identification of location and time of incidents. Such detailed information does not exist for other crimes. In addition, I match this data with counterpiracy events to identify precisely which incidents were disrupted (or not) by EUNAVFOR.

In this final paper, I analyse the spatio-temporal diffusion of maritime piracy off the coast of Somalia and the Gulf of Aden and assess whether EUNAVFOR has effectively reduced the incidence of piracy. Since counterpiracy activity aims at stopping the diffusion of piracy off Somalia, the paper first examines whether and why pirates concentrate and diffuse their activity in specific areas. Using a disaggregated approach, the paper shows that piracy concentration is the result of contagion rather than exposure to risk factors (Buhaug and Gleditsch 2008). More importantly, it notes that pirates return to and expand their activities around the same locations, as a risk-minimizing strategy. In addition, the paper incorporates information on naval interventions to assess their effectiveness in curtailing pirate activity and containing its diffusion. I expect that the EUNAVFOR mission reduced piracy incidence because of deterrence and compellence effects. Deterrence occurs when an actor is discouraged to initiate actions due to the threat of retaliation; compellence describes a situation where the cost-benefit calculation of action is altered because of imposed additional costs (Schelling 1966). I show that EUNAVFOR deployment had both a deterrence effect (overall reduction of attacks following the deployment of warships since 2010) and a compellence effect (reduction of risk of attacks in location where the navy has imposed costs on pirates by rescuing attacked vessels). The paper

contributes to the literature on diffusion, the containment of violence and transnational crime, and the effectiveness of “peacekeeping at sea” (de Oliveira 2012).

In conclusion, this dissertation investigates the effect of third party interventions in settings where incentives for different types of violence (ethnic and criminal) can challenge peacebuilding efforts. Ethnic violence is a complex mix of cooperation problems and contingent factors that push groups to use violence pre-emptively to avoid exploitation. In addition, it explores empirically how the stabilizing presence of UN peacekeeping missions might foster criminal violence, especially in the early phases of deployment. Measures to fight illicit armed groups can be implemented in subsequent stages and probably require more time to impact levels of criminal violence. For both ethnic and criminal violence, external interventions face challenges that cannot be addressed with the Cold War, traditional approach to peacebuilding, based on consensus, neutrality, and limited use of force. It is important to highlight that the new challenges I have identified are not only related to changes in how civil wars are fought in the post-Cold War era but are also a function of internal changes in the UN system. These parallel evolutions of civil wars and peacekeeping practice, which are still ongoing, created more opportunities for external intervention and resulted in the expansion of the responsibilities of the UN and the international community. This shift required – and continues to demand – significant adaptation. The dissertation seeks to assess the extent to which this adaptation was successful and whether it overstretched UN’s capacity to secure peace.

## CHAPTER 1

### **Inherently vulnerable? Ethnic geography and the intensity of violence in Bosnian civil war.<sup>5</sup>**

#### **Abstract**

Which geographic configurations of ethnic settlements are most susceptible to violence in ethnic conflict? Existing research on ethnic conflict focuses on regional configurations of ethnicity, thus neglecting how local vulnerable pockets of minorities may become primary targets for violence. The mechanism linking minority enclaves to more violence posits that the regional majority group will fight local minorities in order to *i)* create ethnically homogeneous areas and *ii)* remove potential support for the other group by the local minority. Incentives to attack result from the vulnerable position of minority enclaves that cannot easily receive outside support from their ethnic brethren. The paper thus argues that the presence of vulnerable ethnic minorities in areas dominated by other ethnic groups heightens the perception of threat, suggesting that the implications of the ethnic security dilemma are more pronounced. The paper uses Geographic Information Systems (GIS) to develop measures of isolated and vulnerable minority enclaves. This novel measure captures local (micro) and regional (macro) patterns of ethnic settlements that remain veiled behind a focus on ethnicity in larger administrative units. In a quantitative case study of the Bosnian war (1992-1994), I show that the presence of local minorities within territories controlled by an enemy ethnic majority is associated with more violence. The results remain robust when accounting for the presence of the UN peacekeeping mission (UNPROFOR) and across several robustness checks.

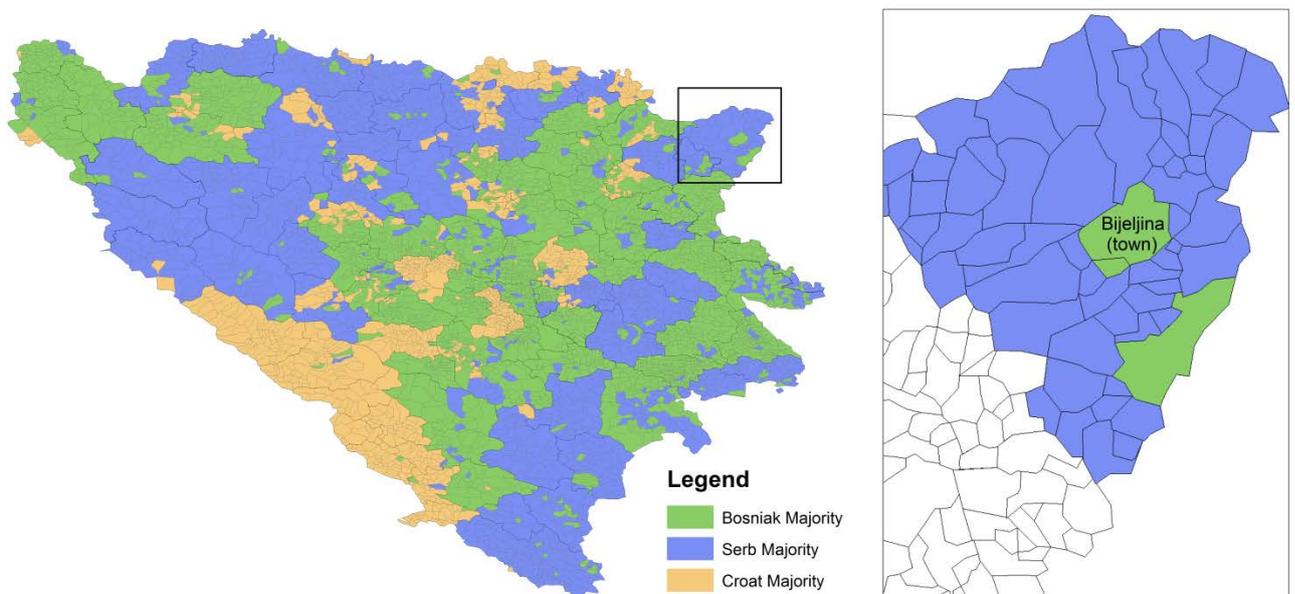
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<sup>5</sup> This chapter has been published in *Political Geography* (Di Salvatore 2016).

## 1. Introduction

In April 1992, Serb forces encircled the city of Bijeljina and cleansed the town of its Bosniak population. The city of Bijeljina is located in the middle of Bijeljina *opština* (municipality from now), which was ethnically Serb-dominated before the Bosnian war. As the map in Figure 3 shows, the city was a Bosniak enclave surrounded by Serb settlements. After Serbs proclaimed the municipality part of the Serb Autonomous Oblast, the local majority of Bosniaks in the town of Bijeljina realized that an invasion was imminent and organized its defense around the Patriotic League. Their resistance, however, was not sufficient to defend themselves against the Arkanovci and other Serb forces, which quickly captured the town (Toal and Dahlman 2011). After the invasion, they proceeded with the four-day long ethnic cleansing of non-Serb population (Human Rights Watch 2000). The circumstances in which the attack occurred favoured the offense: a loosely organized resistance defending a city that was completely surrounded by Serb-held areas. The tragic massacre of Bijeljina occurred in the early moments of the Bosnian war and exemplifies how isolated enclaves entail a defensive vulnerability for the minority group and an offensive opportunity for the surrounding majority group. Indeed, the next target of the Serb offensive was Janja, another Bosniak majority town in the Serb municipality of Bijeljina (Toal and Dahlman 2011).

Figure 3. Detail of Bijeljina settlements within Bijeljina municipality.



The illustration of ethnic settlement patterns and violence in Bijeljina has implications for the relationship between ethnic configurations and violence in ethnic conflict. While explored in many studies, much of this research misses the multitude of possible spatial configuration of ethnic groups veiled behind non-territorial notions of ethnic diversity. Consistent results in different research designs and at different levels of analysis find that the degree of ethnic intermingling has a positive effect on the severity of violence. For example, when there are two or few groups of comparable sized (high polarization and intermediate fragmentation), clashes are remarkably severe (Costalli and Moro 2012; Klasnja and Novta 2014; Montalvo and Reynal-Querol 2005). These studies, however, focus on aggregate measures of ethnicity and overlook how local pockets of minorities increase the intensity of violence. Recognizing the importance of local and regional patterns of settlements, this paper theorizes that, as in the case of Bijeljina, enclaves hosting local minorities surrounded by a group of different ethnicity are more prone to violence because of the vulnerabilities induced by this spatial configuration. Majority groups devote resources to fight locally vulnerable minorities in order to *i)* create ethnically homogeneous areas with stable control and *ii)* remove potential support for the other group.

This paper makes two contributions to the existing literature on ethnic civil wars. First, it shows that both regional *and* local ethnic group distribution are important for understanding how ethnic intermingling produces intense ethnic violence. The proposed mechanism posits that local sources of insecurity affect the strategic objectives of regionally dominant ethnic groups. In ethnic civil war, power and control are more stable if territorial homogeneity and elimination of opponent's supporters can be achieved. The perceived threat to a majority group's territorial control induced by the presence of local-level minorities explains how village or town-level settlement patterns produce the conditions for violent collective behavior at a higher level of aggregation (the region or municipality). In other words, the severity of ethnic security dilemma varies in space and this variation is accounted by ethnic patterns at the local level. Second, the paper introduces a novel measurement of ethnic intermingling that captures ethnic vulnerability emerging from geography and demographic concentration. Using fine-grained data on the spatial distribution of ethnic groups within administrative units, I measure the spatial variation of threat and vulnerability by identifying isolated enclaves of undefended local minorities surrounded by a majoritarian opponent ethnic group. This specific configuration of local ethnic enclaves cannot be captured by measures of ethnicity that measure the level of intermixing.

The paper is structured as follows. First, I review the literature on the severity of ethnic conflict. The second section presents the argument of how intermingled ethno-demographic patterns create vulnerabilities and increase violence. I then describe the construction of the vulnerable

minorities' measure and compare it to other measures of ethnicity. The empirical section tests the hypothesis with data on the Bosnian conflict (1992-1995). I show that the size of the vulnerable minorities is linked to higher levels of violence using a variety of estimation methods. Results for the violence-increasing effect of minority enclaves remain consistent when accounting the presence of the UN peacekeeping mission (UNPROFOR) and the endogenous relationship between peacekeeping and violence. I conclude with policy implications and suggestions for future research.

## **2. Ethnicity and Violence in Ethnic Conflict**

Civil conflict scholarship has explored the link between the distribution of ethnic groups and the intensity of violence within states. This literature has highlighted how the polarization of ethnic groups (Esteban and Ray 2008; Montalvo and Reynal-Querol 2005; Costalli and Moro 2012) and groups' regional distribution within the country (Weidmann 2011; Melander 2009) are associated with the intensity of conflict. These conceptualizations of ethnic diversity, however, neglect that local intermingling also shapes the dynamics of violence.

Arguments on polarization emphasize the implications of the number and size of ethnic groups for violence. Since group size can be thought of as a proxy for its ability to mobilize resources, large groups can be expected to fight harder in locations where their population share is approximately the same. This effect of the size and share of ethnic groups has been analyzed using an index of polarization (José G Montalvo and Reynal-Querol 2005). Society is polarized when there is a small number of fairly large groups with high intra-group ethnic homogeneity and high inter-group ethnic heterogeneity (Esteban and Schneider 2008). Using countries as units of analysis, Montalvo and Reynal-Querol (2005) shows that conflict in highly polarized societies tends to be very severe, conditional on conflict actually breaking out. Applying polarization to within-country variation in intensity, Costalli and Moro claim that violence is highest when polarization is high (i.e. groups are large) and fractionalization is at intermediate levels (i.e. the number of groups is small) because groups have to fight harsher to reach their objectives (Costalli and Moro 2012: 804). Their analysis shows that polarization is indeed a good predictor of intense violence in the Bosnian conflict. Yet a limitation of this work on polarization is that it neglects the spatial location of groups, making it impossible to know whether findings are conditional on groups being geographically concentrated. Recent work by Klasnja and Novta (2014) considers spatial dynamics and shows that the effect of polarization on violence is conditional on the degree of group segregation in analysis of conflict patterns in Bosnia and India. When polarization is high (i.e. groups are large) and segregation is low (i.e.

groups are spread across the country), conflicts are more deadly because diffused group presence allows violence to spread. Conversely, when segregation is high, violence is lower even if polarization is high because violence cannot easily diffuse.

A second set of arguments focuses explicitly on the geographic distribution of ethnic groups. Weidmann's (2011) work examines how the regional concentration of ethnic groups affects the strategic importance assigned to subnational regions (Weidmann 2011). When two or more groups simultaneously occupy a significant share of territory across different regions, they are of strategic importance for all groups and become contested during conflict. Similar to work on polarization, this argument focuses on group size since strategic importance increases with the share of group presence, but has regional implications because groups assess importance based on regional group presence. Using subnational data from the Bosnian war, empirical results show that territorial contestation – measured as a function of ethnic group share by municipality and surrounding municipalities – increases conflict severity. However, while territorial contestation captures important subnational variation in ethnic group concentration, it does not capture more local-level dynamics that are the subject of this paper.

Also focusing on a different spatial configuration of ethnic groups, work by Melander (2009) highlights the multiple possible configurations of ethnic group concentration in the same region: groups may occupy separate areas of the same region, splitting the region in two halves, one of the two groups may be enclaved within the other group settlement, or they may be more interspersed. Moreover, a group may live in a region whose ethnic composition is very diverse so that no group has numerical dominance. Melander (2009) argues that geographically-induced vulnerabilities, fear, and first-strike advantages are greatest in intermixed regions, which therefore exhibit highest conflict severity. Melander's model predicts that the most severe conflict (protracted ethnic war) is twice as likely when no ethnic group is dominant and patterns are diverse (Melander 2009, 115).

The theorized mechanism put forward in this paper builds on work by Klasnja and Novta (2014) and Melander (2007, 2009). Similar to Klasnja and Novta, I emphasize the importance of the spatial configuration of ethnic groups, but elaborate more explicitly which local and regional configurations are most prone to violence. While they argue that the most peaceful scenario possible is complete segregation of groups, such a neat separation is very unlikely in the real world. It is far more likely to observe the presence of minority enclaves within homogenous areas where segregation is slightly below the maximum. I will argue that this configuration potentially triggers more violence because it exposes enclaves to attacks. As segregation decreases, the number of enclaves of different ethnic affiliation should increase as homogeneity

lowers. Violence should follow this growing trend up to the point where a pattern of complete intermixing (low segregation) prevails over scattered vulnerable enclaves. Similar to Melander (2009), I focus on implications from the ethnic security dilemma and connect it to ethnic settlement patterns, but theorize and establish these patterns more systematically. My argument thus connects micro-level dynamics resulting from the local distribution of groups (in particular the presence of isolated villages inhabited by local minorities) with more aggregate patterns at the municipality level (in particular the dominance of groups in the administrative unit). The next section relates vulnerable ethnic patterns to intense violence by linking the ethnic security dilemma to violence in ethnic wars.

### **3. Incentives and Threats: How the Geography of Ethnic Groups Shapes Violence**

My argument combines rationalist accounts of the ethnic security dilemma with existing work on how ethnic composition and geography shapes strategic incentives for violence. More specifically, I identify patterns of ethnic settlements that are expected to be vulnerable to violence because control over them accomplishes important strategic objectives, including unifying areas inhabited by the same ethnic group and securing communication networks (Melander 2007). Although it is not straightforward to assess the true intentions of competing groups under uncertainty, I adopt the ethnic security dilemma as a heuristic tool to present and argue how ethnic patterns can shape inter-groups violence. I expect that the distribution of ethnic groups affects the cost-benefit calculations of fighting in some locations. Macro-level conditions (i.e. majority status within administrative units) represent the situational mechanism through which individuals and groups form their actions. The aggregation of these behaviors may result in macro-level outcomes, namely the escalation of violence. Yet postulating a direct correlation between ethnic distribution and intensity of conflict at the macro-level neglects how both macro *and* micro-level dynamics interact and result in escalation. Considering the geographic separation of groups and the defensive disadvantages resulting from it is an attempt to move in this direction since vulnerable location inhabited by local minorities are an offensive opportunity for the majority group. In this setting, the structure of preferences (territorial control and elimination of threats) and opportunities (vulnerable enemy) shapes the decision of the majority group to act violently. For the case under analysis, the final outcome of this process is escalation of violence within the municipality. In short, I posit that the intensity of violence is related to the spatial variation of the perceived threat so that particular configurations of ethnic patterns (namely enclavized local minorities) fuel more violence. Hence in line with the ethnic security dilemma, the geographic distribution of groups shapes their decision to fight in specific locations as a consequence of cost-benefit calculations

in which they recognize first-strike advantages, thus a need to act pre-emptively. As Melander points out, geographically-induced perceived vulnerabilities may drive to 'all-or-nothing type of decision' aimed at hindering any possibility for the opponent to capitalize from this weakness (Melander 2009: 103). This widespread distrust can ignite a spiral of action-reaction resulting in confrontational behavior and eventually conflict, as the ethnic security dilemma suggests (Posen 1993). Since the distribution of groups changes in space, how strategic opportunities vary across from these different patterns of population settlements? When two or more groups live in highly intermingled areas, settlements that are both concentrated *and* isolated may actually provide incentives for attacks because of their vulnerable status. Distant enclaves that are impossible to defend are essentially left 'to the mercy' of the opponent (Van Evera 1994: 19). I define vulnerable settlements as areas of concentrated ethnic minorities that are geographically isolated from their ethnic brethren and surrounded by an adversary ethnic majority. The presence of more enclaves imply a greater threat to control, but also greater likelihood of successfully eliminate them because of their vulnerable position. The ultimate objectives of the hegemonic group are to gain strength and remove alien elements that could attack first or to deter and weaken the opponent, both of which result in higher ethnic homogeneity. Achieving territorial control and remove the threat represented by members of the other ethnic group work in combination and reinforce each other. Indeed, the strategic use of ethnic cleansing, for example, results in both stronger territorial control and elimination of opponents. However, the two objectives do not necessarily overlap and have different motivations. The desirability of territorial hegemony could stem from the need for more resources, strategic depth or control over key locations. Additionally, there are also long-term implications of this achievement since 'reducing the population size of the opponent [...] allows for a larger viable share' of future rents in the post-conflict period (Esteban et al. 2010: 4). In these instances, the groups do not necessarily feel threatened by the mere presence of a local minority but still decides to attack the latter for the abovementioned reasons. Yet at the same time, the local minority is perceived as threatening to the extent that it is a resource for the opponent group and can act in its favor. This perception of threat exacerbates the need and urgency to resort to violence. I will now describe the two mechanisms in more detail.

First, I argued that ethnic groups in conflict aim to gain territorial control by increasing the ethnic homogeneity of the areas they occupy. The intensity of violence therefore depends on the level of control held by each ethnic group. For example, in areas where one of the groups exerts full control incentives for violence are significantly attenuated: there is less reason for the group to bring violence there as there is no immediate threat to its superiority and security (Kalyvas 2006). In Kalyvas' words, violence in areas with either complete or no control is 'off the

equilibrium path' (Kalyvas 2008: 402). On the other hand, areas where control is fragmented asymmetrically among actors namely where one actor exert hegemonic rather than full control, selective violence against supporters or members the rival group is expected to peak (Kalyvas 2006). One question, however, follows: how much homogeneous has to be the territory to be safe or hegemonically controlled? The numerous cases of ethnic cleansing that occurred in Bosnia-Herzegovina indicate that although individuals of different ethnicity are not necessarily actively hindering territorial control, the majoritarian group still has reasons to completely eliminate them to reduce perception of threat to security and increase territorial control. Additionally, all three ethnic groups involved in the conflict were targets and perpetrators of massacres, hence mass killings were not a measure specifically adopted by only one ethnic group. Consequently, when willingness to achieve territorial control is combined with exclusionary ideologies, groups are more likely to take drastic measures in order to establish homogeneity (Melander 2009; Melander 2007). For this reason, violence will be greater where several small pockets of local minorities hinder ethnic homogeneity in the territory controlled by the majority group.

Second, the physical presence of isolated and enclaved members of the opponent ethnic groups is perceived as a potential threat, thus motivating the resort to violence against them. Local minorities represent a resource for their own ethnic group even if they are physically separated from it, at least at the eye of the majoritarian group. In other words, local minorities are a direct threat since they can be easily mobilized by the enemy and used as fifth column for irregular warfare. Also in the context of conventional civil wars, factions devote resources to 'sweep the rear' by targeting supporters of their opponent, particularly if their presence is not negligible demographically (Balcells 2010: 296). In line with Kalyvas (2006), the final outcome should be increasing selective violence. How are potential victims selected? During ethnic civil wars, ethnic identities are the most immediately available pre-war trait that groups may use to identify enemy's supporter. Consequently, this information allows the group to act against the supporters of its enemy selectively but on a collective scale. The intensity of the conflict is expected to rise as this collective violence is 'selective at the group level but indiscriminate at the individual level' (Hultman 2014: 290). This argument also allows to reconcile Melander's and Kalyvas' theoretical arguments linking the intensity of violence to territorial control (either military or demographic) which apparently point to different conclusions: for the former, hegemonic control results in more violence as consequence of the ethnic security dilemma while for the latter, hegemonic control and availability of information imply more selective violence, which lead to less overall violence as it is less deadly than indiscriminate killings. The bridge between these frameworks however becomes more apparent as one focus on the fact

that Melander draws his conclusions referring to the context of ethnic conflict, where identities and membership are easier to ascertain.<sup>6</sup>

The above discussion suggests that geography affects not only strategic incentives but also attitudes toward risk and emotions. Both expectations imply that the presence of local minorities is associated with the same outcome, namely more intense violence. To summarize, majoritarian ethnic groups have incentives for attacking local minorities' areas to establish territorial homogeneity and remove opponents regardless of their hegemonic status. This motivation is more compelling when groups have exclusive identities and if group configurations have long-term implications for the share of future rents. The size of the local minority plays a role in this mechanism as larger the size results in more acute perception of threat. Violence is expected to be high because removing the threat entails large-scale attacks if the objective is to clean the area from the minority. Even surrender may not be a viable option for the enclaved population because of serious commitment problems. Notably, the theory outlined above points toward a relation between vulnerable settlements and one-sided violence since civilians are the target of ethnic cleansing. However, local minorities may be protected by an armed group or themselves be organized for defense. Consequently, I expect that the presence of vulnerability settlements increases not only the level of one-sided violence, but also the overall number of casualties. This discussion leads to the following hypothesis:

*H1: Larger population in vulnerable settlements increases the intensity of violence in municipalities.*

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<sup>6</sup> The theoretical argument presented so far elaborates on groups' motivations to escalate violence against local majoritarian enclaves. These motivations are rooted in immediate perceptions of obstacle to territorial dominance and threats that the hegemonic group finds desirable to eliminate. By doing so, the group attempts to reduce uncertainty and obtain a strategic advantage in the ongoing conflict. It is interesting that a rationalist account has similar empirical implications as accounts based on social psychology's notion of risk-attitude. According to social psychologists, strong groups are more risk-prone and willing to escalate violence even if the threat they perceive is not physical or existential, but rather more symbolic and ideological. While physical threats produce fear and risk-averse behaviour, threats that are more symbolic (such as a threat to territorial sovereignty as it is posed by local minorities) produce anger. In turn, anger is typically associated with group strength (large size) and, contrary to fear, encourages confrontational behaviour and consequently increases the level of violence perpetrated by the strong group against the local minority (Mackie et al 2000; Petersen 2011). Local minorities living in enclaves are then expected to be more fearful and consequently value self-preservation more than all else. So they will likely escape the threat. The hegemonic group, on the other hand, is more risk-acceptant and will use violence against local minorities even if the latter do not threaten the physical security of the group.

An alternative explanation is that a minority group may voluntarily choose to position itself in a vulnerable location because of the group's attachment and the symbolic value of the specific territory. Violence would then be the result of preconditions that make minorities more willing to fight for their land rather than vulnerability. To begin with, it is unlikely that a significantly large number of settlements has symbolic value. Even assuming that some of the settlements have symbolic value for a group, the expected outcome would still be more violence since symbolic value of territories provides reason to fight. Another factor which could be a precondition for violence in vulnerable settlements is that when resources are scarce, not all locations can be defended by a militarily organized group. In this circumstance, known as the Colonel Blotto game, allocation of resources may result in inherently vulnerable locations. While it is not possible to account for this explanation with the available data, the vulnerability of settlements as posited in this paper is also based on geographic factors and would still hold regardless of whether resources are allocated or not to some settlements. If troops are deployed to protect villages that are isolated, the lack of direct communication lines and numerical inferiority make deployment ineffective in reducing vulnerability. It is likely that resources would not be allocated in first place to these locations.

#### **4. Empirical Analysis**

##### *Case Selection: Bosnian Conflict*

The Bosnian conflict (1992-1995) is used as a quantitative case study to test the hypotheses. The case is valuable for three reasons. First, the case includes the main features of an ethnic security dilemma: anarchy following Yugoslavia disintegration and increasing uncertainty about others' intentions, especially after the outbreak of the conflict between Croats and Serbs in Croatia. In addition, the Bosnian case is a clear example of how intermingled settlements make some locations more prone to severe violence because small, weak enclaves became particularly vulnerable to attacks by the opponents. Others have noted that the distribution of violence during the conflict was concentrated in specific areas characterized by the presence of strategic incentives to violence, one of which is ethnic settlement patterns (Melander 2007). Second, the availability of micro-level population and ethnic group settlement data from immediately before the conflict from the 1991 census is a precious source for a quantitative study. Such data are important for establishing the effect of intermingling on violence because it is expected to be stronger at the local level than more aggregate levels (Van Evera 1994: 8). While intermingling at a more aggregate level (such as the municipality) could be tempered through elites' negotiation, intermingling at the local level (such as settlements) is potentially more dangerous because 'elements of one or both groups [are left] insecurely at the mercy of the other' (Van

Evera 1994:19). In addition, all three ethnic groups represented a substantial share of the population, meaning that no group was had an absolute majority at the national level. The largest groups, namely the Bosniaks, represented the 43% of the population (BNIS (Bosnian National Institute of Statistics) 1992). Thirty-four municipalities had an absolute Bosniak majority, 31 were Serb-held and 14 were majority Croat.<sup>7</sup> During the conflict, ethnoterritorial logics and the idea that each group had its own exclusive homeland became a main driver of violence. Bosniaks, Serbs and Croats aimed at un-mixing populations under their control, and ethnic cleansing became the crucial instrument to build such a “new ethnoterritorial order of space” (Toal and Dahlman 2011: 5). Some municipalities, especially those inhabited by Serb majority and along the Serbian border, experienced particularly deadly violence. In terms of victims, Bosniaks suffered more human losses than both Serbs and Croats, losing more than 3% of the 1991 population. Serbs lost approximately 1.8% of their co-ethnics and Croats lost 1% (Toal and Dahlman 2011). A more detailed analysis confirms that Serb areas were the most violent ones, followed by Bosniak and Croat municipalities thus implying that Serbs could have used more violence against the Bosniak and Croat minorities within their territories. Overall, however, ethnic groups resorted to both two-sided and one-sided violence so extensively that being under Bosniak, Serb or Croat majority did not reduce the vulnerability of isolated minorities.<sup>8</sup>

#### *Data and Method*

I test the hypotheses using times-series-cross-sectional data for 105 Bosnian municipalities and each year of the 1992-1995 conflict.<sup>9</sup> The dependent variable is conflict severity measured using the log of casualties. This measure includes both civilian and military victims and is retrieved from the Research and Documentation Centre of Sarajevo (RDC) (Costalli 2014). There are two reasons motivating the use of data on victims instead of conflict events. The first reason is theoretical. I argue that vulnerable settlements might motivate aggression with the aim of creating homogeneous areas. This objective does require extensive use of violence against the minority and potentially ethnic cleansing. The hypothesis on vulnerability can be more explicitly tested using data on casualties instead of using a dummy or a count for violent incidents within the municipality. The second reason is related to the quality of event data for the Bosnian conflict. Armed Conflict Location and Event Data ACLED for the Bosnian conflict use one main

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<sup>7</sup> Twenty six municipalities had no absolute ethnic majority.

<sup>8</sup> This expectation was confirmed in a model (not shown) where vulnerable minorities were interacted with a variable distinguishing the three different majorities. Serb units are more violent than Bosniak and Croat ones (which are indistinguishable from each other), but the majority status of a particular ethnic group does not interact with the vulnerability of enclaved minority groups.

<sup>9</sup> Following (Costalli 2014), I aggregate Sarajevo into a single municipality.

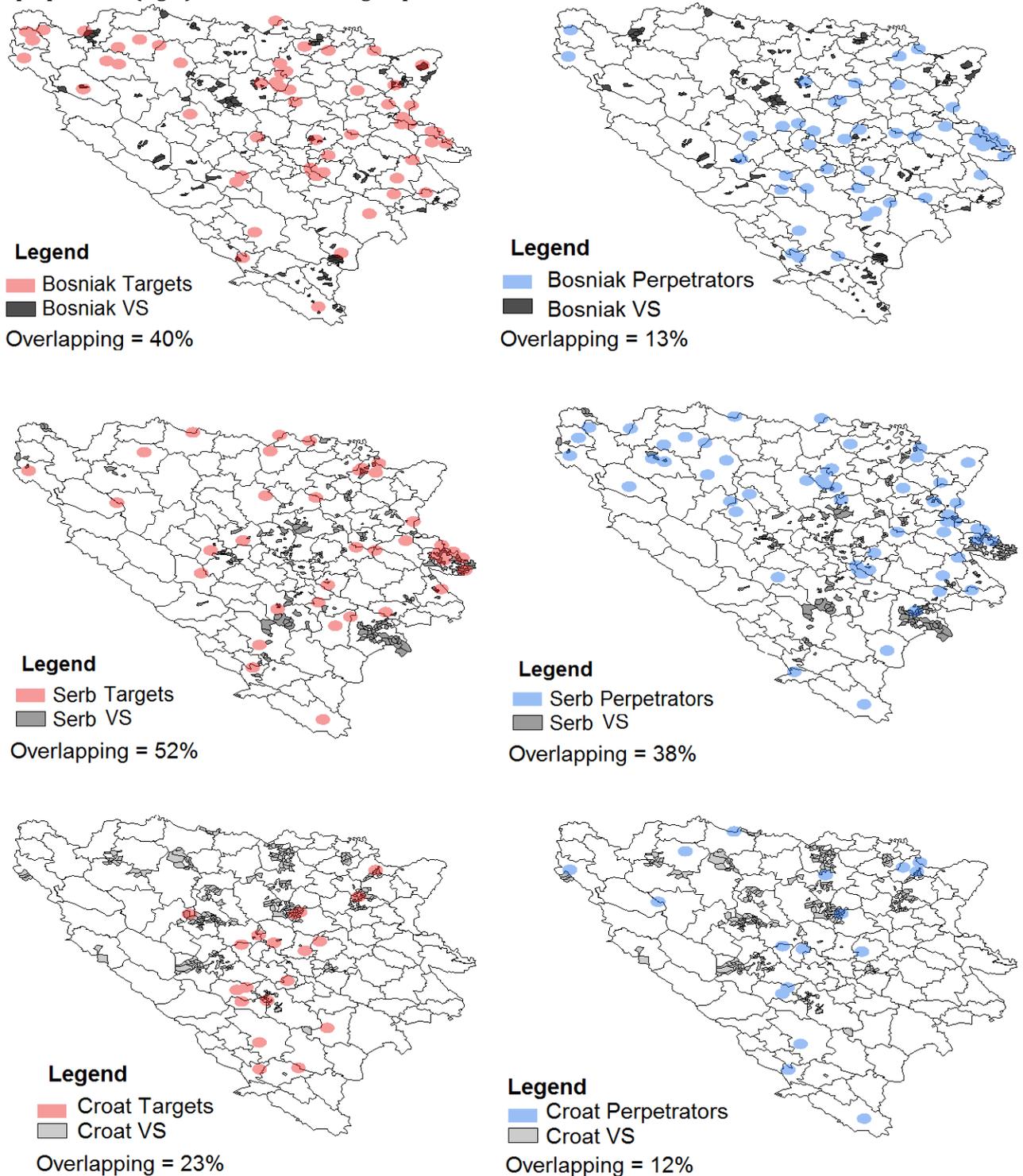
source of information and the data are incomplete (Raleigh et al 2010). Konstanz One-Sided Violence Event Dataset (KOSVED) data on one-sided violence seems to underreport violence compared to RDC (Schneider and Bussmann 2013), especially for violent municipalities such as Srebrenica, Sarajevo, Mostar, Bratunac and Foca. I geocoded KOSVED to compare it with cross-sectional data on civilian casualties from RDC and found underreporting.<sup>10</sup> A final concern with the RDC data is that they do not disaggregate victims by ethnic group, which is why it cannot be established whether violence is actually perpetrated against the vulnerable minority. Only the KOSVED data has some information on the ethnic groups involved in one-sided violence incidents. So I propose a visualization strategy to make the best use of the available information on violence disaggregated by ethnic group. A corollary of the paper is that a vulnerable ethnic group is more likely to be the target rather than the perpetrator of one-sided violence. I overlay each group's vulnerable settlements with one-sided violence events from KOSVED where the same group was victim (red circles) and then with events where the group was perpetrator (blue circles). Figure 4 shows that there is more overlap between one-sided violence and vulnerable settlements when the target of the violence has the same ethnicity as the vulnerable minority. Conversely, the overlapping is lower when the vulnerable groups and the perpetrator of violence share ethnic identity.

In the estimation section, I proceed from simple estimations to more sophisticated ones. I begin testing the hypothesis of violence related to vulnerability estimating a Panel Corrected Standard Error model with clustered standard errors and correction for first order temporal autocorrelation. Yet when looking at dynamics of violence in Bosnia it is important to factor in the presence of UNPROFOR mission, which was deployed since the early stages of the conflict. By doing so, issues of endogeneity emerge since the decision to deploy peacekeepers may be endogenous to levels of violence. Since significant problems of endogeneity emerge when trying to assess the effect of peacekeeping interventions on levels of violence, the main models use a Conditional Mixed Process (CMP) estimation to account for the endogeneity between casualties and peacekeepers deployment.

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<sup>10</sup> To ensure that the choice of RDC data does not affect the results, I also ran a model using civilian casualties reported by KOSVED as the dependent variable. The model (not reported here) shows that vulnerable minorities are robustly associated with more civilian casualties.

Figure 4. Overlapping between vulnerable settlements of each ethnicity and conflict events with targets (left) and perpetrators (right) of the same ethnic group.



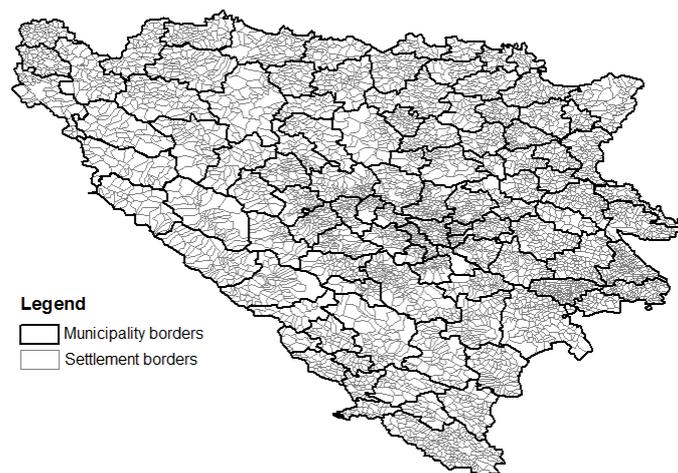
### *Operationalizing Ethnic Vulnerability*

Before the empirical section, I introduce the measurement of ethnic vulnerability and explain why it is necessary to create a different variable for ethnicity to test the hypothesis. I argued

before that small pockets of population of different ethnic identity may be perceived as a threat also by majoritarian groups thus pushing the latter to resort to violence or coercive expulsion. It follows that not only control over territory but also homogeneity of the latter are extremely relevant for ethnic groups in conflict. The rationale for building a new variable is therefore that incentives for violence stem from the how ethnicity, geography, and group concentration interact to create vulnerable ethnic patterns at the local level. The distribution of minority enclaves, I argue, explains the intensity of violence since it measures the distribution of a perceived threat to territorial control. I use demographic data from the 1991 census to construct a measure of what I call vulnerable minorities (BNIS 1992). The measure identifies the size of the population inhabiting small settlements in which they are an enclaved minority. Enclaved minorities are ethnically dominant in the immediate locale, namely the settlement, but a minority in the larger administrative unit they inhabit (Massey, Hodson, and Sekulic 1999). Vulnerable minorities are locally concentrated in the settlements yet a different ethnic group dominates the larger unit. In addition to local concentration and dominance, the geographical isolation of the enclaved minority is important since the theoretical dynamics apply only if groups are isolated and detached from their ethnic brethren. Enclaves are a minority in the administrative unit but are also not adjacent to other areas beyond the unit inhabited by its own ethnic group.

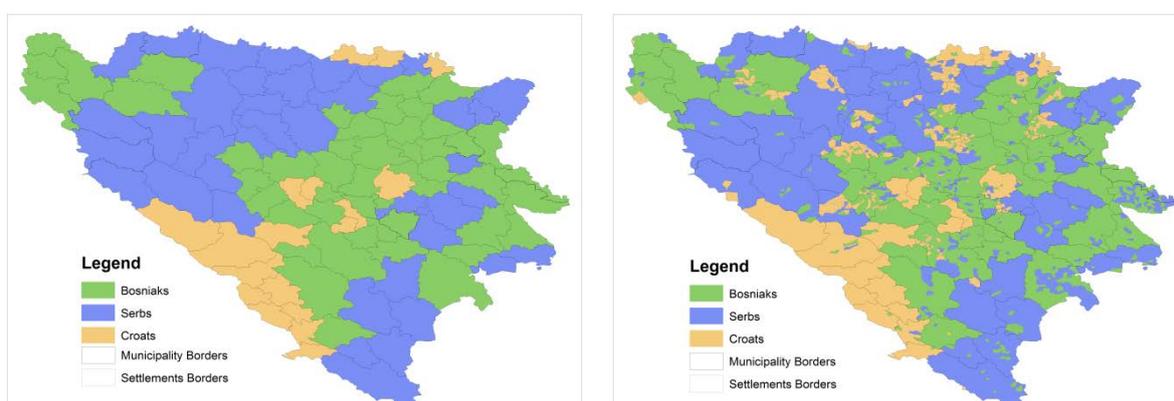
In order to calculate the size of the vulnerable enclaved minority, settlements were defined as vulnerable based on the above criteria (local concentration, dominance and isolation). The 105 Bosnian municipalities with demographic data from 1991 census were divided into smaller settlements, thus further disaggregating the ethnic composition of municipalities by assigning the share of Bosniaks, Serbs and Croats inhabiting the settlements. The disaggregation is shown in Figure 5.

**Figure 5. Bosnia-Herzegovina by settlements**



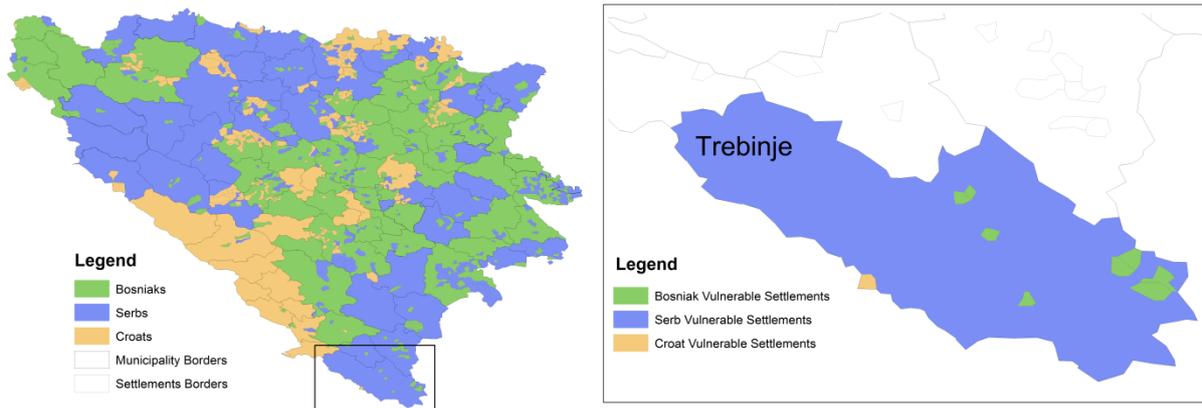
The next step was to identify the ethnic majority of each municipality and count the number of settlements inhabited by an ethnic group that is a *majority (>50%) in a specific settlement but a minority at the municipality level*. The right-hand panel in Figure 6 shows a map of vulnerable areas for the three ethnic groups in all municipalities. Different colours are assigned based on the relative majority in each unit. The map on the left-hand side shows the overall ethnic majority in each municipality to facilitate the identification of the municipality majority when settlements are particularly confusing.

**Figure 6. Left Panel: Municipalities by Ethnic Majority. Right Panel: Settlements within Municipalities**



Third, vulnerable settlements are also identified based on the geographic isolation of the local minority. A group is isolated from its brethren if its settlement is not contiguous with a larger region dominated by the same ethnic group. For example, if a Croat settlement lies at the border of the municipality and is connected to a Croat municipality, it is not isolated and can be defended by the group. To illustrate, Figure 7 shows the number of vulnerable settlements for Trebinje, the most southern Bosnian municipality. The municipality has a Serb majority, but some small settlements within the unit are ethnically dominated by Bosniaks and Croats. As shown in the map, 10 settlements (of a total of 179 settlements) are counted as vulnerable since they are geographically isolated and inhabited by an ethnic group that is a majority in the settlement but a minority within the municipality. The final step involved assigning the population size of the local minority to each settlement and then summing this value for the whole municipality.

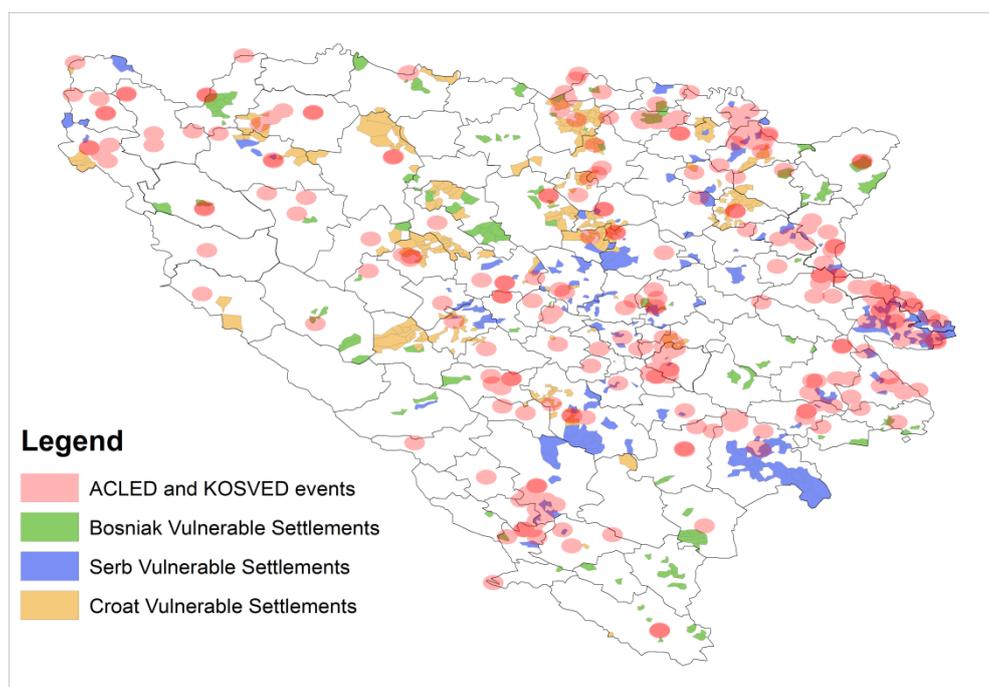
**Figure 7. Municipalities and settlements; detail of Trebinje municipality**



A potential disadvantage of the measure of vulnerability is that it does not change over time. Settlements may no longer host a vulnerable minority if they have been ethnically cleansed, or if the population pre-emptively left the area. While I cannot track population changes and movements across or within municipalities because such data are not available, implications of these temporal dynamics likely make it more difficult to establish the relationship between vulnerability and violence. Suppose, for example, that a municipality is ethnically cleansed in 1992 meaning that vulnerability in the following years should be equal zero. A static measure is less likely to find a correlation in the analysis.

As a preliminary examination of the relation between vulnerability and violence, Figure 8 below shows the settlements identified as vulnerable and the location of conflict. Data on conflict locations combine information from ACLED (Raleigh et al 2010) and KOSVED (Schneider and Bussmann 2013). ACLED include violent and non-violent conflict events while KOSVED focuses on one-sided violence. The mean distance of the events from the closest vulnerable settlements is only 4.1 km for ACLED, and 3.7 km for KOSVED. Seventy percent of ALCED events and 75% of KOSVED events are within 5 km of a vulnerable settlement. While I will not use ACLED and KOSVED for my empirical analyses (ACLED lacks information on the number of casualties while KOSVED underreports many killings compared to the data by the Research and Documentation Center of Sarajevo), this preliminary assessment supports the expectations.

Figure 8. Vulnerable Settlements with ACLED and KOSVED data



To clarify what the vulnerability measure adds to previous research, I briefly compare it to two other operationalizations of ethnicity. The concepts of ethnic polarization and territorial contestation capture the idea that groups are large enough to compete with each other for the control a municipality. However, both measures neglect intermingling configurations at the local level. For example, if groups are large but one of them is very fragmented and enclaved within a municipality, it has a strategic disadvantage compared to the other group. In addition, it is more difficult for the fragmented group to protect its territory effectively. Alternatively, two groups may be unequal in size but one of them is territorially contiguous to a larger area dominated by its co-ethnics. In this scenario, the smallest group has the advantage of strategic depth and communication lines even if it is inferior in size within the municipality. Polarization does not capture this dynamic because it is based on the size and number of groups within a unit. Territorial contestation also ignores local variations because it is concerned with the distribution of groups across neighboring units rather than within-municipality variation. In contrast, vulnerable settlements provide a local measure of ethnic vulnerability which links the macro-conditions generating this vulnerability (i.e. majority status of another group within the municipality) with the macro-outcome (violence escalation within the municipality). Vulnerable settlements as defined in this paper provide a micro-level perspective: the local isolation of

members of the group is the result of macro-conditions related to the ethnic distribution in the administrative unit. Thus, vulnerability has a direct relationship with both ethnic features of administrative units both at wider and local scale. In addition, vulnerable enclaves of local minorities encourage attacks from the enemy group hence they also directly relate to violence escalation. It follows that this macro configuration has an effect on violence by first producing local vulnerabilities and then opportunities for offensive actions. In other words, violence escalation is only an indirect result of ethnic configuration at the macro-level. To ensure that the measure of vulnerable settlements captures dynamics different from those in other measures of ethnicity, I present two models with measures of polarization and. I include scatterplots in the appendix (Figure A1, Appendix A) to show the correlation between my measure of ethnic vulnerability and polarization and contestation. The low correlations support the conclusion that the variables are capturing different aspects of ethnicity.

#### *Independent Variables*

*Vulnerable Minority.* This variable measures the (logged) size of the population inhabiting small settlements of municipality-level minorities that were isolated, detached from the rest of the group, and surrounded by opponents. I expect this variable to have a positive effect on violence. As alternative and simpler operationalization, I also use the count of settlements that are vulnerable according to my definition within each municipality in one of the main models.

#### *Control Variables*

*PK Presence.* The presence of peacekeepers is expected to have a decreasing effect on violence, so I use a dummy coded 1 if peacekeepers were present in the municipality in the previous year. The lag is used for two reasons. First, it is unknown when peacekeepers were deployed during a particular year, and since I assume that peacekeepers presence has an effect on violence, I look at their deployment in the previous time period. Second, I expect the effect to be gradual and eventually resulting in a change in violence in the following period. The data come from the PKOLED dataset (Dorussen 2007). The availability of disaggregated data on the deployment of troops for UN peacekeeping operations has allowed designing the research to include the local dimension of the interventions.

*Territorial Contestation:* Municipalities to which more than one group assigns strategic importance are more contested and also more violent. According to Weidmann's definition, each group assess the strategic importance of a location based on the ethnic group share in the municipality and its surroundings (Weidmann 2011). I include this measure in one of the model to show the robustness of the vulnerable minorities' variable.

*Ethnic Polarization.* The intensity of violence is positively associated to ethnic polarization. This index accounts for the size and the share of each ethnic group, thus telling how distant the ethnic make-up is from bipolarity (where the index equals 1). Similarly to territorial contestation, this variable is added in one of the main models presented.

*Distance from International Border.* This variable measures the distance from the Serb and Croat border. It is used to account for the fact that intervention of bordering states in favor of one group is likely to cause more violence at the border (Costalli and Moro 2012).

*Contiguity with future Bosnian-Serb Border.* This dummy is used to indicate whether the municipality borders with what later became the Bosnian-Serb border. The rationale behind this inclusion is that violence is expected to be higher along the future border areas because of its contested nature. It is interesting to note that the future border overlaps significantly with the frontlines of the conflict. Thirty-seven of the 48 municipalities that were contiguous to the future border were also exactly on the frontlines. So the conflict was actually fought along the future border. Although not included in this paper, controlling for the distance between settlements and the frontlines produces nearly identical results to those presented.

*Cultivated and Constructed Land.* These variables are from the Bosnian National Institute of Statistics (BNIS 1992) and are used here as proxies for open terrain calculated as percentage of cultivated land and the share of surface occupied by buildings. These two variables are expected to influence violence because open terrain offers fewer opportunities for armed groups to organize their operations, while urbanization is used to detect densely populated areas (Costalli 2014).

*Income and Population.* The level of income and population in a given areas are common control variables used in quantitative research on civil wars.<sup>11</sup> There are many findings supporting their inclusion in such studies (Collier and Hoeffler 2004; Fearon and Laitin 2003; Raleigh and Hegre 2009). As the previous variables, also these two are from the Bosnian National Institute of Statistics (BNIS 1992).

*Spatial lag.* Violence is contagious and tends to spread and cluster spatially so that municipalities are more likely to have higher death tolls if they are close to violent units. Spatial factors have been found to improve accuracy of violence prediction for the Bosnian conflict (Weidmann and Ward 2010), which is why I include a first order spatial lag in the models.<sup>12</sup>

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<sup>11</sup> Data to account for population movements during the conflict are not available.

<sup>12</sup> A distance-based spatial lag does not significantly change the results.

Summary statistics of all variables are presented in Table 1.

**Table 1. Summary Statistics**

Variable	Observations	Mean	Std. Dev.	Min	Max
Victims (log)	420	4.321	1.506	0	8.660
PK Presence	420	0.095	0.294	0	1
Vulnerable Minorities (log)	420	5.878	3.064	0	10.303
Vulnerable Settlements	420	6.419	8.157	0	38
Territorial Contestation	420	0.027	0.017	5.00e-06	0.062
Ethnic Polarization	420	0.745	0.235	0.036	0.983
Distance from Border	420	0.436	0.057	4.78e-16	0.495
Future Border	420	0.486	0.500	0	1
Cultivated Land	420	0.171	0.160	0	0.673
Constructed Land	420	0.005	0.006	0.0001	0.038
Income PC (log)	420	8.464	0.186	8.145	8.953
Population (log)	420	10.286	0.806	8.331	12.865
Victims (spatial lag)	420	4.405	1.242	0	7.902

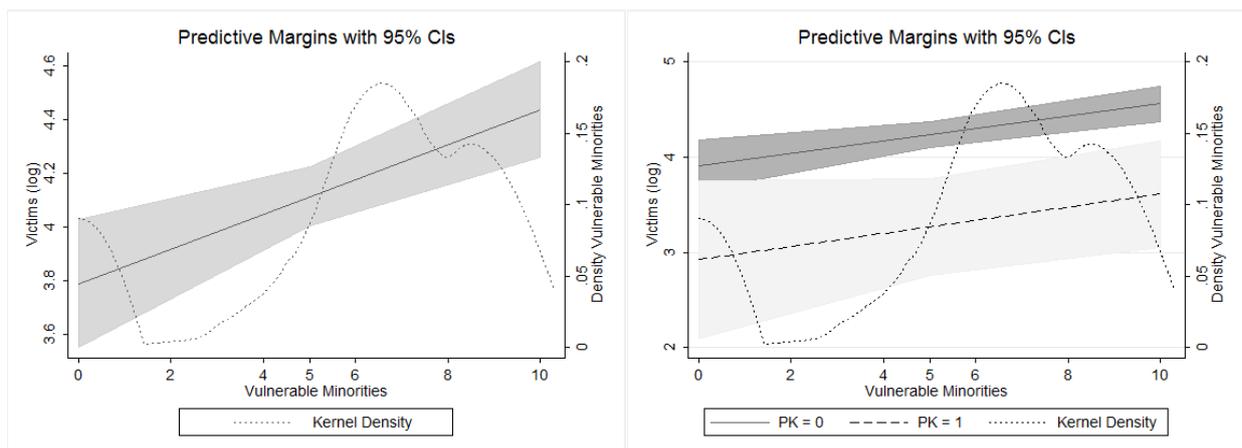
### *Estimation Results*

I begin with some preliminary simple models that show estimates of the correlation between the size of the vulnerable population (or enclaved minorities) and severity of conflict. Model 1 is the baseline and shows the individual effect of enclaved minorities on conflict. The coefficient retains significance and positive direction. The coefficient for peacekeepers is not significant, even when I add an interaction term in Model 2 to test the hypothesis on peacekeeping effectiveness in enclaved minorities. In Model 2, although the interaction between vulnerable areas and peacekeepers presence is not significant, vulnerable areas are still significantly and positively associated to more violence. Thus the models presented so far provide support for H1 about enclaved minorities. In models 3 and 4 in Table 2, enclaved minorities is included in the same model with ethnic polarization and territorial contestation; in both models, the coefficients for enclaved minorities' are positive and significantly associated with high levels of violence. This finding is consistent with expectations. In Model 3, territorial contestation is also significant, confirming that neighborhoods effects also matter (Weidmann and Ward 2010;

Weidmann 2011). Other variables associated with higher violence are population and the spatial lag of victims, which means that units experience more killings when surrounding units are violent. Conversely, open terrain and income have negative coefficients. Model 4 reports a positive and significant estimate for ethnic polarization, but results for enclaved minorities are also consistent with the baseline Model 1. One difference is that distance from border is negative and significant in model 4, suggesting that the closer a unit is to the border, the more severe is conflict. As for the baseline and interaction models (1 and 2), the effect of peacekeepers presence is still statistically insignificant model 3 and 4.

Now I move to the Conditional Mixed Process (CMP) models which account for the endogeneity caused by correlated disturbances between intensity of conflict and presence of UN peacekeepers. The CMP model is very flexible in that it allows estimating seemingly unrelated regressions with a binary and a continuous variable in the outcome equations. In the CMP model, the dependent variable in one equation is again the log of victims, while the dependent variable in the binary equation is a dummy equal to 1 if peacekeepers were present in the municipality in the previous period. I report the results of two CMP models (models 5 and 6) in Table 2. The difference between the two models is that model 6 includes the interaction between peacekeepers and the size of local minorities. In model 5, the equation for peacekeeping as the outcome has only three significant coefficients, which are population, level of violence in the previous year, and level of violence in the neighbouring units. This result is compatible with previous studies showing that peacekeepers are sent where conflicts are more severe (Fortna 2004, 2008; Gilligan and Stedman 2003; Ruggeri et al. 2016). With regard to killings, the coefficient for vulnerable minorities is positive and significant. The marginal effect of enclaved minorities is presented in the graph below (Figure 9, left panel).

**Figure 9. Marginal Effects of Vulnerable Minorities**



In the CMP models (5 and 6), peacekeepers' involvement is associated with decreases in violence in subsequent years. However, as Model 6 shows, this effect is not significant when intervention takes place in vulnerable areas. Figure 9 (right panel) describes the expected values of casualties when peacekeepers are present or not as the size of the population in the vulnerable areas increases (and all other variables held at their means). Although the overall level of violence is lower when deployment took place in the previous year, this does not reduce the positive effect of enclaved minorities on violence. The two lines are almost parallel, suggesting that peacekeepers do not reduce incentives for violence in municipalities where the risk of violence is high.

### *Robustness Tests*

A series of robustness tests assess an alternative approach to deal with endogeneity in peacekeeping, alternative operationalization of vulnerable settlements, civilian casualties as the dependent variable and conditional effects for municipalities with absolute majorities are presented in Table 3. A second strategy adopted because of endogeneity concerns is to re-estimate models after having performed matching. While not resolving the issue completely, matching can be used to alleviate it along with reducing model dependence and sensitivity to specifications and functional forms. I perform matching using the Coarsened Exact Matching (CEM) proposed by Iacus et al (2012). The aim of matching is to create a new sample where treated observations are matched with non-treated observations that are similar on the basis of user-defined covariates. In order to get a sample appropriately matched on panels instead of observations (Nielsen and Sheffield 2009), I perform the matching on the cross-section version of the data and select enclaved minorities and victims as covariates for matching. Using the sum or the mean value for deaths across the entire time period would cause post-treatment bias (King and Zeng 2007: 201). Since I need to compare violence before and after the treatment, I use levels of violence recorded in 1992 because peacekeepers presence is expected to have an effect on violence trends only in subsequent time periods. Re-estimating the panel models with weights assigned to each observation after matching (with excludes 11 municipalities), results do not substantially change across the three models. Enclaved minorities are positively correlated with higher violence (Model 7 and Model 8) but again no significant result is reported for variables measuring peacekeeping effectiveness.

**Table 2. Main Models**

Variables	Model 1 PCSE baseline Victims (log)	Model 2 PCSE with count Victims (log)	Model 3 PCSE with PK interaction Victims (log)	Model 4 PCSE with Territorial Contestation Victims (log)	Model 5 PCSE with Polarization Victims (log)	Model 6 CMP with PK interaction Past PK Presence	Victims (log)
PK Presence (time lag)	0.0373 (0.0938)	0.012 (0.0833)	0.103 (0.272)	-0.0404 (0.104)	-0.00774 (0.0968)		-0.989** (0.461)
Vulnerable Minorities (log)	0.0705*** (0.0200)		0.072*** (0.021)	0.0717** (0.0286)	0.0460** (0.0194)	-0.0228 (0.0354)	0.0645*** (0.0189)
Vulnerable Minorities*PK			-0.01 (0.034)				0.00434 (0.0507)
Vulnerable Settlements (count)		0.014*** (0.002)					
Territorial Contestation				18.11*** (3.239)			
Ethnic Polarization					1.620*** (0.314)		
Distance Border	-2.825 (1.753)	-2.663* (1.408)	-2.844 (1.797)	-2.348 (1.814)	-5.233** (2.369)	-2.537 (2.482)	-1.874* (0.958)
Future Border	0.0316 (0.114)	0.091 (0.131)	0.032 (0.115)	0.0603 (0.153)	-0.0190 (0.106)	0.0574 (0.200)	0.157 (0.102)
Cultivated	-1.739*** (0.200)	-1.255*** (0.282)	-1.729*** (0.205)	-1.448*** (0.300)	-1.778*** (0.184)	-0.797 (0.747)	-1.519*** (0.373)
Constructed	-9.151*** (2.227)	-18.799*** (6.662)	-9.840*** (3.074)	6.192 (5.664)	2.627 (4.976)	11.79 (21.24)	1.373 (11.28)
Income PC (log)	-0.580*** (0.0931)	-0.213 (0.165)	-0.578*** (0.102)	-0.838*** (0.154)	-0.859*** (0.133)	-0.0547 (0.569)	-0.685** (0.296)
Population (log)	0.976*** (0.0668)	1.015*** (0.616)	0.973*** (0.064)	1.010*** (0.0763)	0.940*** (0.0410)	0.583*** (0.176)	1.075*** (0.0873)
Victims (spatial lag)	0.744*** (0.0381)	0.722*** (0.044)	0.744*** (0.038)	0.672*** (0.0539)	0.691*** (0.0480)	0.211** (0.103)	0.570*** (0.0415)
Victims (time lag)						0.108*** (0.0411)	0.0215 (0.0273)
Constant	0.0643** (1.884)	-6.078*** (1.665)	-2.834* (1.464)	-2.848** (1.403)	-1.527 (2.042)	-6.800 (4.866)	-2.818 (2.543)
Rho							0.795***
Observations	420		420	420	420		420

Clustered standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

I have already shown that the results in PCSE model are significant even when a count of the vulnerable settlements is used (Model 2). Here I show that also the CMP model results are not affected by this change. In Model 9, I re-estimate the CMP model using the count of the number of vulnerable settlements rather than the size of the population within each settlement. The results are still consistent for both equations, with vulnerable settlements having a direct effect on violence, and peacekeepers being able to reduce violence in time periods subsequent to deployment (although only at 0.1 significance level), except when conditional on vulnerable areas. The argument that local minorities located in enclaves are more vulnerable to attacks by the opponent group suggests that civilians may be particularly at risk. I include a robustness test with civilian casualties as dependent variable, although it must be noted that the data are cross-sectional since yearly data are not available. The data is from the Research and Documentation Center of Sarajevo (Costalli 2014). Model 10 supports the intuition that civilian killings are higher in enclaved settlements, probably because these settlements are more difficult to protect and easier to attack and cleanse.<sup>13</sup> Note that the coefficient for peacekeepers' presence is also positive, but since the analysis lack temporal information, it is difficult to infer whether the deployment followed or anticipated (and did not prevent) civilian victimization.

The last model presented (Model 11) is based on the observation that vulnerability may be conditional on the presence of an absolute majority ethnic group at the municipality level. Using the argument on territorial control proposed by Kalyvas (2006), one could argue an ethnic group with an absolute majority has fewer reasons to use violence because there is no immediate threat to its superiority. But in areas where an absolute majority faces concentrated ethnic minorities, the dominant group may perceive a threat as these minorities are potential opponents or may be used for guerrilla tactics. Here, killings will be higher. The results of Model 10 provide support for this claim, showing that the coefficient for the interaction of enclaved minorities and absolute ethnic majority is positive and significant. In addition, if we look at the constituent terms ethnic majority's effect on violence is negative while enclaved minorities no longer have an effect. This result would require further investigation but still suggests the possibility that isolated minorities' settlements which does not seem to be vulnerable *per se* and thus more prone to violence, rather only in relation to the perception of threat they pose on the majority group.

Additional robustness test performed (and available on request), include measuring vulnerability with a log-transformed count of vulnerable settlements and using the ratio

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<sup>13</sup> I do not show the CMP model because the rho coefficient is not even close to significance, meaning that the process of deployment and civilian casualties are not correlated.

between this count and the total number of settlements in a given municipality. Neither of these transformations affected the results.

## **5. Conclusions**

This paper contributes to the study of dynamics of ethnic violence showing that specific geographic configuration of demographic settlements and the distribution of ethnic groups in space may create incentives for conflict escalation. Enclaves of minorities within the area of control of one group are both an easy target and potential threat since the local population is susceptible of being recruited for guerrilla. In order to simultaneously remove the threat and establish solid control, the dominant group's military has no reason to refrain from attacking these settlements, and their isolated position as exclaves for the enemy group hinders an effective defense for logistical reasons. These incentives for violence provided by the geographical distribution of ethnic groups in intermingled environments are supported in all models presented, including robustness tests. The measure of vulnerability presented here draws on concepts robustly and consistently relevant in explaining ethnic violence, such as concentration and majority status. Yet in addition, the concept of enclaved minorities in vulnerable settlements examines the importance of settlement patterns at a lower level of aggregation, where dynamics of fear and competition are expected to be more salient. The main contribution of this paper is thus to demonstrate mechanisms connecting micro and macro-level dynamics that remain cannot be shown with ethnic configurations at the level of larger administrative units. The empirical results show that pockets of sizeable minorities within the territory of a different ethnic majority indeed increase the level of violence.

Two limitations merit discussion. In this paper, vulnerability within municipality has been argued to stem from incentives for first-strikes and civilian victimization. The availability of data about ethnic changes within municipalities during the conflict would have allowed testing whether outbursts of violence in municipalities with vulnerable settlements were followed by lower intensity, thus suggesting a dynamic consistent with the expectations of a security dilemma. Once the perceived threat is removed, violence is unnecessary. Unfortunately, yearly data on civilian victims are not available for the Bosnian conflict, yet such information is crucial if the humanitarian aim of a peacekeeping mission is to be assessed. Another result that could benefit from further research is the effect of vulnerable settlements on violence when a group is an absolute majority in the unit. Preliminary results are in line with the dynamics of violence proposed by Kalyvas and adapted to ethnic conflicts, with majority status having an indirect effect on violence.

**Table 3. Robustness Tests**

	Model 7 PCSE after Matching	Model 8 PCSE after Matching	Model 9 CMP with count		Model 10 Cross-Sectional with Civilians	Model 11 CMP with Majority Interaction	
Variables	Victims (log)	Victims (log)	Past PK Presence	Victims (log)	Civilian Victims (log)	Past PK Presence	Victims (log)
PK Presence (time lag)		0.0907 (0.278)		-0.774** (0.358)	0.619** (0.298)		-1.164*** (0.447)
Vulnerable Minorities (log)	0.0804*** (0.0270)	0.0816*** (0.0277)			0.138** (0.0575)	-0.0241 (0.0346)	0.00413 (0.0331)
Vulnerable Minorities*PK	0.00957 (0.100)	-0.0120 (0.0364)					0.0240 (0.0503)
Majority Group							-0.573** (0.250)
Majority*Vulnerable Minorities							0.0764** (0.0347)
Vulnerable Settlements (count)			-0.00693 (0.017)	0.0241*** (0.009)			
Vulnerable Settlements*PK				-0.00590 (0.017)			
Rho			0.666***			0.836***	
Observations	376	376	420		105	420	

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The set of control variables are not shown in the table. They are: distance from border, future border, cultivated land, constructed land, income per capita, population, spatial lag of victims and time lag of victims.

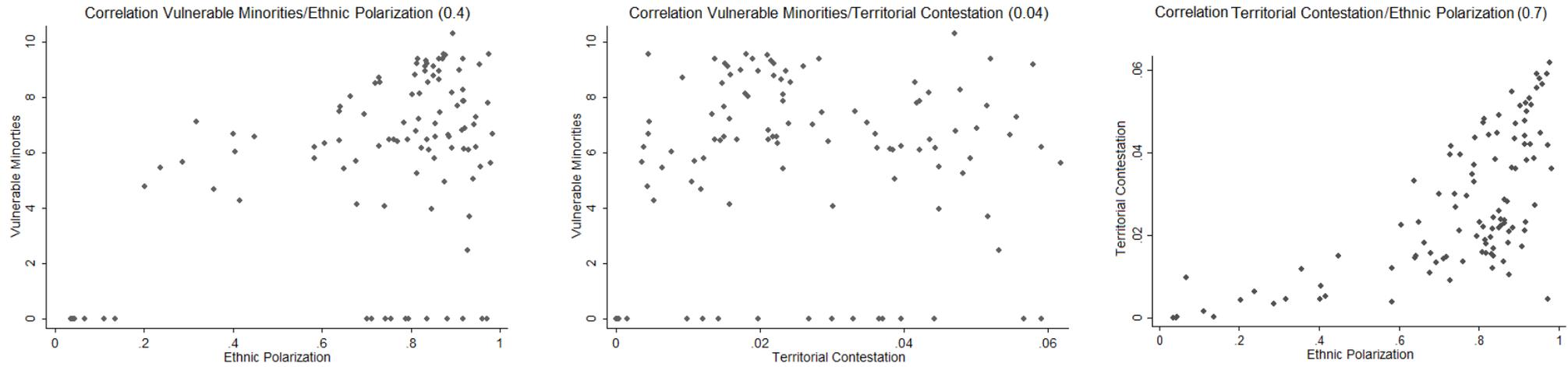
Finally, considering the focus on the Bosnian conflict in the empirical analysis, it is important to discuss possible generalizations. The vulnerable enclaves identified in this analysis are not unique to Bosnian human geography and are likely to exist in many countries where groups are not completely segregated. The mechanism relating geographic vulnerability and ethnic dominance to more violence during ethnic conflicts have a more general nature. Examples of countries with similar settlement patterns are Croatia, Kosovo, or Georgia. Considering the case of conflict in Croatia between Croats and Serbs in 1991 in more detail, most violent episodes took place in regions where intermingling had given rise to vulnerable Serb enclaves, similarly to the patterns in Bosnia. Although the level of intermingling varied within Croatia, some of the violent episodes in the Croatian war took place in areas where the pockets of Serb ethnic majorities were separated from the wide region of Krajina in the south-east of Croatia, which was a Serb stronghold. This was particularly true for the north-eastern part of the country, where Serb enclaves were dispersed but inhabited by absolute majority. This is consistent with the findings of this paper and supports the intuition that the rationale behind hypotheses is more generally applicable. The Balkan and Caucasus regions more generally are characterized by high ethnic diversity, and for this reason have been used as examples of situations where the ethnic security dilemma caused escalation of violence after the collapse of the central authority (Dulić and Kostić 2010; Kaufman 1996; Posen 1993; Roe 2004). When more than one ethnic group live in the same country, they rarely live completely separated from each other, and this paper demonstrates how interminglement can contribute to violence.

The findings of this paper have important policy implications for external interventions in ethnically divided countries at war. Once the proneness to risk of specific settlements patterns emerging from high intermingling is established, third parties intervention could adjust deployment strategies accordingly in the objective of the mandate. By relying on data at a significant level of disaggregation, it is possible to identify specific areas at risk of violence *ex ante* and intervene locally. With regard to the case under analysis, the UN did not succeed in identifying violence-prone locations, basing decision for deployment according to levels of violence in the previous year and in the surrounding areas along with other factors such as population and areas that were part of the future negotiated border of the post-conflict years. Since the vulnerability of areas within municipalities was not a factor accounted for in the decision-making process, it is not surprising that the presence of UN troops in municipalities with vulnerable settlements makes no difference on subsequent levels of violence. As the quantitative case study of the Bosnian conflict and UNPROFOR shows, peacekeepers were able to reduce violence in areas where they were deployed, but this effect was absent when conditioned on vulnerable settlements. If the intuition that vulnerability of settlements pose

more risk for civilians than for armed groups is correct, the finding can be interpreted in line with other studies on peacekeeping effectiveness arguing that reduction of violence, especially against civilians, requires partiality, strong mandates, and adequate forces on the ground. Indeed the success of some more recent UN missions (for example in Sierra Leone and Mozambique) are empirical evidences that protection of civilians in the midst of violence is possible when the scope of the mandate is clear and not too ambitious and the mission has enough capabilities to halt widespread violence. The UNPROFOR mission, unfortunately, lacked all of these.

# Appendix A

Figure A 1. Correlation among Vulnerable Minorities, Ethnic Polarization and Territorial Contestation



## CHAPTER 2

### Peacekeepers against ethnic violence<sup>13F14</sup>

#### Abstract

How do peacekeepers reduce one-sided violence in the midst of a conflict? This paper argues that local sources of violence, in particular ethnic tensions, affect the ability of peacekeeping missions to reduce local-level violence against civilians. Existing scholarship on peacekeeping effectiveness has focused on how the features of a mission, in particular type and size, contribute to ensuring the security and safety of civilians. Yet, effective reduction of one-sided violence also depends on peacekeeper capacity to alter opportunities and incentives for violence under the local balance of power. Starting from the idea that territorial control is a function of the distribution of ethnic groups, I argue that ethnic power configurations influence the success and failure of peace operations. In the presence of large power asymmetries, it is more difficult for peacekeepers to curb one-sided violence because their deployment *(i)* creates incentives for quick escalation and *(ii)* cannot effectively separate armed actors. The interaction between local ethnic power configurations and peacekeeping is explored with a quantitative subnational analysis of UN missions in Sierra Leone from 1997 to 2001. The results show that large UN troop presence reduces one-sided violence under conditions of ethnic group parity, namely high ethnic polarization. Conversely, their impact on civilian violence is almost non-existent in locations with low ethnic polarization.

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<sup>14</sup> In preparation for submission.

## 1. Introduction

Do local ethnic configurations affect peacekeeper ability to protect civilians? Existing studies show that variations in the distribution of ethnic groups play a role in shaping the dynamics of civil conflict and the targets of violence by warring parties. In particular, local differences in group size and numbers result in specific dynamics of violence because each of these configurations corresponds to distinct capacities and incentives to use violence. Why does peacekeeping have a seemingly homogenous curbing effect on conflict, independent from local or territorial sources of violence? Given that conflict dynamics are very sensitive to variations in the balance of power between ethnic groups, peacekeeper capacity to reduce violence should be conditional on local ethno-demographic factors. Hence the question is how peacekeeping interventions interact with ethnicity, and which missions are more likely to be successful in protecting civilians?

This paper bridges theories on the role of ethnicity and territorial control for the production of violence in civil war with the literature on peacekeeping. The proposed theoretical framework introduces ethnicity as a factor that influences not only violence but also the effectiveness of a mission. The literature on peacekeeping has found that the success of UN missions is dependent on two sets of factors, namely the features of the mission and the operational environment. With regard to the first set, robust mandates, financial budget, size and type of personnel enhance success rates (Hegre et al. 2012; Hultman et al. 2014). However, curbing violence in some locations may be more difficult than in others, and increasing the number of blue helmets on the ground does not automatically reduce violence. The internal features of the conflict can interact with peace missions and affect their success or failure. Hence, in order to outline the mechanisms driving some interventions to succeed, the domestic environment has to be explicitly considered in the theoretical framework as the *locus* where local sources of hostility and local capacity interact to impact UN peace policies (Doyle and Sambanis 2000; Lyon 2005).

If the objective of peacekeeping is to increase the cost of violence, its effect is necessarily conditional on what incentivizes violence among combatants (Regan 2002). Since the dynamics of ethnic violence are related to territorial control and the demographic composition of locations, ethnic configurations also influence the success and failure of peace operations. Effective reduction of ethnic violence depends not only on peacekeeper type and the size of missions, but also on their capacity to alter the opportunity and incentives for specific forms of violence stemming from ethnic configurations. The contribution of this study is two-fold. First, the paper combines information on the ethnic composition of deployment locations with features of mission mandates, hence bridging the gap between research on local sources of violence in civil war and peacekeeping effectiveness. This approach fits well with recent

advancements in disaggregating peace missions (Ruggeri et al. 2016a, Ruggeri et al. 2016b). Second, it conceptualizes territorial control in terms of ethnic patterns, arguing that the group's geographic location changes their strategic use of one-sided violence. Fine-grained subnational data on ethnic polarization allows to proxy groups' local strength. By putting more emphasis on the actors' capability, the empirical analysis of this study looks at how one-sided violence dynamics change where peacekeepers are deployed and the outcomes.

This paper is structured as follows. First, I review the main argument explaining how territorial control and ethnic polarization affect the dynamics of one-sided violence. Then I present state-of-the-art studies on peacekeeping effectiveness, linking this research that focuses on mission features with the literature on how ethnicity explains patterns and types of violence. In the theoretical section, I formulate hypotheses on how UN missions affect violence, conditional on local distribution of power among groups. I argue that the capacity of peacekeepers to forestall the targeting of civilians is conditional on existing situation on the ground, in particular the balance of power and territorial control, which are central elements in the literature on civilian victimization but mostly missing from studies of peacekeeping effectiveness. The proposed mechanism is that under large asymmetries, peacekeepers are expected to be less effective in curbing one-sided violence because their deployment *(i)* creates incentives for quick escalation in the short-term and *(ii)* cannot effectively separate armed actors, because the frontlines are blurred and fluid. In the empirical analysis, I propose ethnic polarization as a measure of territorial control and test the theoretical expectation with data from two UN missions in Sierra Leone (UNOMSIL and UNAMSIL). The main model used to test the hypotheses is a negative binomial performed on a matched sample, which reduces model dependency and alleviates selection bias.

## **2. Dynamics of one-sided violence in civil wars**

The literature on civil war has shown that the territorial distribution of ethnic groups is related to conflict dynamics (Toft 2002; Weidmann 2009, 2011), thus represents one of the sources of violence that peacekeepers have to tackle. Various ethnic configurations result in different patterns of violence, which mainly differ in the target of the violence. Opponents resort to different types of violence (one-sided, two-sided, selective, indiscriminate, etc.), depending on the power distribution in the area. In particular, violence against civilians has a clear strategic dimension and is argued to be a function of territorial control (Kalyvas and Kocher 2009; Kalyvas 2006; Wood 2010). In a scenario where two actors are fighting against each other, civilian cooperation becomes vital, and violence is used as mean of coercion to achieve this goal.

According to Kalyvas (2006), combatants will refrain from victimizing civilians when violence is unnecessary or counterproductive. When territorial control is perfectly divided between factions, victimizing civilians indiscriminately will push them to balancing, i.e. seeking protection from the least violent party. Similarly, in locations where one party enjoys complete dominance, indiscriminate violence is off equilibrium. Conversely, there is higher likelihood of civilian victimization when territorial control is relatively solid but incomplete (hegemonic). As Zhukov (2013) notes, however, this expectation hinges on the assumption that civilians will choose balancing instead of bandwagoning when deciding to cooperate with one faction or another. The idea is that if two groups have similar territorial control, none of them has enough intelligence to identify opponents and pursue selective violence. Indiscriminate violence against civilians, on the other hand, would backfire as civilians will then support the group that use less violence to seek protection. By relaxing this assumption about civilians' balancing against violent perpetrators, Zhukov shows that one-sided violence is also likely in areas that are fully controlled and that even opponents in very weak positions may have incentives to target civilians (Zhukov 2013: 45).

The relevance of territorial control and power asymmetries among fighting groups in explaining one-sided violence is hardly deniable. A similar argument is made by scholars arguing that the geographical patterns of ethnic groups, as a proxy for group power, is a determinant of violence (Costalli and Moro 2012; Klasnja and Novta 2014; Montalvo and Reynal-Querol 2005; Di Salvatore 2016; Weidmann 2011). If territorial control shapes the group's capacity to extract resources (Tilly 1985), including recruits, then the greater one's own relative ethnic share, the larger the pool of potential resources. More specifically, the index of ethnic polarization has been proposed as a measurement of groups' power based on their relative size. Polarization is highest when there is perfect parity between groups, resembling bipolar control over a territory. The assumption is that larger groups will fight more intensely and on a larger scale.

Even when civil wars are not fought primarily along ethnic lines, the salience of ethnicity may increase during the conflict. Selective civilian targeting requires significant information to identify opponents, which is not always available. One way to solve this identification problem is to rely on features that are easier to detect and can be used to infer loyalty. Ethnicity can then become a salient trait as result of endogenous conflict dynamics that may further reinforce its use. Indeed, when civilians realise that their profile, not their behaviour, makes them targets of violence, the cost of joining rebels to obtain protection is lower than freeriding (Kalyvas and Kocher 2007). In line with this logic, while ethnic composition is not a good predictor for conflict onset, it explains variation in conflict intensity (Esteban and Ray 2008). Overall, highly polarized societies tend to have more violent conflicts (Costalli and Moro 2012; Montalvo and

Reynal-Querol 2005). Civilian victimization as specific type of violence, however, increases in under conditions of either high polarization (two large groups) or low polarization, since the asymmetry of power makes the smaller group more reliant on coerced civilian support (Esteban et al. 2010; Montalvo and Reynal-Querol 2008). The latter point is in accordance with research suggesting that disadvantageous strategic environments with large asymmetries increases the use of violence against civilians by the weaker opponent (Hultman 2007; Wood 2010).

The arrival of peacekeepers has the potential to change the balance of power between groups, even when impartial. The mere presence of peacekeepers in some locations alters the opportunity structure for armed actors that perpetrate one-sided violence. The next section focuses on the main findings concerning peacekeeper protection of civilians.

### **3. Peacekeepers and protection of civilians**

Military intervention in the context of ethnic conflict and one-sided violence poses a dilemma. The scholarship on peacekeeping has produced mixed evidence on the effect of peacekeeping on violence against civilians. Several studies have shown that civilian victimization can be prevented only if the peace mission intervenes by explicitly targeting the perpetrators (Hultman 2010; Krain 2005). On the other hand, other scholars argue that changing the balance of power in a civil war by intervening in support of one side creates incentive for the “loser” to escalate one-sided violence (Kathman and Wood 2011; Kathman and Wood 2016). More recent studies show that UN armed personnel reduce civilian killings but unarmed observers are associated with increased targeting of civilians during and after the conflict (Hultman et al. 2014; Kathman and Wood 2011). The deployment of UN personnel that cannot provide protection to civilians may create a situation that provides short-term motivations for victimizing civilians. In a study of peace missions and civilian protection, Hultman highlights these worrying dynamic, concluding that “missions with clear mandates can help reduce violence and enhance the prospects for peace, simply sending troops without the mandate to interfere when necessary can be devastating” (2010; 42). With the possibility of acting proactively, large deployments under robust mandates are expected to reduce violence, both against civilians and on the battlefield. Thus interventions to protect civilians pose a crucial dilemma: missions that do not signal commitment may inadvertently unleash more civilian victimization (Hultman 2010; Kreps 2010; Kuperman 2008).

Under which conditions does UN peacekeeping create incentives for aggravated one-sided violence? Based on the existing literature, there are at least two possible mechanisms at work. Civilian victimization is more likely if peacekeeping (*i*) changes in existing balance of power

while (ii) signalling insufficient commitment and resolve. On the other hand, there are countervailing factors that enable peacekeeper capacity to prevent civilian killings. These allow blue helmets to (iii) separate combatants, thereby reducing battle-related civilian deaths, and (iv) enforce civilian protection behind frontlines. With separation, enforcement and commitment being a function of the contingent's size and mandate, researchers have mostly focused on these mission-specific factors; however, the importance of the existing balance of power at the local level is largely neglected. If the mechanisms that produce incentives for more one-sided violence can be moderated by imposing constraints, a conditional relationship should exist.

Consistent with this expectation, I argue that the capacity of peacekeepers to deter civilian targeting is qualified by the existing conditions on the ground, in particular the balance of power and territorial control. So far, the question of how territorial control influences peacekeeping effectiveness has been missing in peacekeeping research. To measure territorial control, ethnic polarization may provide information not only about distribution and power at the local level but also about which alternative strategies are available to the conflict parties. If peacekeepers create obstacles for direct confrontation, warring parties may have incentives to switch from two-sided to one-sided violence, if given the opportunity.

#### *Peacekeeping and ethnicity: bridging the gap*

Given the limited resources available for missions, peacekeepers clearly cannot intervene everywhere. Moreover, locations that are more violent than others have higher priority. Peacekeepers are indeed sent to conflict with more casualties and, subnationally, to more violent areas (Costalli 2014; Fortna 2004, 2008; Gilligan and Stedman 2003; Hultman 2010; Ruggeri et al. 2016). Violence is not evenly distributed within countries and sometimes clusters in specific regions. The dynamics of violence in ethnic conflict, as shown in the literature, are a function of the groups' territorial control (Kalyvas, 2006) and capacity (Wood 2010). As I discussed in the previous section, in the context of ethnic strife, the geographic distribution of ethnic groups, their number and size capture different relevant dimensions of control and capacity. Building on this existing strand of literature on ethnicity and one-sided violence, I expect that ethnic geography affects the success of external interventions. If violence against civilians is used strategically and is based on the ethnic configurations of groups, then this factor also influences the decision to abandon violence. Intervention by external actors enters this calculation and alters the groups' expectations on the outcome of the conflict and the "attractiveness" of violence as tool to achieve their goals. Robust, large military interventions curb violence and foster nascent cooperation; however, optimal strategies are dependent on the context and the actors involved. If local conditions that shape incentives and opportunity costs

for one-sided violence are ignored, the peacekeeping strategy may easily backfire and result in more civilian deaths. This is particularly problematic because the decision to confront the opponent on the battlefield or to kill his civilian populations does not stem from the same set of factors. When trying to address one type of violence, peacekeepers may be neglecting the other with horrifying consequences. In sum, the effect of peacekeeping, as Regan notes, “plays out through the strategic calculation between the combatants” (Regan 2002, 74). I proceed by discussing how peacekeepers change the strategic environment for combatants’ actions, thereby rendering some ethnic configurations more vulnerable to one-sided violence.

The security dilemma among belligerents is shaped by the demography of ethnic groups. If a region is ethnically perfectly homogeneous, it is very unlikely for violence to occur. In contrast, where two groups of similar size live close to each other, the violence is more intense. In this latter example, high ethnic polarization (or parity) forces groups to fight harder in order to defeat their opponents. When ethnic groups are strong enough and the balance of power is even (in other words, ethnic polarization is high), all-out ethnic conflict and two-sided violence is more likely (Morelli and Rohner 2014; Zhukov 2013). One-sided violence is not completely absent though, but it is mostly used as complementary tactic (Esteban et al. 2010). Hence, in highly polarized areas peacekeepers might mostly be concerned with reducing open military confrontation and the resulting civilian casualties. Highly polarized locations require a significant deployment of armed troops, signalling a credible punishment threat for transgression by powerful groups. Deployment of large armed personnel is crucial to deter groups, but deterrence only works if peacekeeper commitment is “credible”. This aspect is even more important if the size of the mission is used to signal the salience of the conflict for the intervener (Carment and Rowlands 1998). Large military deployments should then successfully reduce battle-related violence, but do they also deter civilian killings? Peacekeepers must also consider constraining groups from turning on civilians as alternative way to damage their opponents. I expect that large military deployments in highly polarized areas are less likely to bring about a shift toward civilian victimization for two reasons. First, it is easier to separate two similarly sized groups than those living in ethnically intermingled locations. Where battlefield clashes are more frequent, frontlines are clearer, and peacekeepers can more easily identify where to interpose between factions. Second, credible commitment signalled by the presence of large numbers of armed personnel increases the cost of targeting civilians (Hultman, Kathman, and Shannon 2014; Pushkina 2006; Thyne 2009). Weak missions, on the other hand, might still effectively deter groups from large-scale military clashes but are less able to constrain strategic shifts to civilian targeting, especially behind the frontlines.

In contrast, when ethnic groups differ in size, such as when ethnic polarization is low, asymmetry characterizes the distribution of power and changes the dynamics of violence. The difference in strength makes it unfeasible for one of the warring parties to directly face the other on the battlefield. Such action would be doomed to failure, or at least perceived as such by the disadvantaged group. Wood (2010) finds that the capacity of smaller rebel groups is associated with greater intensity of violence against civilians. This is the result of two concurring dynamics. First, majority groups are more likely to attack minorities if they are vulnerable and isolated from their co-ethnics in enclaves (Di Salvatore 2016). Indeed, scenarios of low ethnic polarization are commonly characterized by the presence of a majority group that will likely resort to large-scale killings of civilians to achieve ethnic homogeneity and remove threats to territorial hegemony. Two-sided violence, on the other hand, is less common since the enclaved minorities are isolated and difficult to protect militarily. Second, sufficiently organized minorities resort to guerrilla tactics, terrorism and targeting unprotected civilian population as alternative warfare. In particular, one-sided violence is crucial for weaker groups to secure civilian support, since they cannot compel it by providing other benefits such as security (Wood 2010).

How could UN peacekeepers prevent both strong and weak groups from resorting to one-sided violence? It is already clear that blue helmets face more than one challenge when groups have asymmetric territorial control. Groups have different incentives and opportunities to kill civilians, thus it is more difficult for peacekeepers to tackle both. Compared to the scenario with group power parity, separating combatants is less feasible, especially in the context of irregular warfare. In addition, even if vulnerable civilians were identified and protected areas established, this can further deteriorate civilian safety, as occurred during the Bosnian conflict (McQueen 2005). Another incentive for escalating one-sided violence after deployment exists from the perspective of the majority group. Deployment usually takes time to be complete, thus the more powerful armed group will try to achieve solid control by killing potential opponents before peacekeepers can intervene.<sup>15</sup>

This discussion leads to the conclusion that if the balance of power and territorial control do not favour one side, the deployment of UN helmets can reduce incentives for one-sided violence. On the other hand, it is significantly more difficult for peacekeepers to reduce one-sided violence

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<sup>15</sup> An analogous argument is proposed by Kathman and Wood, who posit that governments with genocidal goals will attempt to “complete the liquidation” as soon as external interveners step in (Kathman and Wood 2011).

where there is clear asymmetry between the warring parties. Thus, the hypotheses are formulated as follows:

*H1: When ethnic polarization is high, more UN Troops decrease violence against civilians.*

*H2: When ethnic polarization is low, more UN Troops increase violence against civilians.*

It should be clear at this point that ethnic polarization shapes conflict dynamics in different ways, depending on whether peacekeepers are deployed in the country. Most of what we know about the relationship between ethnic configurations and violence against civilians is limited to cases where UN missions are not present. Conversely, the focus here is on the conditional relationship between polarization and peacekeeping because the decision to target civilians in a given location is a combination of both factors. This is the result of polarization and peacekeeping simultaneously producing incentives – but also constraints – on one-sided violence. While I present a pre-deployment model with ethnic polarization, I do not explicitly formulate a hypothesis on how polarization alone affects civilian deaths because UN deployment itself influences this relationship.

#### **4. Empirical analysis**

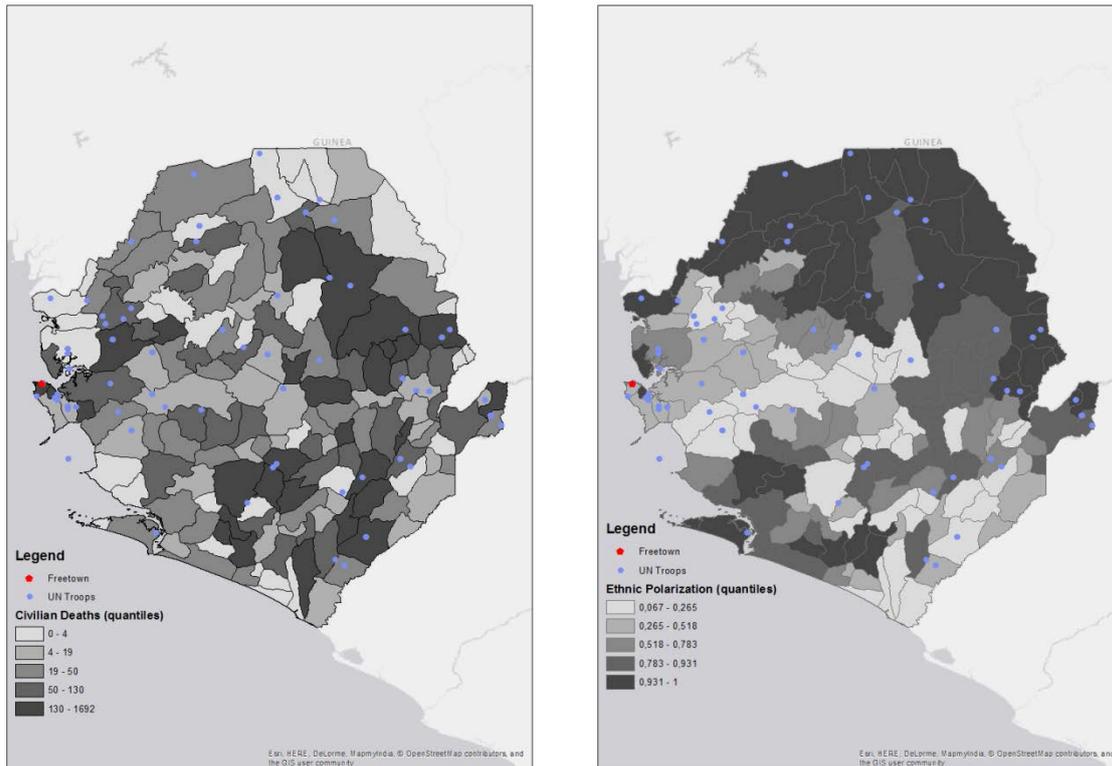
Sierra Leone is an interesting case because it hosted two different UN missions that operated under rather different mandates. UNOMSIL was deployed in 1997 with a weak mandate, while the UNAMSIL mission deployed in 1999 had a robust mandate that explicitly included the protection of civilians. Notably, UNAMSIL was also the first UN mission with a Protection of Civilians (POC) mandate. Indeed, Sierra Leone's population suffered severe large-scale massacres, even after UNAMSIL deployment. The transitional phase from UNOMSIL to UNAMSIL were particularly critical, with personnel lacking “commonly shared understanding of the mandate and rules of engagement”, along with other problems at the level of command and control (UNSG 2000, §54). When the transition was complete and the UNAMSIL force was fully deployed, peacekeepers were sent to previously inaccessible areas, significantly increasing the geographical coverage of the mission. Overall, the UN missions in Sierra Leone are considered examples of effective missions and the complete withdrawal of UN personnel in 2014 was greeted as “the successful conclusion of over 15 years of successive United Nations peace operations in Sierra Leone” (UNSG 2014, §51). The frequent reporting from the Secretary General on the UN mission in Sierra Leone is also a convenient research data tool, as it allows for more precise estimate of the location and size of peacekeeper personnel.

I will test the hypotheses of the conditional effect of ethnic polarization on peacekeeping effectiveness using a time series cross-sectional dataset with administrative division per month

as the unit of analysis. Geographically, the level of disaggregation depends on the availability of data on the subnational distribution of ethnic groups before conflict started. For Sierra Leone, data are available for the third-order administrative unit, the chiefdom (153 chiefdoms in total, and it covers 1997 to 2001, one year prior to deployment and 5 years into the mission.

The dependent variable of the analysis is the number of monthly civilian killings in each administrative unit (Figure 10, left panel), as derived from the UCDP-GED (Sundberg and Melander 2013). This variable is used both as a count and as a logged number, depending on the estimator used in the analysis. The main independent variables are ethnic polarization and the logged number of armed personnel deployed by the UN in each month. I explain how ethnic polarization is constructed in the next section. With regard to the size of UN contingents, I rely on United Nations Secretary General (UNSG) Reports, which often include a map indicating the position of peacekeepers and the countries that are contributing. The problem with these maps is that they do not give information on the size of the contingent in each location. However, the UN Department for Peacekeeping Operations (UNDPKO) records each country's monthly contributions to peacekeeping by mission and by personnel type. This allows me to estimate the size of the mission in the locations indicated by the maps. For example, suppose India has contributed 100 troops to UNOMSIL in a given month. If the deployment map in the UNSG report indicates Indian troops in two different chiefdoms, I divide the country contribution by two and assign the mean to both chiefdoms. If the map indicates that India is contributing in two chiefdoms but only providing troops to one, then only the latter is assigned 100 soldiers. I interact size of personnel with ethnic polarization in order to test hypothesis 1. Since I expect peacekeeping to moderate the effect of polarization, the interaction coefficients should be negative.

**Figure 10. Left Panel: Civilian killings in Sierra Leone aggregated by chiefdom (1997-2001)**  
**Right Panel: Ethnic polarization levels from pre-war census**



Several control variables from the PRIO grid version 2.0 are included in the specification, namely population (log), purchasing power parity (log), night light emissions, the number of excluded ethnic groups, distance from capital Freetown, and a dummy for the presence of primary diamond mining sites (Tollefsen et al. 2012). More violence should be associated with larger population living far from the capital (Raleigh and Hegre 2009) and with the presence of aggrieved excluded groups (Cederman et al. 2013). Night light emissions also capture some degree of economic exclusion. But more generally they are a good proxy for economic condition (Cederman et al. 2015; Weidmann and Schutte 2016). In addition, proximity to mining sites is likely to result in more confrontation if groups compete over resources to fund their operations (Ross 2004). Unfortunately, these variables do not vary much as they are reported at yearly intervals. To account for spatial interdependence, the spatial lag of civilian deaths and peacekeeping personnel size is incorporated in all models. Finally, I include a variable measuring the aggregated number of civilian deaths in each chiefdom before blue helmets were deployed. As final remark, all covariates are logged in the previous month in all specified models. The descriptive statistics are presented in Table 4.

**Table 4. Descriptive Statistics**

Variable	Obs	Mean	Std.Dev.	Min	Max
Civilian Deaths	9,660	0.482	10.93	0	864
Ethnic Polarization	8,940	0.643	0.336	0.068	0.999
UN Troops (log)	9,660	0.137	0.980	0	8.135
Population (log)	9,660	9.136	0.757	7.009	10.93
Purchasing Power Parity (log)	9,660	0.005	0.004	0.0001	0.026
Capital Distance	9,660	173.3	75.85	26.60	332.3
Nightlights Emissions	9,660	0.0265	0.007	0.014	0.042
Diamonds	9,660	0.174	0.379	0	1
Prior Violence	9,660	27.23	113.3	0	1564
Excluded Groups	9,660	0.144	0.4	0	2

I start with a negative binomial model with clustered standard errors, with the number of killed civilians as the dependent variable. The main shortcoming of this model is that it does not control for selection bias. Peacekeeper deployment locations are not randomly selected, neither at the country nor at the local level (Gilligan and Stedman 2003; Ruggeri et al. 2016a). In order to reduce this endogeneity bias, I performed Coarsened Exact Matching (CEM) to compare units with and without peacekeeping that are similar with regard to violence before deployment and ethnic polarization (Iacus et al. 2011). Therefore, I ran a negative binomial model on the matched sample. The CEM procedure assigns different weights to observations to balance substantial differences between the treatment and non-treatment group. In addition, to rule out the possibility that unobservable covariates are driving the selection bias, I also estimated a Conditional Mixed Process model (CMP). The CMP models allow relaxing the assumption that conflict intensity and presence of peacekeepers are independent, uncorrelated processes. Thus, both violence intensity and peacekeeper presence are used as outcomes in two separate models with correlated disturbances.

#### *Ethnic polarization in Sierra Leone*

Ethnic diversity and group relations are acknowledged as important factors explaining conflict onset and dynamics. Diversity is measured in several ways, with the most prominent measures being ethnic fractionalization, ethnic dominance and ethnic polarization (Esteban and Schneider 2008).<sup>16</sup> Ethnic polarization was used by Montalvo and Reynal-Querol (2005), among others, as

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<sup>16</sup> The index of ethnic fractionalization (ELF) describes diversity mostly in relation to the number of ethnic groups. Ethnic dominance is usually measured as a dummy variable that equals 1 if one ethnic group represents at least 45% of the total population in a country or subnational unit. Notably, none of

an alternative to the traditional ethno-linguistic fractionalization index (ELF). Society is described as polarized if there are a few significantly sized groups with high intra-group ethnic homogeneity and high inter-group ethnic heterogeneity (Esteban and Schneider 2008). With  $\pi_i$  being the share of the ethnic group over the total population, the following formula of polarization index was applied:

$$4 \sum_{i=0}^n \pi_i^2 (1 - \pi_i)$$

This formula is a special case of the polarization measure originally proposed by Esteban and Ray (1994). With bipolarity as the highest level of polarization, the index attempts to measure how distant a distribution is from a perfect bipolar setting. The measure ranges from 0 to 1, where 1 signifies two equally sized groups. In such bipolar setting, ethnic groups represent opposite and comparable poles. Esteban and Ray (2008) have explored the relationship between ethnic polarization and ethnic fractionalization and their effect on conflict onset and intensity. These two aspects of conflict are very distinct and related to ethnicity in strikingly different ways. As the authors show, the risk of conflict outbreak is higher at intermediate levels of polarization. In extremely polarized societies, conflict is too costly for both groups, whereas in societies with low degrees of polarization there might be not much to fight for. However, conditional on conflict onset, high polarization is associated with very intense violence while the opposite occurs when groups are less polarized.

Polarization captures two very important dimensions of interest for the analysis. First, it proxies the local-level extraction capacity of a group, i.e. its territorial control compared to their adversaries. Hence, polarization summarizes the local balance of power among groups. In order to connect more clearly armed group to a support base, I will calculate polarization only for ethnic groups that can be linked to armed groups, for example, based on recruitment strategies, claims or support (Wucherpfennig et al. 2012). Second, high polarization also entails strong intra-group cohesion, which in turn makes groups more structured and better able to coordinate large-scale military fights. Indeed, while ethnic fractionalization hampers coordination, polarization significantly decreases the cost of coordination (Collier and Hoeffler 1998; Montalvo and Reynal-Querol 2005). The distinction between polarized and fractionalized ethnic groups has pivotal relevance for the proposed argument. It is interesting to note, for example, that Humphreys and Weinstein's study on abuses during the Sierra Leone civil war

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these two operationalizations directly captures a fundamental feature of ethnicity that relates to conflict, namely the relative power of groups.

finds that civilian victimizations is not explained by co-ethnicity, but rather is mostly the product of the groups' internal discipline (Humphreys and Weinstein 2006). It is clear that the authors do not intend to completely dismiss the role of ethnicity; by measuring internal discipline as ethnic fragmentation, the underlying argument seems to be that it is not ethnicity per se that matters (0/1 for kinship). Rather, it is important to look at what ethnic diversity entails and how it shapes organizational features and strategic use of violence by armed groups.

The map in Figure 10 (right panel) shows the geographic variation in ethnic polarization in Sierra Leone. In order to obtain the polarization index, I georeferenced information from the 1963 census to ensure that ethnic patterns are not an outcome of population movements caused by the conflict.<sup>17</sup> The census data are from IPUMS international database of the Minnesota Population Center (Minnesota Population Center 2015). The IPUMS international database contains representative samples from the original national census. In some cases, data might be missing for some units either because of small units are aggregated or because of changes in unit borders. This is not a problem for Sierra Leone. In order to calculate polarization, I georeferenced the sampled census at the smallest administrative unit available and calculated the share of population for each listed ethnic group. Based on these shares, ethnic polarization is easily computed with the formula indicated above. As already mentioned, polarization is not calculated for all ethnic groups living in the country, but only those that were actively involved in the conflict and can be linked to armed groups (Temne, Mende and Limba). Although the conflict in Sierra Leone was not predominantly centred around ethnic issues (Bangura 2004), ethnic identities were significantly politicized during the process of state formation and continued to play a role in the conflict (Kandeh 1992). As Horowitz noted, "ethnicity has not been everything in Sierra Leone politics [...] yet ethnicity has been so prominent in military and civilian politics that an analysis that sorts out ethnic variables is warranted" (Horowitz 1985, 474). In particular, Mende dominance was a main political issue since independence. There is evidence that the Kamajors armed group enjoyed Mende support and made claims on behalf of this ethnic group (Wucherpfennig et al. 2012, MAR website). In addition, the opposing Revolutionary United Front (RUF) was Temne-dominated and claimed to fight against Mende rule, with support from the Armed Forces Revolutionary Council (AFRC), headed by Limba leaders.<sup>18</sup> The instrumental use of ethnic identities and the subsequent mobilization along

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<sup>17</sup> Replicating the analysis using ethnic polarization indexes calculated from census data after the conflict does not yield significant differences in estimated coefficients.

<sup>18</sup> Taken from the website of Minorities at Risk (MAR): <http://www.mar.umd.edu/assessment.asp?groupId=45103>.

ethnic lines did occur to some extent in Sierra Leone, and the civil war should not be reduced to mere competition over diamonds (Kalyvas 2001; Schraml 2012).

### *Results and discussion*

The negative binomial models are presented in Table 5. Model 1 uses the sample before the deployment to look at dynamics of one-sided violence with no UN mission present. In this model, I include all variables except those measuring peacekeeping. This baseline model indicates that one-sided violence is severe where polarization is high. It also seems that there is some degree of contagion across neighbouring chiefdoms, as the positive coefficient of the spatial lag suggests. More populated areas and locations with higher nightlight emissions are also associated with more violence, though at a lower significance level ( $p < 0.1$ ). In Model 2, the entire sample is used and peacekeeping-related variables are added. The estimated coefficients show that peacekeeping has a negative effect on civilian victimizations. The size of the military personnel deployed by the UN is associated with a reduction in civilian deaths in the following month. Ethnic polarization has a positive coefficient, suggesting that civilians are targeted in areas where the balance of power among factions approaches parity; however, the coefficient is not statistically significant. Among the control variables, significant estimates are reported for the number of civilians killed in the previous month in the chiefdom and its surroundings. Interestingly, UN Troops might reduce on one-sided violence not only in the unit where they are deployed, but also in its surroundings (as suggested by the negative coefficient of the spatial lag for UN military, although it is only significant at the 10%). In Model 3, I interact ethnic polarization with UN troop size. None of the component terms of this interaction is significant, but the interaction term has the expected negative and statistically significant coefficient. This provides some initial support for the idea that peacekeepers are better able to protect civilians in locations where combatants can be separated effectively and where the symmetry of power is not significantly altered by the presence of UN personnel. Conversely, when polarization is low and one group tends to be the hegemon, it is difficult to separate it from the minority group (especially if the latter is scattered), and civilians can be victimized both by the weaker group and the hegemonic one.<sup>19</sup>

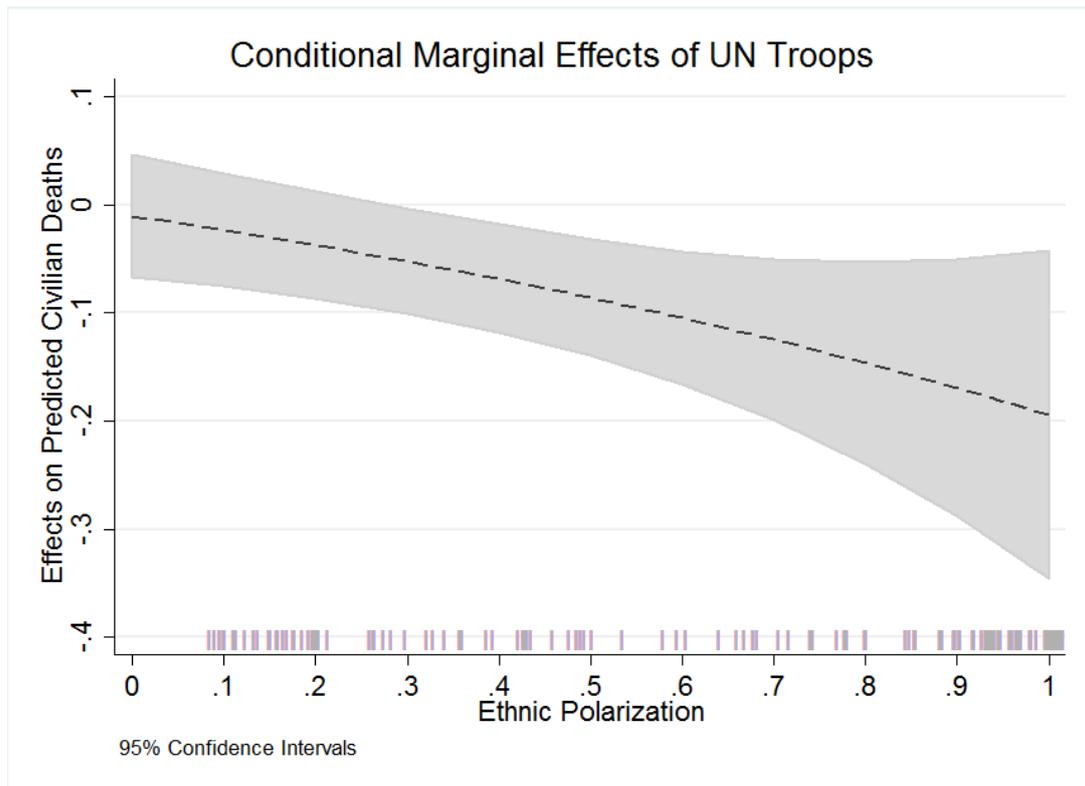
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<sup>19</sup> Other models, including a dummy for mandate robustness (not reported), show that a robust mandate improves peacekeeper performances in protecting civilians. Furthermore, this is not conditional on the local balance of power. It is likely that the micro-level use of one-sided violence is affected more by the local peacekeeping strategy instead of its larger operational setting described by mandate type. Additionally, the dummy used to measure robustness is basically a dummy for the UNAMSIL mission, so might be capturing something about the phases of the civil war.

As discussed before, the main limitation of the negative binomial models is that they do not account for selection bias. It is important to recognize that neither the CMP models nor the CEM technique fully address the problem of endogeneity, but they do attenuate it under certain conditions. Coarsened exact matching alleviates selection bias under the assumption that observable factors responsible for the selection are accounted for. Because peacekeepers are usually sent to more violent areas, I perform matching based on distance from capital, level of violence prior to the deployment, and the measure of ethnic polarization. The imbalance within the data dropped from 0.97 to 0.55, and as expected, the size of the sample also shrunk from more than 9,000 observations to 7,790.

The results of the post-CEM negative binomial estimation are presented in Table 6. The empirical findings for the main variables of interest are similar to those reported in the non-matched models (Model 2 and Model 3). In Model 4, the log of UN Troops has a negative coefficient as expected, while polarization does not reach statistical significance. When interacted in Model 5, neither polarization nor UN Troops seem to have independent effects on civilian killings, as inferred from the estimated coefficients. Consistent with theoretical expectation, there is an inverse conditional relationship between the two. Figure 11 plots the marginal effect of average UN troop size on civilian deaths, conditional on different levels of ethnic polarization. For extremely low levels of ethnic polarization, UN Troops do not have a significant curbing effect on one-sided violence, although their deterrent capacity improves at higher degrees of polarization. In more substantive terms, 1% increase in UN Troops deployed in a location decreases the expected number of civilian casualties by 20% for values of ethnic polarization at the third quartile. Conversely, the same increase in personnel results only in 5% drop in civilian killings when polarization at the first quartile of the distribution. Notice that below the first quartile (0.34), UN military deployment does not have any statistically significant influence on one-sided violence. This analysis does not contradict the finding of previous research that more UN Troops can create a buffer between combatants and reduce civilian targeting on a monthly basis but rather qualifies the claim. Indeed, peacekeepers are more successful when power symmetries exist locally and factions can be kept apart. As these favourable conditions change and power asymmetries prevails, peacekeeping is a less effective instrument to protect civilians.

Figure 11. Marginal effect of UN Troops by level of ethnic polarization (Model 5)



The estimations of the negative binomial model after matching are less sensitive to specification and model dependence. Furthermore, the smaller imbalance among observations alleviates the selection bias. It is important to note, though, that this statement holds true under the assumption that selection occurs on observable variables used to weight observations. To rule out the possibility that unobservable factors are responsible for the endogeneity, I used CMP estimation to tackle the endogeneity problem by simultaneously estimating two equations with correlated disturbances. If there are unobservable factors that influence peacekeeper deployment and one-sided violence, the model should report a significant correlation between the error terms of the two equations.

**Table 5. Negative Binomial Models**

Variables	Baseline Pre-PK Model 1	Baseline with PK Model 2	Baseline interaction Model 3
Ethnic Polarization	1.312* 0.504	0.750 0.501	0.795 0.506
UN Troops (log)		-0.418* 0.136	0.057 0.270
Ethnic Polarization#Troops			-1.151* 0.486
Civilian Deaths	0.039* 0.016	0.056* 0.021	0.054* 0.020
Population (log)	0.591+ 0.323	0.384 0.338	0.418 0.337
Purchase Power Parity (log)	69.582 71.636	104.508+ 63.091	90.320 61.625
Capital Distance	0.003 0.003	-0.000 0.003	-0.001 0.003
Nightlights Emissions	51.199+ 26.956	43.509+ 23.748	42.511+ 23.952
Diamonds (primary)	0.491 0.561	0.756 0.492	0.747 0.493
Prior Violence	0.000	-0.000 0.002	-0.000 0.002
Civilian Deaths (spatial lag)	0.194* 0.070	0.208* 0.071	0.212* 0.072
Excluded Groups (EPR)	-0.531 0.414	-0.314 0.402	-0.326 0.402
UN Troops (spatial lag)		-0.002+ 0.001	-0.536+ 0.292
Constant	-9.665* 2.680	-7.248* 2.778	-7.473* 2.770
Inalpha	4.284* 0.134	4.939* 0.130	4.936* 0.130
N	3576	8791	8791
AIC	2270.588	3345.403	3345.753
BIC	2338.590	3444.544	3451.975

Clustered Standard Errors in parenthesis

\* p<0.05, + p<0.1

**Table 6. Negative Binomial Models and Matched Sample**

Variables	Neg. Bin CEM Model 4	Neg. Bin. CEM interaction Model 5
Ethnic Polarization	0.496	0.506
	0.637	0.641
UN Troops (log)	-0.370*	-0.068
	0.110	0.180
Ethnic Polarization#Troops		-0.760*
		0.350
Civilian Deaths	0.025	0.025
	0.021	0.021
Population (log)	0.377	0.380
	0.376	0.377
Purchase Power Parity (log)	141.492*	139.188*
	38.277	38.298
Capital Distance	0.005	0.005
	0.003	0.003
Nightlights Emissions	8.043	9.913
	36.738	36.600
Diamonds (primary)	-1.725*	-1.724*
	0.671	0.675
Prior Violence	-0.001	-0.001
	0.002	0.001
Civilian Deaths (spatial lag)	0.194*	0.194*
	0.064	0.064
Excluded Groups (EPR)	0.365	0.386
	0.974	0.976
UN Troops (spatial lag)	-0.002	-0.401
	0.001	0.343
Constant	-6.874+	-6.901+
	3.759	3.760
lnalpha	3.963*	3.959*
	0.614	0.615
N	7790	7790
AIC	5402.774	5401.584
BIC	5500.223	5505.993

Clustered Standard Errors in parenthesis

\* p<0.05, + p<0.1

As for the specification of the equation with peacekeeping personnel size as a dependent variable, I include polarization, civilian deaths (time and spatial lag), population and distance from the capital as covariates. This is based on research showing that peacekeepers are deployed in the most violent locations, usually in proximity to urban centres (Ruggeri et al. 2016a). The results for the CMP models are reported in Table 7. The most relevant result is that the correlation parameter  $\text{atanrho}$  is not significant. In other words, there are no unobservable omitted variables correlated to both mission size and civilian casualties. This does not suggest that there is no selection bias at work, rather that it was most likely captured by observable covariates used in the analysis.<sup>20</sup> Consequently, the estimates presented in Table 6 are valid.

Table 8 presents additional models to check the robustness of the results. In Model 10, the actual count of troops is used as covariate instead of its logged transformed version. In Model 11, I included a dummy that equals 1 when a robust mandate was deployed. In Model 12 the presence of peacekeepers is coded as 1 instead of being measured in terms of troop size. Finally, in Model 13 I estimate an OLS model with chiefdom fixed effects. Across all models, the conditional effect of peacekeeping on polarization is significant. When using fixed effects, however, polarization drops out because of its time invariance. Finally, it is worth noting that measuring peacekeeping as 0/1 confirms that peacekeepers are more effective in decreasing violence where polarization is high. However, when plotted, the conditional effect of the dummy variable is much less precise compared to the conditional effect of deployment size, suggesting that we do need to account for the actual number of troops on the ground.

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<sup>20</sup> Interestingly, the correlation parameter is significant when mission size is replaced with a dummy variable for peacekeeper presence; however, it is negative. According to this model (not shown), peacekeepers are less likely to be deployed where more civilians were killed in the previous month and in neighboring areas. While this seems counterintuitive, it might be due to delayed responsiveness by the mission. The fact that peacekeepers do go to the most violent areas is confirmed by the positive and significant coefficient for the variable measuring intensity of violence before the mission starts. Deployment is also more likely in more populated areas and close to the capital. These results are consistent with the subnational analysis on deployment of peacekeepers by Ruggeri et al. (2016a).

**Table 7. Conditional Mixed Processes Models**

Variables	CMP Model 7		CMP Interaction Model 8	
	DV: Civilian Deaths (log)	DV: UN Troops (log)	DV: Civilian Deaths (log)	DV: UN Troops (log)
Ethnic Polarization	0.015 0.014		0.017 0.014	
UN Troops (log)	0.004 0.005		0.010 0.010	
Ethnic Polarization#Troops			-0.010 0.009	
Civilian Deaths (log)	0.160* 0.037	-0.029+ 0.015	0.160* 0.037	-0.029+ 0.015
Population (log)	0.007 0.011	0.075+ 0.041	0.006 0.011	0.075+ 0.041
Purchase Power Parity (log)	3.996		3.995	
Capital Distance	3.106 0.000	-0.001	3.082 0.000	-0.001
Nightlights Emissions	0.000 0.270	0.001	0.000 0.280	0.001
Diamonds (primary)	0.543 -0.005		0.545 -0.005	
Prior Violence	0.015 -0.000	0.001	0.015 -0.000	0.001
Civilian Deaths (spatial lag)	0.000 0.205*	0.001 -0.154*	0.000 0.205*	0.001 -0.154*
Excluded Groups (EPR)	0.068 -0.011	0.050	0.068 -0.011	0.050
UN Troops (spatial lag)	0.009 -0.000+		0.009 -0.000+	
Constant	0.000 -0.079	-0.456	0.000 -0.078	-0.456
	0.090	0.389	0.090	0.389
atanhrho		-0.018		-0.017
		0.012		0.011
N		9499		9499
AIC		32542.894		32544.111
BIC		32700.391		32708.766

Clustered Standard Errors in parenthesis

\* p<0.05, + p<0.10

**Table 8. Models for Robustness checks**

Variables	Model 9 Neg. Binomial Troops Count	Model 10 Neg. Binomial Dummy Robust	Model 11 Neg. Binomial Dummy PK	Model 12 OLS with FE
Ethnic Polarization	0.533 0.643	0.123 0.583	0.595 0.643	(dropped)
UN Troops	0.001 0.001	-0.086 0.143		0.011 0.007
Ethnic Polarization#Troops	-0.005+ 0.003	-0.662* 0.276		-0.022* 0.009
PK dummy			-0.860 1.143	
Ethnic Polarization # PK dummy			-5.017* 1.991	
Robust mission		-3.127* 0.389		
Civilian Deaths (lag)	0.025 0.021	0.031+ 0.016	0.024 0.021	0.137* 0.039
Population (log)	0.374 0.377	0.028 0.415	0.369 0.379	0.063 0.076
Purchase Power Parity (log)	140.249* 38.473	155.500* 40.409	145.401* 38.301	28.475* 8.448
Capital Distance	0.005 0.003	0.002 0.003	0.005 0.003	(dropped)
Nightlights Emissions	7.534 36.987	101.817* 29.985	3.462 37.750	1.219+ 0.637
Diamonds (primary)	-1.727* 0.674	-1.400* 0.582	-1.759* 0.671	(dropped)
Prior Violence	-0.001 0.002	0.006* 0.002	-0.001 0.002	-0.001* 0.000
Civilian Deaths (spatial lag)	0.193* 0.064	0.082 0.056	0.197* 0.065	0.001 0.001
Excluded Groups (EPR)	0.359 0.977	0.400 0.760	0.328 0.979	-0.051 0.038
UN Troops (spatial lag)	-0.002 0.001	0.000 0.001		-0.000 0.000
Constant	-6.839+ 3.777	-4.244 3.904	-6.865+ 3.814	-0.664 0.713
N	7790	7790	7790	8791
AIC	5405.625	5284.820	5402.677	5644.156
BIC	5510.034	5396.189	5500.125	5714.971

Clustered Standard Errors in parenthesis

\* p<0.05, + p<0.10

## 5. Conclusions

This paper shows how the local distribution of power among ethnic groups affects the ability of UN peacekeepers to protect civilians. The reduction of conflict intensity supported in the existing literature does not uniformly affect all types of violence; rather it is mediated by the groups' capacity and their incentives for one-sided violence. Based on the empirical findings for the UN missions in Sierra Leone, there is support for the general hypothesis that effectiveness of peacekeeping is conditional on power distribution, as measured by the ethnic polarization score. In accordance with recent studies, missions with large contingents are found to effectively reduce violence against civilians, but this effect is conditional on ethnic power configurations. When there is asymmetry among warring parties, protecting civilians is more difficult. If one group dominates, the deployment of UN Troops may create short-term incentives that escalate one-sided violence by altering the pre-existing power distribution. When ethnic groups are intertwined and cannot be separated easily, as it is when polarization among group is low, it is harder for external actors to monitor the use of violence, especially behind blurry frontlines. In these settings, the significant power asymmetry pushes the weaker group toward targeting civilians, to either coerce them into supporting it or to inflict losses on adversaries. Similarly, the dominant group also has motivations to escalate violence against civilians to secure its position before a full-scale mission is interposed.

The findings of this paper shed some light on the local dynamics of the targeting and protection of civilians. By adopting a spatially and temporally disaggregated approach, it provides evidence of how blue helmets presence in a location may reduce or spur civilian casualties. Violence against civilians exhibits fluctuating patterns that, as noted by Heldt (2010), point toward the triggering role of local circumstances. Some circumstances are pre-existing (i.e. territorial control) while others are the result of the interventions itself, but both requires local-level perspectives to be explained. Furthermore, policy implications are not trivial. Perpetrators react to interventions differently; if prevented from directly engaging their opponents some belligerents will target civilians when opportunity cost is low. Peace missions need to consider to what extent interventions may make civilians more exposed to brutal attacks. At the core of this concern lies an information gap about local conditions and group capacity. In the last High-level Independent Panel on Peace Operations (2015), protection of civilians was defined as a moral responsibility for UN members. Addressing safety needs of civilians at risk, however, entails a grounded and thorough assessment of the threat, also involving considerations on armed forces and "local sources of resilience" (UN 2015: 39). The more field-focused approach outlined and repeatedly recommended in the report has the potential to fill the information gap and help peacekeepers in accomplishing their protection mandate.

## CHAPTER 3

### Peacekeepers against Criminal Violence<sup>21</sup>

#### Abstract

Does peacekeeping inadvertently increase criminal violence? Research shows that peacekeepers reduce conflict intensity; however, the effects of deployment on violence perpetrated by non-political actors are not known. This paper argues that, peacekeeping missions may actually inadvertently increase criminal violence in the initial phases of deployment due to a three-fold mechanism. First, less violent environments can open up opportunities for criminal groups, thus increasing competition and violence among them. In other words, relatively stable environments provide operational security for organized crime. Second, demobilized combatants can turn to criminal behaviours as a consequence of limited legal livelihood opportunities and their training in warfare. Third, the presence of peacekeepers stimulates the economy and predatory behaviours through the establishment of localized peacekeeping economies. The analysis explores the effect of peacekeeping on criminal violence at the country-year level and at the subnational-monthly level. The aggregated data are collected by the UNODC while the subnational data for South Sudan is from the national police. Empirical evidence supports the hypothesis that peacekeepers increase homicide, although this effect is mainly driven by UN Troops. UN Police, on the other hand, has a negative effect on homicides and moderates the negative side-effect of UN troops. This finding holds true both at the country-year and within country-month analysis.

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<sup>21</sup> In preparation for submission.

## **1. Introduction**

The UN has adapted its strategy of intervention to face specific challenges of civil conflicts, moving away from traditional missions toward multidimensional approaches and enforcing broader mandates. The increasing involvement of the UN in conflict-torn societies has also expanded the time horizon of missions and the complexity of issues tackled. Among several potential threats to peace, criminal actors have emerged as particularly threatening to short and long-term stability. This paper aims to explore the impact of peacekeeping missions on crime and identify whether and how peace missions can reduce criminal violence. Research on peacekeeping effectiveness strongly suggests that blue helmets reduce one-sided and two-sided violence (Hultman, Kathman, and Shannon 2013, 2014), prevent spatial diffusion of conflict violence (Beardsley and Gleditsch 2015), shorten duration of conflict, and ensure durable peace (Fortna 2008; Gilligan and Sergenti 2008). In sum, peacekeeping works because it reduces the lethality of civil wars by tackling it on several dimensions.

In this paper, I argue that existing research has focused on violence perpetrated by armed political actors but has largely neglected violence perpetrated by non-politically motivated actors – above all, criminal actors. The objectives set in mission mandates are primarily conflict-related; thus, it is reasonable to assess the effectiveness of peacekeeping based on its impact on political violence. Nonetheless, given the pervasiveness of crime in conflict and post-conflict societies, a more comprehensive assessment calls for more attention to broader security implications of peace missions. The sharp increase in homicides and organized crime activities in El Salvador, Haiti, Kosovo, Ivory Coast and Mali during the deployment of UN peacekeepers forced the missions to adapt and change the scope of their mandates to include crime-related tasks. Indeed, the UN has acknowledged the relevance of the conflict–crime nexus for long-term stability, but current operations either lack the mandate to fight crime or, if they have one, are not prepared to tackle it (Kemp, Shaw, and Boutellis 2013). But are UN peacekeepers as effective in deterring criminal violence as they are in deterring political violence?

This paper argues that peacekeeping activities inadvertently increase criminal violence through three mechanisms working respectively at group, individual and government level. First, UN Troops improve security by reducing conflict intensity and simultaneously provide operational security that organized criminal groups need to run their businesses. Reduction of conflict results in a more secure environment for criminal activity. In addition, local peacekeeping economies that emerge where UN personnel are deployed create more opportunities for illegal activities, including black market goods and human trafficking. As consequence of these new profit opportunities, new groups emerge and engage in a violent competition with existing players, producing higher levels of criminal violence. Second, peacekeeping economies increase

predatory behaviours not only by organized crime, but also by other actors. Disarmament, demobilization, and reintegration programs implemented by peacekeepers may produce a large pool of unemployed and disaffected individuals trained in warfare. Former combatants are more susceptible to engaging in criminal violence than others because they lack marketable livelihood skills and have incentives to use their violent skills for crime. In sum, ex-combatants are more likely to perpetrate criminal violence. Third, peacekeepers establish a partial monopoly of violence that addresses political actors but neglects criminal actors, with the expectation that the state will deal with them. By replacing the state's monopoly of violence only in part, peacekeeping may weaken state capacity to fight crime. Though all mechanisms point toward a positive relationship between peacekeeping and criminal violence, support from UN Police to national police can improve state capacity to face criminal violence and successfully curb homicides. In order to explore the relationship between peacekeeping and criminal violence, I first look at a cross-national sample at the country-year level and then move to a subnational monthly analysis on South Sudan.

The paper is structured as follows. First, I present the main theoretical contributions on crime in conflict and post-conflict society, to identify the baseline expectation on crime incidence in the sample of countries that are in conflict or in its aftermath. Second, the theoretical section elaborates on how peacekeeping enters the baseline scenario and affect the dynamics of criminal violence. I identify group, individual and state mechanisms, all pointing to a positive relation between criminal violence and deployment of peacekeepers. Then I describe the research design at the yearly cross-national (1989-2012) and monthly subnational level (South Sudan). I show that UN troop size has a negative effect on homicide rates, while UN Police is more efficient in reducing intentional killings; both effects tends to be stronger at the national level during the early phases of deployment. Additionally, UN Police moderates the increase in homicides, the negative side-effect of UN Troops. These results hold true when coarsened exact matching and conditional mixed processes are estimated to attenuate selection bias.

## **2. Criminal violence in conflict and post-conflict societies**

The scholarship on the relationship between criminal violence and stability can be broadly divided in two major arguments, political economy and culture, which do not necessarily stand in opposition to each other. The political economy of crime adopts a rational choice perspective which posits that criminal acts are the result of cost–benefit trade-offs, where the gains from the action outweigh the risk of being punished (Cornish and Clarke 1986; Wright et al. 2004). In this view, criminal actors weigh the economic gains against the risks of being punished for the

crime. Both institutional capacity and economic situation are involved in these calculations, with low state capacity, compounded by poverty and inequality, making the ideal scenario for higher crime incidence. Conflict and post-conflict contexts have specific crime-promoting features, resulting from both state weakness and conflict history. In some cases such as Guatemala, the post-conflict phase may turn out to be more violent than the preceding war (Mac Ginty 2006). At the same time, major political shocks, including wars or revolution create the power vacuum necessary for criminal groups to emerge. Once the conflict ends, society does not immediately shift to peace as it has internalized new norms and values that favour the social permissiveness of violence and crime (Archer and Gartner 1976; Steenkamp 2005). This cultural explanation of high crime rates in post-conflict settings is compatible with the social disorganization theory argument, according to which the variation in delinquency and crime rates is explained by the disruption of formal and informal community networks (Sampson and Groves 1989; Lafree and Tseloni 2006). Hence, post-conflict societies are more likely to experience rapid growth in crime because the war altered the normative order and consequently decreased social organization (this disruption is also evident in industrializing societies but under different drivers). The empirical support for the institutional argument linking high rates of crime and unstable regimes remains limited to state-level evidence, but can usefully be applied to the subnational level. Organized crime flourishes where the state is unable to adequately provide security and other services to the population.

For the abovementioned reasons, states weakened by civil wars provide ideal conditions for criminal activities both during and after the war. Increasing decline of state authority and growing inability to fulfil its main functions open more space for non-state actors, from street gangs to more organized mafia-like groups. However, differently from armed groups that aim to overthrow the government, criminal groups prefer under-provision of governance over total anarchy (Hazen 2010; Kalyvas and Kocher 2009). Organized crime flourished in so-called ungoverned areas but even in these locations a minimum level of predictability and regulation is required. Clunan and Trikunas observe that the “wild” space of illicit economies is not ungoverned, but rather differently governed since “total chaos and complete removal of the governing authority pose critical threats to the survival of the illicit (and licit) economies” (Clunan and Trikunas 2010, 179). Indeed, as Patrick argues, “weaker is not necessarily better” since criminals, especially the most organized groups, need “operational security to plan, prepare, and conduct their illicit activities” (Patrick 2011, 135-136).

Furthermore, relatively safe environments reduce losses and encourage potential buyers. If a region is torn by communal violence, trading becomes particularly risky, even more so if the group does not have its own armed militia and has to rely on outsourced security. While mafias

can provide security to themselves and “offer” it to others (Gambetta 1995), most criminal groups that are less powerful and organized do not have the necessary resources to carry the burden of providing security while also conducting their business. Criminal groups prefer the state or other actors to provide minimum levels of governance and security, which they can either freeride or buy (e.g., Somali pirates pay local clan elders for protection) (Shortland and Varese 2012, 2014).

State failure presents permissive conditions not only for organized criminal groups but also for random individuals, especially during or after conflict. In these contexts, societies become *crime-facilitative* and *crime-coercive* systems in which structural conditions (namely incentives, opportunity and immunity) make crime particularly rewarding (Needleman and Needleman 1979). In more extreme circumstances, crime may also represent the only available survival strategy for segments of the population, especially when the war economy is largely a coping economy (Goodhand 2005). Particularly during and immediately after civil conflict, economic disruption combined with impunity decreases the opportunity cost of crime. The unprecedented increase in opium production in post-2001 Afghanistan was not a consequence of greedy farmers switching opportunistically from legal to illegal crops; rather, for the majority of poor farmers it was a matter of survival (Goodhand 2005).

To conclude, the existing literature suggest that conflict and post-conflict countries are likely to experience high levels of crime and criminal violence, because in these societies crime and violence are not only permitted (by society and, indirectly, by weak institutions) but also induced by a war-ravaged economy. How do peacekeepers affect these dynamics when deployed? In most countries, criminal violence should be high during and in the aftermath of a civil war, but can peacekeeping make a difference? In the next section, I will argue that the deployment of peacekeepers, instead of deterring crime, may exacerbate it as side-effect of their political violence-related activities and economic stimulus introduced by their presence.

### **3. How peace missions boost criminal violence**

I argue that the stabilization brought by peacekeepers inadvertently increases criminal violence, distinguishing between group-, individual-, and state-level effects of peacekeeping on incentives and opportunity for criminal violence. With regard to organized crime, peacekeeping exerts what I call a security and an economic effect. Security-wise, the main objective of the mission is to restore minimal levels of security by reducing violence and disarming violent political factions to reduce the chances of relapse into armed conflict. This objective is a priority for both traditional and multidimensional interventions, since other interventions related to state-

building, economic and social reforms require stability. Interventions have multiple objectives, but the priority is always on cessation of hostilities (Kuehner 2008; Regan 1996). Peacekeeping missions with substantial military composition are particularly successful in reducing conflict intensity and casualties, from both one-sided and two-sided violence (Hultman, Kathman, and Shannon 2013, 2014). Sizeable UN military presence is thus a credible deterrent for political actors and effectively reduces the incentives to fight. In addition, peacekeeper effectiveness in reducing political violence “provide[s] a minimum level of stability and predictability which can unintentionally facilitate illicit economic exchange” (Andreas 2009: 34). This is one of the reasons why transitions to peace in fragile states often occurs along with the prominent emergence of organized crime (Shaw and Kemp 2012; Steenkamp 2011). Hence, the reduction in political violence translates into more security for criminal businesses. Based on empirical patterns indicating that stabilization occurs on a monthly basis, organized crime freerides on this security already from the early stages of the mission.

The other peace mission-specific effect is economic. The arrival of UN staff changes the local economy and may result in the emergence of “peacekeeping economies” (Jennings and Nikolić-Ristanović 2009). Basically, peacekeeping stimulates the local economy in several ways, for example, increasing employment opportunities and incomes (Mvukiyehe and Samii 2010). In some circumstances, peacekeeping economies foster illicit activities, which do not necessarily involve UN personnel directly but are made possible by their presence. Transactional sex or human traffic are some of the new opportunities (Atwood et al. 2011). As Jennings notes, “given the involvement of criminal actors in many war economies, and the continuities between war and ‘post-conflict’ economies, it is reasonable to conclude that criminal actors or networks are also actively involved in peacekeeping economies” (Jennings 2015, 312). The main point here is that criminal groups will be able not only to free-ride on the security provided by peacekeepers without having to fear state punishment, but may also become more exploitative as direct result of peacekeeping economies. With the state still unable to counter them and a mission focusing on political actors, criminal groups are left unharmed by the external intervention. Even in missions where tackling organized crime became focus of peacebuilding (e.g., Kosovo), this objective could only be set years after the mission started. UNMIK is an exceptional case, as UN personnel had clearly defined objectives to counter organized crime (and even in this case this was not the initial priority of the mission) (Teran 2007).

The growing opportunities for predatory behaviour produce more competition among criminal actors, which very likely involves violence (Kalyvas 2015; Moro et al. 2014). In most cases, criminal groups are already present when UN personnel are sent as they flourish in conjunction with the emergence of shadow economies that precedes civil wars (Ballentine and Nitzschke

2005). However, in this scenario, competition for new illicit markets between organized criminal groups will produce higher homicide rates. Contrary to this expectation, there is consensus around the notion that homicides drop significantly when organized crime is doing business, thus low homicide rates are a function of solid territorial control (Cockayne and Lupel 2011). However, this idea that criminal groups do not use violence in their home territory is mostly derived from studies of Italian mafias, and the extent to which this trend is generalizable to African or other contexts is debatable. Indeed, African criminal groups exhibit loose structures and temporary business-oriented formation that does not allow them to establish actual territorial control (Abadinsky 2007; Mazzitelli 2007; UNODC 2005). Furthermore, even if organized crime does establish undisputed control, the arrival of peacekeepers generates an external shock that disrupts and reshuffles the political and economic landscape. As a consequence, groups have to adapt to the new conditions by exerting more violence.

I now examine the mechanism linking peacekeeper deployment to individual criminal violence. First, incentives for predatory behaviour associated with peacekeeping economies exist not only for group members but also for individuals. In addition, another important mechanism is related to former combatants. In order to reduce the risk of re-escalation, one of the first steps of the intervention involves the implementation of SSR (security sector reforms) and DDR programs (disarmament, demobilization and reintegration). Disarmament has the objective of reducing ongoing violence, but reintegration of combatants to civilian life plays an equally relevant role for the peace process. Indeed, DDR programs can produce undesirable consequences if former combatants are not successfully reintegrated. They are one of the most vulnerable groups, and the post-conflict economic insecurity may drive individuals toward crime because of the limited alternatives for earning money legally. Ex-combatants are more vulnerable as they usually lack education and do not have strong marketable skills (Muggah 2008; Patel et al. 2010). Their main skill is the use of violence and familiarity with weapons (Collier 1994; Schulhofer-Wohl and Sambanis 2010). After being disarmed, they find themselves in a context where these skills are not rewarded but are also not replaced, especially if reintegration programs fail (Gamba 2003). Furthermore, ex-combatants may turn to banditry and crime out of frustration for their slow reintegration into civilian life and for not receiving sufficient assistance from authorities (Spencer 1997).

In Central America, demobilized combatants returning home created so called *pandillas*, which functioned initially as vigilant groups and later engaged in gang-like behaviours (Jütersonke et al. 2009). In their background paper for the World Bank Development Report, Bøås et al. (2011) find that individuals joining rebellion do not differ much from those joining criminal gangs with regard to motivations. However, in a context where the only credible sanctioning power is the

UN mission, which primarily focuses on political armed groups, it is more reasonable to join criminal groups. Contrary to armed groups, gangs and criminal organizations are not subject to disarmament programs. So the likelihood that veterans will turn to crime and put their military skills at the service of criminal networks increases if reintegration into civilian life does not occur immediately (Mcfate 2010). Some former combatants voluntarily abandon reintegration programs if they find them unreliable or conditional on funding from development agencies. Beside former combatants, ordinary people are also likely to resort to crime and violence if they find themselves in insecure environments where self-help and illicit business are the only survival strategies. Veterans might be more prone to such behaviours, because of their recent history of violence, but they are not uniquely vulnerable to turn to crime.

Finally, the successful reduction of political violence by peacekeepers is arguably made possible because they establish a monopoly of violence (Lambach 2007; Mehler et al. 2010). However, instead of a beneficial monopoly of violence, which prevents the emergence of both political and criminal violence, I argue that peacekeepers create a predictable environment because they reduce conflict intensity by substituting state capacity (Doyle and Sambanis 2000) but limited to political violence. Hence peacekeeping actually delays the creation of a true monopoly of violence by central government, which is a necessary counterbalance to criminal threats that are overlooked by peace missions. As a consequence, peacekeepers deter military conflict but, on the other hand, weaken the state's power and its ability to counter crime, which thrives during and after conflict. From the peacekeepers perspective, crime is a problem of rule of law and domestic justice. These domains are often beyond the peacekeepers' mandate, thus the responsibility for these issues rests with the weakened post-war central authority.

The first hypothesis of this paper states that criminal violence is likely to increase, especially at the early stages of peace intervention. This expectation holds true not only for more traditional or enforcement missions (which are explicitly military) but also for multidimensional missions, as crime-related functions can be implemented only once violence ceases or is reasonably low.

*H1: Criminal violence increases at the early stages of peacekeeping missions.*

It is reasonable to expect that because of their direct impact on security, UN Troops are expected to be associated with more criminal violence. On the other hand, I hypothesize that UN Police have potential to decrease criminal violence, as this type of personnel executes policing, justice and rule of law functions. Patrolling by UN Police or the mere presence of uniformed police officers might be a sufficient deterrent. Notice that both police and troops are present in all UN missions, although troops usually make the majority of UN staff. Thus, hypotheses two and three are formulated as follows:

*H2: UN troops have a positive effect on criminal violence*

*H3: UN police have a negative effect on criminal violence*

#### **4. Empirical strategy**

The empirical analysis is divided into two steps. First, I use country-year as unit of analysis with national-level statistics from UNODC on homicide rates in countries that experienced civil wars from 1989 to 2012. This allows me to include most of the countries that hosted a UN mission after the Cold War, although it does not allow the exploring of casual drivers within countries. In order to avoid the ecological fallacy, the second stage moves the analysis to the subnational and monthly level by focusing on one case study, namely the UN mission in South Sudan (UNMISS). Inclusion of other disaggregated cases, as I will discuss, is limited by available subnational crime statistics. The main model estimated is a Panel Corrected Standard Errors (PCSE) model with panel-specific, first-order temporal autocorrelation (Beck and Katz 1995). Spatial autocorrelation is accounted for by the inclusion of a spatial lag in the subnational analysis.

*Dependent variable: homicide rates*

Violence is classified as criminal or political depending on perpetrator intentions. All I can observe, however, are instances of violence and their results, which serve as indirect indicators of criminal violence. I operationalize criminal violence with homicides rates. Homicide rates are strongly related to the presence of criminal groups, particularly in Central and Latin America. The World Bank has reported that illegal activities such as drug trafficking are “the main single factor[s] behind rising violence levels in the [Central American] region” (World Bank 2011). Accordingly, studies on Colombia (Sanchez et al. 2002) and Mexico (Villarreal 2002) found a strong correlation between homicide rates and the presence of criminal groups. The Handbook for European Homicide Research also states that “homicide rates are generally accepted as both the most reliably measured crime and as an accurate indicator of a nation’s overall level of criminal violence” (Liem and Pridemore 2012). Hence, the dependent variable of the analysis is homicide rate. For the country-year analysis, I use homicide rates in countries that are either in conflict or in a post-conflict setting (maximum 5 years of peace) collected by the United Nations Office on Drugs and Crime. UNODC runs the Survey of Crime Trends and Operations of Criminal Justice System to which every UN member is asked to report official police records of crimes. Intentional homicides, in particular, are defined as “death deliberately inflicted on a person by another person, including infanticide” (UN Statistical Division 2003:91). The UNODC reports homicide rates per 100,000 populations. For South Sudan, I use quarterly crime statistics reports published by the South Sudan National Police. These reports, realized with the support

of the UN, cover the period from June 2011 to March 2013, for a total of 18 months (South Sudan Police Service 2011-2013). The reports also include information on other crimes.

#### *Independent variable*

The independent variables of interest are the total number of peacekeepers deployed and the size of the troop and police personnel. Information on the number of UN personnel size is from Kathman (2013), who used information provided by the UN Department of Peacekeeping Operations to collect data on monthly personnel deployments. These numbers have been aggregated to their yearly mean value so that each country reports the mean number of troops deployed throughout the entire year.

To get information on subnational deployment, I rely on the abovementioned data and United Nations Secretary General Reports, which often include a map indicating the position of peacekeepers. These two sources combined allow me to estimate the size of the mission in the locations indicated by the maps (see Appendix A).

#### *Control variables*

For the cross-national analysis, I use the following set of control variables:

*Battle-related deaths*: This is the time lag of killings related to conflict activity, as reported in the UCDP/PRIO Armed Conflict Dataset v.4 (Pettersson and Wallensteen 2015).

*State Fragility*: I use the State Fragility Index from the Centre for Systemic Peace (Marshall and Cole 2014), which includes indicators for governance, socio-economic development and security.

*Ceasefire and DDR*: These are two dummy variables indicating whether conflicting parties have agreed on a ceasefire or whether a DDR program was ongoing in the previous time period. This information is retrieved from the UCDP conflict termination dataset (Kreutz 2010).

*Population and GDP per capita*: For these variables I refer to Gleditsch (2002), the most complete source for these two measures.

*Post conflict*: A dummy flagging post-conflict years is included in the specification.

The control variables for the subnational analysis cannot be exactly the same because these data are not available within South Sudanese states. However, I try to keep the battery of variables as consistent as possible by including population density, urban population share, poverty incidence, state revenue, state control and conflict intensity. Population density is measured yearly at the state level according to the national statistics (South Sudan National Bureau of

Statistics 2014). Urban share, poverty incidence and revenues are time-invariant and measure respectively the share of population living in urban area, the share of population with below minimum welfare levels in 2009 and total state revenues in 2010 (including government transfers, taxation and oil revenues) (National Bureau of Statistics 2011). State control is measured using the number of police station in each state, as indicated in the national police reports. To account for conflict intensity, monthly killings reported in UCDP GED are factored in (Sundberg and Melander 2013). Furthermore, I add a spatial lag for homicides to control for potential diffusion. Finally, I do not code DDR programs or post-conflict time since both would be constant and coded as 1. All independent variables are temporally lagged to alleviate endogeneity.

#### *Potential threats to inference*

There are three criticisms that I would like to discuss beforehand. The first one concerns whether the homicide variable is also capturing political violence. The argument that homicides proxy criminal violence and thus increase when peacekeepers are deployed hinges on the assumption that reported homicides are not politically motivated. In principle, it should then be possible to distinguish political and criminal violence. In practice however, it is difficult to empirically identify and pin down criminal violence. It is no surprise that crime statistics are imperfect. In South Sudan, these were collected with the support of the UNDP and the UN Police, which to some extent makes me more confident on the quality of this data. One could even argue that homicides might be actually proxying political violence; if this is the case, I should not observe the positive relationship with peacekeepers. Instead, I should observe a decrease in homicides according to existing literature on peacekeeping and political violence. More importantly, both troops and police would be positively associated with homicides for the same reasons; however, I will show that these two types of personnel have opposite impact on homicides. Additionally, in the subnational analysis I have estimated models with total crime rates and counterfeiting rates as alternative dependent variables to see how peacekeepers affect other forms of crime (Table A1, Appendix B). In particular, counterfeiting is one of the most common activities of organized crime in South Sudan, so it can be considered a proxy for organized criminal groups, though it is obviously imperfect and conservative. Differently from homicide rates, I find that crime rates are not affected by peacekeepers whereas counterfeiting is positively associated with troop's presence. This supports the assumption that not all crime, but specifically homicide and organized groups-related crime, increases where UN personnel are deployed.

The second issue is selection bias. Empirical studies on peacekeeping always have to tackle the problem that peacekeepers are not randomly deployed; usually the most violent locations host

UN personnel (Fortna 2003; Gilligan and Stedman 2003; Ruggeri et al. 2016a). This is problematic when one wants to assess the effect of peacekeeping on political violence. However, crime and more specifically homicide rates are not among the main drivers of mission deployment. The mandate of UN Police is oftentimes limited to monitoring and reporting rather than actively curbing crime. Consistently, UNMISS mandate does not make reference to crime except for war crimes and crimes against humanity. While I do not argue that the mission is completely exogenous to criminal violence, I believe that the selection bias is a less threatening issue for statistical estimation. Statistical models confirm this hunch both when using matching and seemingly unrelated regression. In the former model, the results are not affected while in the latter the rho parameter is not significant, meaning that the data-generating processes of UN deployment and homicide rates are not correlated.

Finally, reporting bias could be a concern. It could be argued that since UN Police assist the national police, homicides are reported more in locations where the UN is present. Hence, peacekeepers will be associated with higher homicides counts. Similarly, UN presence would result in more reported homicides as consequence of an intentional miscategorization of political killings as criminal killings. This would suggest a negative correlation between political and criminal violence, but actually the correlation between the two is very close to zero (See Figure A2 in Appendix B). Additionally, on average, UN presence would result in the over counting of homicides compared to post-conflict cases with no UN deployment. But if these biases are severely affecting the results, the empirical analysis is expected to report a positive coefficient for UN Police, in particular. What the analysis shows is that UN Police is associated with fewer homicides and only UN Troops have a positive coefficient. This does not mean that the UN Police is not facilitating data collection, but given the direction of the bias the conclusion would be that the real reducing effect of UN Police on homicides is probably stronger than estimated.

I do not intend to completely dismiss selection and reporting biases or to argue that homicides are the perfect measurements of criminal violence. Rather, the discussion takes these problems into account and reflects on whether and to what extent they could affect any inference made in the empirical analysis.

## **5. Country-level analysis**

The cross-national sample includes countries that experienced internal conflict from 1989 to 2012, according to the UCDP/PRIO Armed Conflict Dataset v.4 (Pettersson and Wallensteen 2015). So, if a country had violent conflict in a given year, it enters the dataset and leaves it only



**Figure 13. Temporal trends in homicides in conflict countries with no intervention (dashed) and with peacekeepers (solid)**

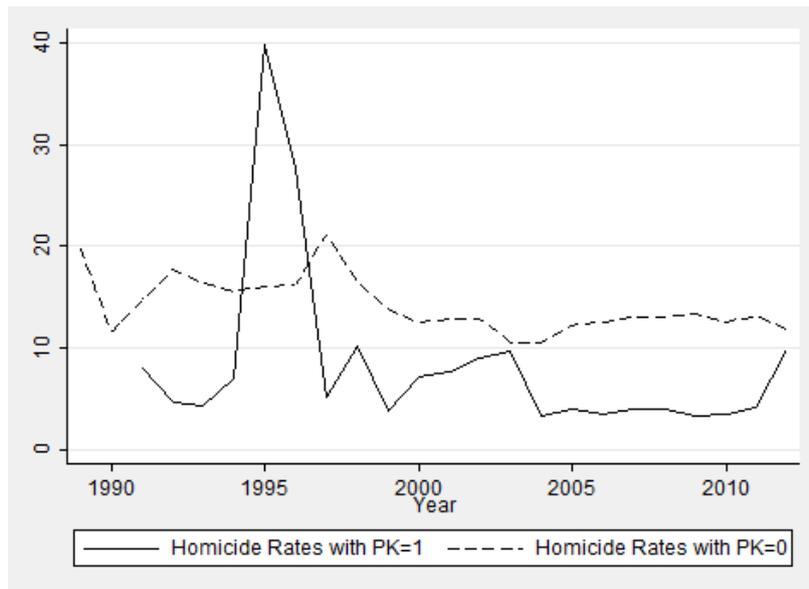
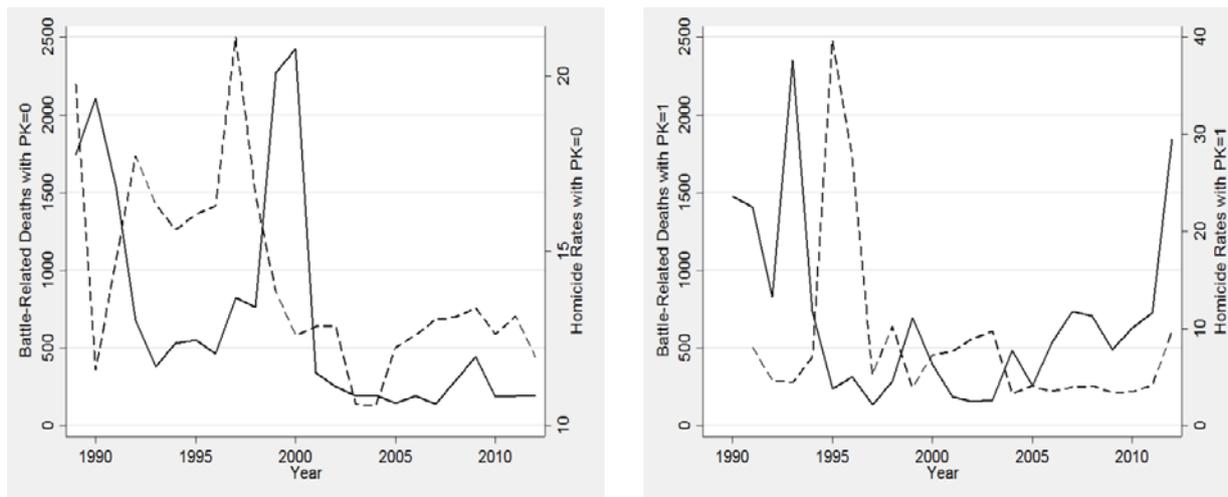


Figure 14 plots conflict-related deaths and homicide rates, allowing for examination of a potential trend in the dynamics of these two types of violence. The left panel is for observations with no UN mission in the previous year, and vice versa for the right panel. Notice that the scale of the two vertical axes for political and criminal violence is not the same, in order to make the time trends visually easier to compare. It seems that in both instances, low intensity of political violence is associated with high levels of criminal violence measured as homicide rates. This is consistent with the expectation that decreases in conflict might be a condition for more criminal violence. It could be argued that Figure 13, however, does not support the argument that peacekeepers presence creates incentives for crime. What I argue, though, is not that UN missions favour higher levels of homicides in the future, rather their presence accelerates the unfolding of conditions that causes more criminal violence. Figure 14 shows that these conditions, such as drop in political violence, are related to more homicides regardless of peacekeeper presence, but my hypothesis is that this effect is stronger in the early phases of the peace mission. The association between PKO and lower homicide rates in Figure 13 does not exclude such effect. In addition, there might be country-specific (or even region-specific) structural reasons explaining the difference between the PKO and non-PKO scenarios.

**Figure 14. Political violence (solid) and homicides (dashed) without (Left) and with (Right) peacekeepers**



One of the assumptions of the hypotheses linking homicides and peace missions is that peacekeepers reduce battle-related violence. This assumption finds empirical support in the Hultman et al. (2014) study on peacekeeping in Africa. In their sample (all African countries with civil wars from 1992 to 2011), UN armed personnel effectively reduced political violence on a monthly base. The hypotheses I formulate hinge on the effect that peacekeepers have on violence to the extent that fluctuations in political violence might drive different trends in criminal violence. Since I expect that, according to existing studies, UN Troops reduce violence on the battlefield, I also expect this to spur more homicides.

Given the relevance of this step in the causal chain, I begin by replicating the Hultman et al. (2014) analysis, but to a different aggregation level, namely year. The size of the deployed contingent in a given year was calculated as the annual mean of personnel deployed each month, as reported in the original dataset. The results are reported in Model 1 (Table 9). In line with Hultman et al., armed troops are associated with less violence in the subsequent period, although this relation is weak ( $p\text{-value} < 0.1$ ). Presence of unarmed observers, on the other hand, seems to have a counterproductive effect on conflict violence, also noted in the abovementioned study and explained as a consequence of their inability to increase cost of violence for belligerents. Hence, the overall trends in violence reduction by type of UN personnel in Africa seem to hold, yearly aggregation notwithstanding. Armed personnel, more specifically troops, have a weak curbing effect on political violence because it signals stronger commitment. Consequently, the theoretical argument that by reducing political violence peacekeepers also fosters more criminal tensions is likely to be observed in the African case. Indeed, we do not

know if the decrease in conflict intensity following UN troop deployment also occurred in countries that are not included in the sample. The fact that this dynamic unfolds in Africa should increase the chances of observing a rise in homicide rates, assuming that the theorized mechanism is correct.

Now I estimate Model 2 using homicide rates as dependent variables, instead of battle-related deaths, which is still included as covariate. Since now the dependent variable is a rate, I cannot estimate a negative binomial model as in Model 1. So, Model 2 is a naïve model where I replace battle-related deaths with homicide rates as dependent variable and add GDP per capita as a control variable. I also tried to include other variables which might be related to homicides, such as Gini index and unemployment rates from the World Bank, but these are not significant and also reduce the sample size due to missing values. The presence of peacekeepers is modelled using a dummy variable for ongoing missions. According to the estimates, the presence of UN peacekeepers has no effect on homicide rates in the following years. The coefficient is negative but it does not reach standard levels of statistical significance. It is interesting to note that the rate of intentional homicides is also associated with the strength of the rebel group. The inclusion and significance of these variables might be capturing the fact that some rebel groups are also entangled within crime networks or fund their activities illegally. Finally, political violence during a given time period is negatively associated with criminal violence in the following year, as expected. In Model 3, I disaggregate the mission by type of personnel deployed and its size, as in Model 1. Only police is significantly associated with fewer homicides in the next year, while a positive coefficient is reported for military troops and observers. Since the main task of troops is to deter political violence, it is likely that their deterring role has the counterproductive effect of spurring criminal violence (a similar argumentation was also posed for ceasefires). Differently, police personnel are associated with reduced criminal violence as its main responsibilities are rule of law, assistance to national police and thus curbing crime. In other words, it may be possible that police and troops affect criminal violence in different ways as result of their effectiveness in achieving their mission objectives. Unfortunately, effective peacekeeping by UN Troops may have the undesired side-effect of increasing homicides.

**Table 9. Models for cross-national analysis on African countries**

Variables	Model 1 Replication	Model 2 Homcides&PK	Model 3 Homicides&Personnel	Model 4 Homicides&Decay
PK Dummy		-0.726 2.072		
UN Troops	-0.186* 0.094		0.029* 0.012	1.138+ 0.639
UN Police	0.377 0.229		-19.569* 3.250	-221.227* 33.774
UN Observers	5.118* 2.197		11.219* 2.302	143.089* 48.785
Ceasefire	-0.754* 0.370	3.316+ 1.762	1.347 1.466	1.352 1.463
Rebels Strength	0.164 0.262	8.294* 3.233	13.700* 2.332	13.786* 2.319
Num. of Rebel Groups	0.093+ 0.049	-0.104 0.156	-0.008 0.164	-0.004 0.164
Population (log)	-0.213 0.142	4.572* 1.006	4.805* 0.595	4.826* 0.593
Biased mission	0.388 0.241	0.389 0.721	0.551 0.669	0.556 0.667
DDR	0.464* 0.198	-1.935 1.482	-0.468 1.290	-0.457 1.288
Post-Conflict year	-1.864* 0.452	-0.968 2.473	1.193 1.982	1.213 1.982
Conflict Deaths	0.001* 0.000	-0.001 0.001	-0.002+ 0.001	-0.002+ 0.001
GDP		0.000 0.001	0.000 0.001	0.000 0.001
Constant	6.741* 1.589	-50.501* 13.827	-62.742* 8.613	-63.213* 8.632
N	167	42	42	42
* p<0.05, + p<0.10				

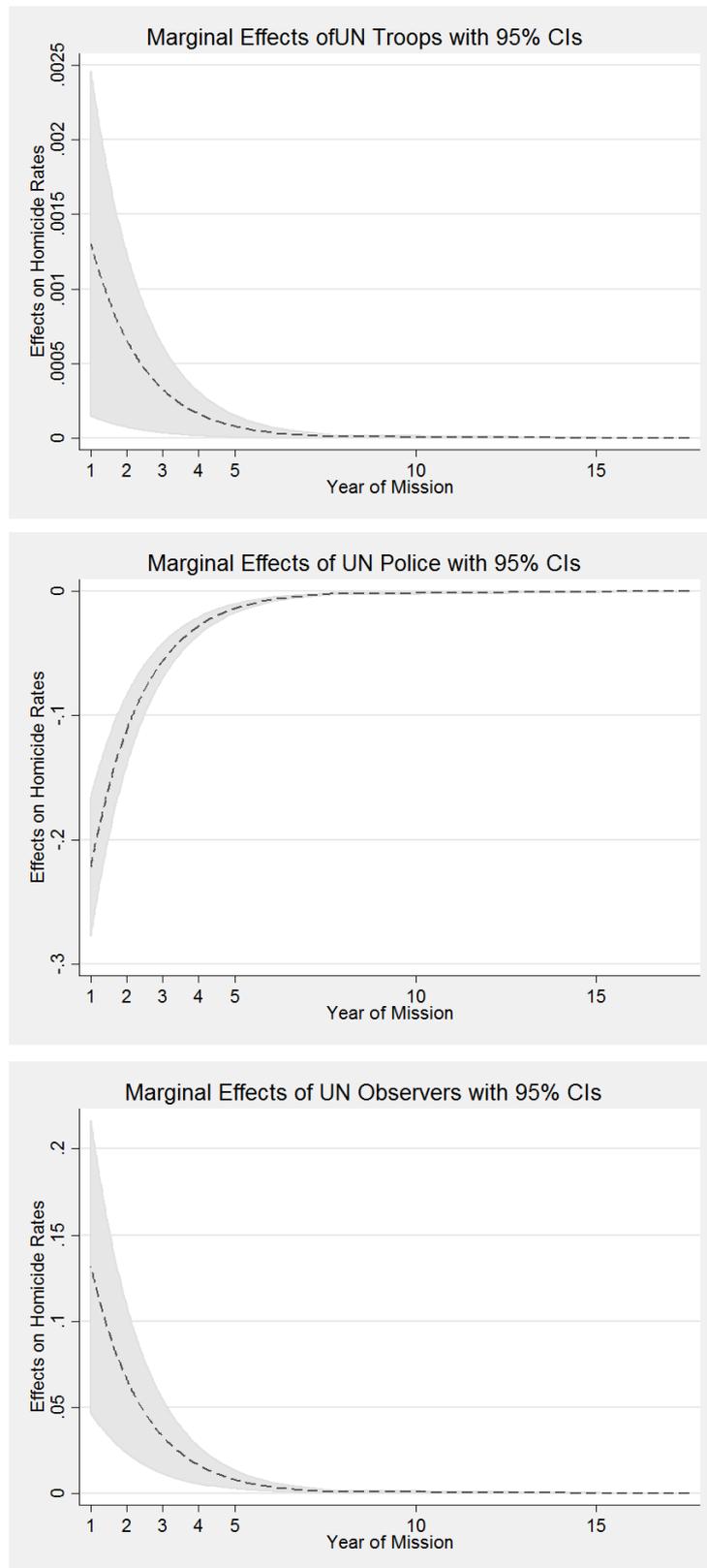
In Model 4, I include a decay function that accounts for the decreasing magnitude of the effect of peacekeeping on criminal violence as time passes. Consistent with hypothesis 1, I expect peacekeeping to have a more substantial impact on criminal violence at the beginning of the mission. This should translate into stronger positive effect for UN Troops and stronger negative effect for UN Police personnel. The direction and significance of the coefficients provide support for this expectation, so I plot the conditional effect of the three types of personnel at different levels of the decay function in order to better interpret the results. To recall, the function equals 1 for the first year of the mission and then is reduced by half every passing year (e.g. it equals 0.25 during the third year of operation). The marginal effects are reported by personnel type in Figure 15. The graph on the top refers to UN Troops and shows that the deployment of troops has a strong positive effect on homicide rates in the first year, which declines and approaches 0 around the fourth. UN Police presence, on the other hand, reduces homicides, although this effect becomes smaller year after year and reaches 0 after the fifth year. The negative relationship between size of police personnel and homicide rates is not surprising since UN Police usually perform tasks that should be responsibility of the national police. Finally, the bottom graph reports the marginal effects for UN observers. As already noted, the more observers are deployed the higher the homicide rates in the next period. The effect increases during the first years of the mission, and then reaches 0 after the fifth.

Now I run a similar analysis using the entire sample of countries mapped in Figure 12. It is important to note, however, that this is not the exact same model used in the entire sample, mainly because the variables in models 1 through 6 were coded only for the African sample. So the new models will have a larger N and new control variables. The models include, as before, the size of UN personnel types as main independent variables. I control for intensity of ongoing conflict using battle-related deaths, ceasefire agreements, population, GDP and state fragility. State fragility enters the regression as a squared term, in order to control for the effect of intermediate values on homicide rates. The expected relationship has an inverted-U shape, with state strength and failure being less favourable to crime, hence resulting in lower homicide rates. Finally, dummy variables for the Americas, Asia<sup>22</sup> and Europe are used when a model for the entire world sample is estimated. The new models are shown in Table 10.

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<sup>22</sup> For simplification, Papua New Guinea, the only state from Oceania in the sample, is coded as an Asian country.

**Figure 15. Marginal effects of UN peacekeeping personnel on homicide rates (Top: Troops; Centre: Police; Bottom: Observers) (personnel counts are divided by 1,000)**



Model 5 uses the entire sample for the estimation. The presence of peacekeepers has a positive impact on homicidal violence and is statistically significant. In Model 6, the mission presence is disaggregated by personnel type. In this model, only UN Police has a significant effect, which is negative and thus consistent with the models for Africa. However, transforming troops, police and observers with the decay function yields insignificant coefficients for all. One issue that is important to mention is that UN missions vary significantly across regions; in America, for example, mostly police and observers are deployed. In addition, the level of homicides is much higher in the Americas according to the regional dummy (Africa is the baseline). The regional dummy is strikingly large compared to the other regional dummies. It is possible that the world sample is hiding some regional differences that may be worthwhile exploring. This difference may be due to either region-specific trend in criminal violence or abovementioned variations in the UN approach. Thus, I reapplied the model on Asian and African countries, with UN personnel operationalized as a ratio (the proportion of each type within the entire mission). In Model 8, the variables of interest are transformed accordingly, with coefficients consistent with Model 4, but only at a 10% level.

## **6. Subnational case-study: South Sudan**

The country-year analysis has provided initial evidence supporting the relationship between peacekeeping and criminal violence, particularly for African countries where most UN missions are sent. The most important limitation for cross-national analysis is that the level of aggregation hinders the identification of a reasonable causal effect. Peacekeepers are usually deployed in specific areas rather than homogeneously distributed across the country. It follows that we cannot observe whether the variation in homicides is related to the actual presence or absence of personnel types. In addition, several observations are dropped from the sample due to missing data on homicide rates. Because of these limitations, I complement the country-level empirical analysis with a case study. Ideally, the country-level analysis could have been used to guide the case selection. Unfortunately, the availability of spatially and temporally disaggregated data on crime is a major constraint. Many countries from the sample have subnational statistics on crime and homicides only for most recent periods, oftentimes after the UN mission's retreat. One important exception is South Sudan, which has been able to collect data on crime and homicide rates almost since its independence in July 2011. This information was collected with the support of the UN Police and UNDP on a monthly base for all 10 South Sudan States. Hence, I focus on the UN mission in South Sudan to examine the relationship between peacekeeping and criminal violence at a more disaggregated temporal and spatial scale.

**Table 10. Models for cross-national analysis on global sample**

Variables	Model 5 Global with Dummy	Model 6 Global by Personnel	Model 7 Global with Decay	Model 8 Asia Africa
PK Dummy	3.977* 1.925			
UN Troops		0.000 0.001	0.002 0.002	28.906+ 15.682
UN Police		-0.023* 0.012	-0.021 0.022	-144.172+ 79.474
UN Observers		0.004 0.028	-0.043 0.060	6.163+ 3.209
Conflict Deaths	0.014 0.017	0.015 0.016	0.017 0.016	-0.015 0.012
Fragility (sq)	-0.008 0.015	-0.011 0.017	-0.008 0.016	0.011* 0.004
Ceasefire	1.635 1.159	2.422+ 1.250	2.295+ 1.183	3.600* 1.111
Population (log)	0.213 0.333	0.489 0.550	0.555 0.351	0.963+ 0.528
GDP	-0.001+ 0.000	-0.001 0.001	-0.001+ 0.001	-0.000* 0.000
America	40.539* 13.600	41.880* 14.663	41.107* 13.568	
Asia	-4.845* 1.578	-2.427* 0.970	-2.919* 0.948	
Europe	-3.994 2.956	-0.546 2.835	0.656 1.920	
DDR	-1.389 1.976	-1.659 2.180	-2.453 2.505	-1.803+ 0.992
Post-Conflict year	-0.547 1.011	-0.322 1.085	-0.740 1.041	-1.507* 0.567
Constant	10.030 7.623	8.601 10.605	7.373 7.404	5.370
N	268	268	268	187

\* p<0.05, + p<0.10

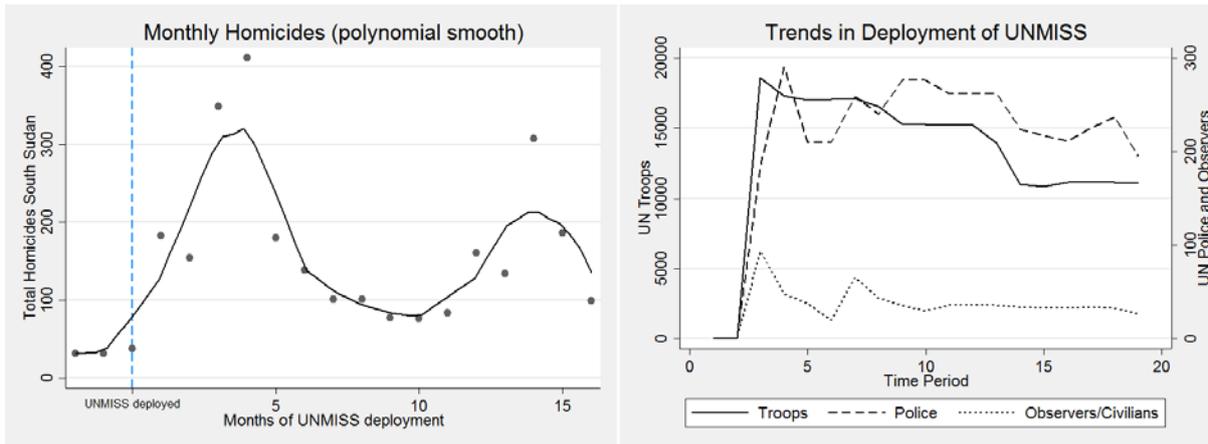
### *Conflict background*

In January 2011, a referendum for the independence of South Sudan was held. The referendum had been granted as part of the 2005 Comprehensive Peace Agreement (CPA) that officially ended the conflict between the Sudanese government and Sudan People's Liberation Movement (SPLM). The implementation of the CPA was assisted, coordinated and facilitated by the United Nations Missions in Sudan (UNMIS). Almost 99% of participants to the referendum voted in favour of independence, and South Sudan officially became independent in July 2011. In the same month, United Nations established the UN mission in South Sudan (UNMISS) and began transferring personnel from the terminated UNMIS to UNMISS. The original mandate of the mission is multidimensional and includes several tasks such as: state-building, economic development, assistance to the government in relation to conflict prevention and civilian protection and to strengthening of the security and justice sectors (UNSG report S/2011/314). The mission included troops, police, observers and other civilian staff from the onset; however, due to the political crisis and the ensuing civil war, in 2013 the UN increased its armed presence in the country.

### *Subnational analysis*

The unit of analysis for this subnational study is state-month. States are first order administrative units of South Sudan. These ten units are analysed for 18 months (June 2011 to March 2013). The analysis starts just before independence and the arrival of the UN mission. The time frame is constrained by the availability of national crime statistics. Figure 16 shows a clear increase in homicides just after UNMISS deployment. Notice that the peak in UN Police presence occurs at month 4, exactly before the sharp decrease in homicides. Troops, on the other hand, reach their maximum at the first month of the mission and drop since then. At time unit 5, there are already 10% fewer UN soldiers (about 2,000) than at mission onset.

**Figure 16. Trends in homicides and UN deployment in South Sudan**



As for the cross-national analysis, my main model is a panel-corrected, standard errors model (PCSE), which allows modelling of unit heterogeneity and temporal correlation simultaneously. Some of the control variables do not change in time, thus fixed effects would automatically drop them from the estimation (but I show that the findings also hold for such model). As can be seen from Figure 17, UNMISS has been present in all South Sudanese states as consequence of the decentralized strategy adopted by the mission. However, there is variation in the size of the deployment by state. Furthermore, Figure 18 and Figure 19 show that, overall, the intensity of criminal violence measured as homicides does not mirror patterns of political violence. In other words, states that are torn by conflict do not necessarily score high on homicides. Notice that the maps in Figure 18 and Figure 19 represent the total number of conflict-related deaths and homicides from June 2011 to March 2013.

The first model estimated in Table 11 measures peacekeeping as the total number of UN personnel deployed in each South Sudanese state. The results show that larger contingents are not statistically associated with more homicides in the following month (Model 1 and 2). Only population density has a positive effect on the number of homicides when fixed effects are used. Models 3 and 4 desegregate UNMISS by personnel, namely military, police and others (mainly civilian staff). In both models, troop effect on homicides is positive while the effect of police personnel is negative. Hence, the subnational analysis seems to provide support for the relationship observed at the country-year level. Fixed effects (Model 4) do not change these results. In Model 5, I proceed to transform the peacekeeper types using the function decay from the previous analysis. The model produces similar results as before, although now the effect of troops and police is not persistent, but rather decreases month by month. For the first time, also civilian personnel has a significant effect, more specifically in the negative direction.

Figure 17. Average number of UNMISS personnel in South Sudan

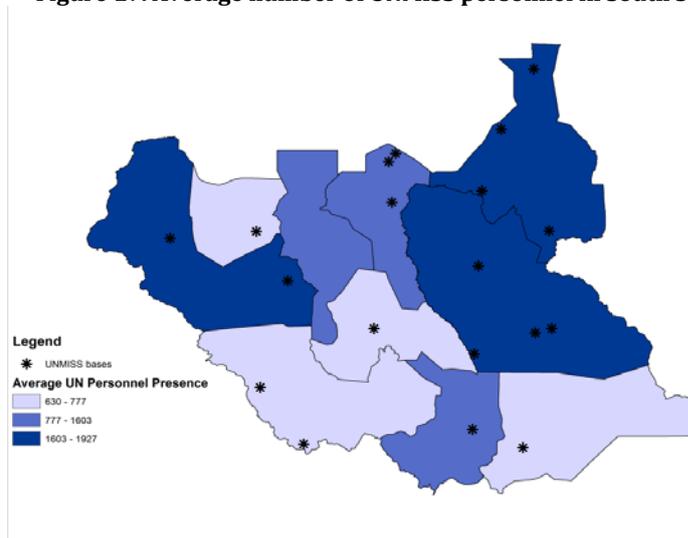


Figure 18. Total number of casualties and UNMISS bases in South Sudan

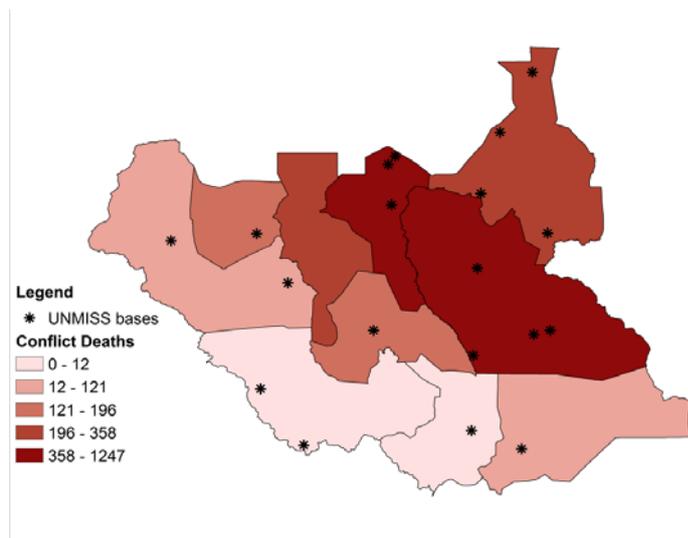
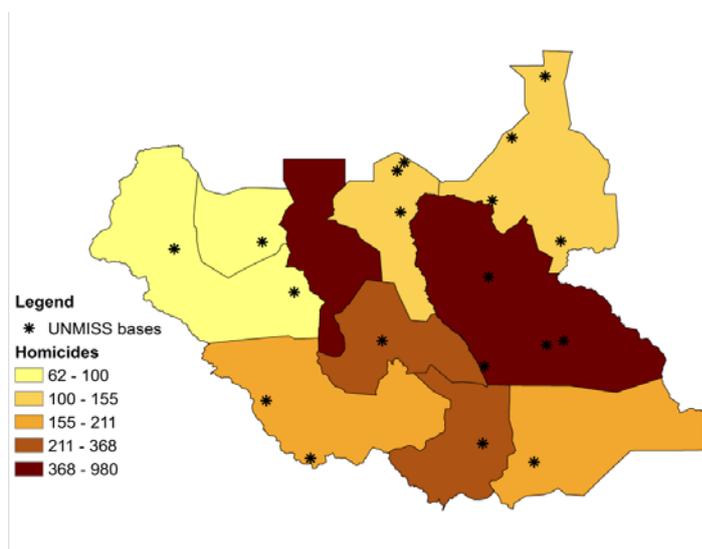


Figure 19. Total number of homicides and UNMISS bases in South Sudan



**Table 11. Models for subnational analysis on South Sudan**

	Model 1 Total PK	Model 2 Total PK with FE	Model 3 Type PK	Model 4 Type PK with FE	Model 5 Decay Function	Model 6 Ratio Type
Variables	DV: Homicides rate	DV: Homicides rate	DV: Homicides rate	DV: Homicides rate	DV: Homicides rate	DV: Homicides rate
UN Total	0.000 0.000	0.000+ 0.000				
UN Troops			0.001* 0.000	0.001* 0.000	0.009* 0.001	1.408* 0.565
UN Police			-0.074* 0.018	-0.075* 0.018	-0.317* 0.062	-57.129* 15.584
UN Others			-0.000 0.021	-0.006 0.021	-0.930* 0.150	93.653+ 56.440
Pop. Density	0.026 0.021	0.041* 0.016	0.026 0.021	0.041 0.028	0.016 0.024	0.028 0.019
State Revenue	-0.000 0.000	-0.000 0.000	-0.000 0.000	-0.000 0.000	-0.000 0.000	-0.000 0.000
Poverty Incidence	-0.007 0.010	-0.019 0.013	0.002 0.018	-0.021 0.020	0.016 0.011	-0.003 0.014
% Urban pop.	-0.032 0.031	-0.012 0.015	-0.025 0.050	0.006 0.026	-0.009 0.047	-0.019 0.041
Conflict Deaths	0.005 0.012	0.005 0.013	0.006 0.012	0.007 0.012	0.005 0.012	0.006 0.013
Conflict Deaths (sq)	-0.000 0.000	-0.000 0.000	-0.000 0.000	-0.000 0.000	-0.000 0.000	-0.000 0.000
Homicides (space lag)	0.093 0.193	0.052 0.181	0.219 0.190	0.174 0.181	0.278 0.180	0.072 0.188
Police Station (log)	1.093+ 0.607	0.522 0.450	1.238+ 0.729	0.487 0.352	1.531* 0.708	1.154+ 0.695
Constant	-3.426 2.909		-4.796 3.843		-7.147* 3.495	-3.981 3.547
N	180	180	180	180	180	180

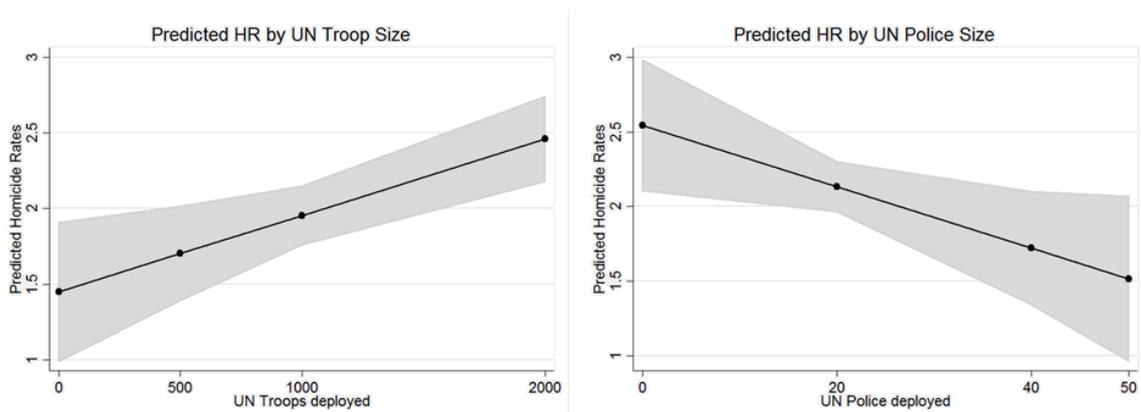
Standard errors in parentheses, \* p<0.05, + p<0.1

Finally, Model 6 shows that measuring personnel types as a percentage of the total number of personnel deployed results in a positive coefficient for troops and a negative coefficient for police.

In more substantive terms, homicide rates increase by 30% when 1,000 troops are deployed but decrease by a half when at least 40 UN Police officers are sent to the state (Figure 9). It is important to recall that troops and police within UN missions may be misleading if we ignore the fact that troops are often in the order of thousands, whereas the police component is significantly smaller. By comparing the plots in Figure 9, it is clear that the two types of personnel have opposite effects on homicide.

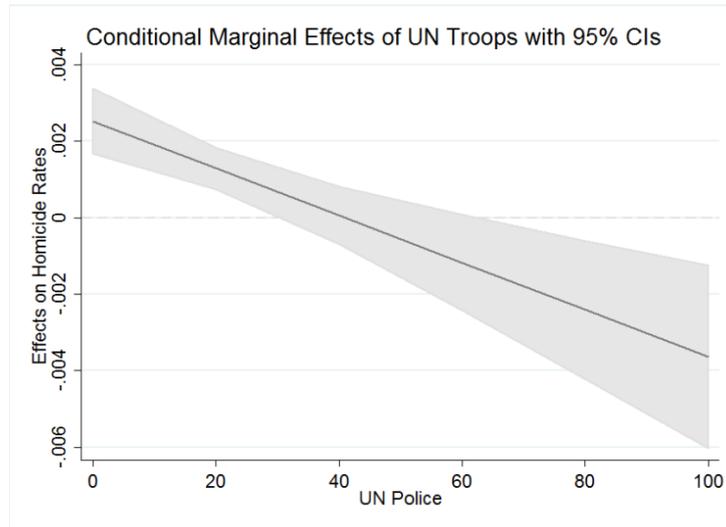
By comparing the bottom-left and the bottom-right plots, it is clear that the two types of personnel have opposite effects on homicide; but more importantly, the impact of a 1% increase in share is far greater for police than for troops. The reducing impact of an additional 1% or 2% of UN Police is stronger than the increasing impact of an additional 1% to 2% of troops.

**Figure 20. Predicted homicide Rates by UN personnel size (left: UN Troops; right: UN Police)**



Now, we know that troops and police are usually deployed together in the same location. So, it could be that the UN Police negative effect can fully mitigate the positive impact of UN Troops when enough police is deployed alongside troops. To look into this issue and estimate the net impact of UN presence on the ground on homicide rates, I interact the UN Police and UN troop values. Figure 21 shows the interaction between the two variables and suggest that UN Police can moderate the positive effect of UN Troops if at least 60 police units are deployed in the same location. If UN Police numbers fall below 35, homicide rates tend to rise as more troops are deployed.

**Figure 21. Conditional effect of UN Police on average deployment of UN Troops**



## 7. Conclusions

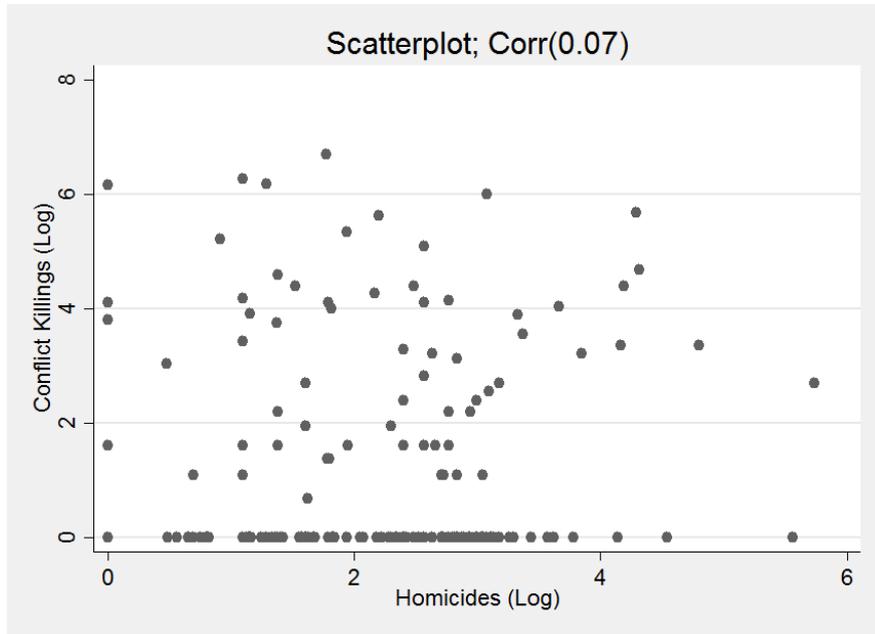
This paper is the first attempt to analyse the effect of peacekeeping on criminal violence. I have formulated the hypothesis that peacekeepers exacerbate this trend for two reasons. First, peacekeepers reduce political violence more quickly and create more space for illegal business and criminal groups, as result of peacekeeping economies, decreasing instability, and the counterproductive establishment of non-state monopoly of violence that is limited to only addressing political violence. Second, the disarmament of combatants may expand the pool of individuals willing to "invest" their violent skills in criminal activities, sometimes independently from implementation and success of DDR programs and SSR. The resulting relationship between peacekeeping missions (as function of UN troop deployment, the main actor responsible for curbing political violence) and criminal violence is expected to be positive. UN Police, on the hand, is hypothesized to have a negative correlation with criminal violence.

The empirical evidence provided in this paper supports these expectations robustly and at different levels of analysis. At the country-year level, the mere presence of peacekeepers does not affect violence. However, when the mission is disaggregated by type of personnel and relative size, presence of military personnel are robustly associated with more homicides. Police, on the other hand, has a positive impact on curbing criminal violence. This is consistent with the hypothesized mechanism that indirectly links peacekeeping to more homicides via its effect of decreasing political violence. The importance of this first stage is that it shows that countries with UN missions with significant military components experience higher levels of homicides, compared to others with low or no UN troop presence. So, the rise in homicides is not simply a consequence of the post-conflict environment because *i)* not all countries with UN missions are in a post-conflict phase, and *ii)* the sample includes both countries with and

without "treatment". The subnational analysis of monthly homicides and UNIMSS personnel deployment reflected the results of the country-year empirical analysis. UNMISS was stationed across the entire country, thus the subnational analysis could take a closer look at the causal mechanism, analysing subnational variations on monthly homicides and peacekeepers presence. It confirmed the positive correlation of criminal violence with UN Troops deployment and the negative correlation with UN Police presence.

## Appendix B

Figure A 2. Scatterplot between log of homicides and conflict killings



**Table A 1. Models with all crimes and counterfeiting**

Variables	Model I DV: All Crimes Rate	Model II DV: Counterfeiting Rate
UN Troops	0.000	0.000*
	0.000	0.000
UN Police	-0.000	0.010
	0.000	0.009
UN Others	0.000	-0.157*
	0.000	0.032
Pop. Density	-0.000	0.006
	0.000	0.005
State Revenue	-0.000	-0.000
	0.000	0.000
Poverty Incidence	0.000*	0.003
	0.000	0.003
% Urban pop.	0.000+	0.017
	0.000	0.010
Conflict Deaths	0.000	0.005
	0.000	0.005
Conflict Deaths (sq)	-0.000	-0.000
	0.000	0.000
Count battle-events	0.000	-0.013*
	0.000	0.006
Police Station (log)	0.000	-0.217
	0.000	0.195
Constant	-0.001	0.552
	0.001	0.817
N	180	100

Standard errors in parentheses

\* p<0.05, + p<0.1

## CHAPTER 4

### **Containing crime: diffusion and counter-diffusion mechanisms of piracy in Somalia<sup>23</sup>**

#### **Abstract**

Research has shown that political and criminal violence exhibit spatial clustering but neglects the wide range of theoretical mechanisms driving diffusion and the presence of counter-diffusion factors. After identifying permissive conditions for piracy, I hypothesize that piracy clusters in locations conducive for successful attacks. Pirates engage in risk-reducing behaviour and select locations based on experience and success rates. Earlier successes increase the likelihood that pirates will return to these locations. Pirates also adapt this learning-based decision-making to constraints imposed by EU counter-piracy efforts. The analysis relies on uniquely detailed data on piracy and counter-piracy operations in monthly grid-cells off Somalia from 2005 to 2013. The empirical findings support the theoretical expectations, showing that successful attacks result in 10% more attacks at the exact same location and 61% more nearby. In addition, the EU counterpiracy initiative has resulted in an 88% decrease in incidents in 2013. Rescue operations also reduce future attacks in the same location. Even for the most successful locations, incidence of piracy dropped by 89%. The paper contributes to existing diffusion literature by factoring in counter-diffusion mechanisms that contain and reduce political and criminal violence, demonstrating that strategic decision-making based on learning drives diffusion.

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<sup>23</sup> A version of this paper is being revised for resubmission to *International Interactions*.

## 1. Introduction

Contagiousness is a feature of many social and political phenomena, including conflict, terrorism, protests, and crime. Research on violence finds that violence not only clusters in space but also spreads geographically. Why this occurs – as an effect of contiguity, competition, learning, emulation or other specific diffusion mechanisms – is less commonly investigated. Among several typologies of violence and violent crimes, maritime piracy has become a global threat to international security. Piracy incidents occurred across the world, from South-East Asia and the Indian Ocean to Latin America and Caribbean. Yet, the distribution of piracy incidents appears to exhibit spatial interdependence; indeed, a map of incidents easily identifies hotspots of pirate activity. Recognizing the presence of piracy hotspots, however, cannot explain why piracy clusters geographically. Do some locations have characteristics associated with a higher risk of piracy? Or is piracy a contagious process, and if so, why does contagion occur and which factors inhibits it?

Research has shown that piracy clusters not only in space but also in time (Marchione and Johnson 2013), thus pointing towards potential diffusion processes.<sup>24</sup> The first contribution of this paper is to explore the theoretical mechanisms behind this diffusion. The empirical analysis centres on two questions: (1) why do some locations and their surroundings experience a disproportionately high occurrence of incidents, and (2) how do pirates adapt their decision-making because of counter-piracy initiatives. I provide explanations to these two questions, showing that pirates return to familiar locations and their vicinity. This is what I call diffusion by reinforcement and contiguity. In addition, pirates assess likelihood of success based on previous achievements. This is the third diffusion mechanism, diffusion by learning.

The counter-piracy force, however, limits the diffusion by threatening to or actually imposing costs on pirates. Deterrence and compellence counter not only piracy occurrence but also its diffusion. The inclusion of diffusion-inhibitors is the second distinctive feature of the analysis and improves the comprehensiveness of the contagious mechanisms under investigation. To achieve this objective, I use unique data on counter-violence that clearly matches when, where, and which incidents resulted in EU response and how the perpetrators adjusted. Focusing on the Somali case, this paper argues that the pirates' strategic behaviour helps explaining the spatial pattern of attacks and possible diffusion. My argument implies that the pirates' decision-making is strategic and dependent on their previous history of attacks and assessments of success. Finally, the paper contributes to the existing literature on spatial contagion by taking

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<sup>24</sup> Diffusion and contagion are used here interchangeably. For a discussion of the differences see Midlarsky (1978) and Midlarsky et al. (1980).

advantage of studying diffusion and counter-diffusion dynamics in an environment with few additional confounding factors. Unlike on land, where numerous other variables could threaten inferences, sea locations lack other characteristics that would motivate pirates to return and are therefore unlikely to confound the proposed mechanisms. It is straightforward to account for a few confounding variables and explore whether other factors such as learning have strategic value in the decision-making of violent and criminal actors. The findings, therefore, provide further evidence that strategic decisions by violent criminal actors spread violence.

This paper is organized as follows. First, I summarize the main theoretical contributions on spatial diffusion processes in international relations, particularly the study of violence. In the theoretical section, I argue that pirate attacks are not random and that locations are selected based not only on contextual risk factors such as state capacity, stability on land, distance from coast, or weather, but also based on the history of previous attacks and strategic interaction with counter-piracy intervention. The empirical section tests these hypotheses combining econometric and spatial analysis of piracy and counter-piracy efforts in Somalia from 2005 to 2013. The results of the zero-inflated negative binomial model support the contagiousness of piracy as predicted by the reinforcement, contiguity and learning hypotheses on diffusion. Additionally, the empirical analysis of strategic interaction between pirates and the EUNAVFOR counter-piracy mission suggests that the deployment of the mission has overall curbed the incidence of piracy off Somalia in recent years (deterrence) and that pirates avoid areas where EUNAVFOR disrupted their attacks (compellence), though this effect only lasts one month. The conclusion discusses the relevance of piracy for understanding the diffusion of violence and crime as well as policy implications.

## **2. Spatial diffusion in international relations**

Early studies on diffusion paid particular attention to the spread of conflict. Starr and Most (1985) specify four possible processes through which war spreads across countries: positive and negative reinforcement, and positive and negative spatial diffusion. Positive reinforcement processes explain why countries that have already experienced a conflict are more likely to be involved in a war in the future, while the converse holds for negative reinforcement. Positive spatial diffusion posits a higher likelihood of involvement for the same country if nearby countries have experienced conflict, while negative spatial diffusion occurs when conflict in neighbouring countries reduces the likelihood that violence will also erupt in a country. Spatial diffusion, then, assumes that countries are at a greater (or lower) risk of war if they are close to other countries at war. Empirical evidence has validated the applicability of geographic

diffusion models for interstate wars, but also for civil conflict (Schutte and Weidmann 2011; Braithwaite 2010; O'Loughlin and Raleigh 2008; Anselin and O'Loughlin 1992), terrorism (Midlarsky et al. 1980; Neumayer and Plümper 2010), coups (Li and Thompson 1975), anti-government violence (Garcia and Wimpy 2016), democratization processes (Gleditsch and Ward 2006), and policy adoption (Elkins and Simmons 2005). Differently, diffusion of practices and policies entails a social process of learning by which subjects observe how others behave and the results of these actions; according to what they see, they decide whether to adopt the practice or not. Diffusion via learning implies that "another actor's adoption does not alter the conditions of adopting [...] rather, the actions provides information about [...] the benefits and drawbacks of adopting" (Elkins and Simmons 2005: 42). Learning, in opposition to mimicry, emulation and imitation, involves a rationalist adoption of a practice based on its observed consequences and consistency with one's own objectives.<sup>25</sup>

Insurgents, terrorists, and protesters are not the only non-state actors whose activities diffuse via contagion and learning. Crime is as infectious as conflict. International relations and criminology literatures use different terms and methods to explore diffusion processes. Compared to criminology, the theoretical and methodological distinction between common exposure and spatial interdependence is more explicitly addressed in the conflict literature. Studies on crime diffusion, on the other hand, limit their scope to the identification of hotspots without distinguishing whether these are the consequence of spatial heterogeneity in the risk of crime or the spread of the phenomenon across space. This paper also aims at filling this gap using piracy as instance of transnational violent crime with the identification of plausible mechanisms that either favour or hinder diffusion.

The observed spatial clustering of social and political phenomena explored in the diffusion literature, however, does not necessary imply that the outcome is caused by a contagious process of violence or crime spreading from one place to another. As Buhaug and Gleditsch (2008) point out, conflicts hot spots may also arise due to a country's individual characteristics, which cluster in space rather than as a neighbourhood effect. This pattern of violence, though consistent with patterns of spatial association, exists not as a consequence of interdependence among units but more as consequence of Tobler's first law of geography, which postulates that closer things are more similar than distant things (Tobler 1970).

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<sup>25</sup> For the difference between diffusion by mimicry, imitation and emulation see Maggetti and Gilardi (2016).

The distinction between spatial interdependence and spatial heterogeneity (or common exposure) is crucial as it has theoretical and analytical implications. First of all, arguing that the geographical clustering of conflict is only the result of the distribution of countries' features supports the conclusion that war in neighbouring countries is not a threat for other states. Second, if there is an actual neighbourhood effect, interdependence among units (non-independence of observations) is a problem for statistical inference.

I argue in this paper that piracy diffuses because pirates base their decision-making on three event-dependent mechanisms: they return to locations they already know (reinforcement), move around the latter (contiguity), and prefer locations where past attacks were more successful (learning). But, before delving further into the main argument on the diffusion of piracy, it is important to identify which factors affect the likelihood that a location will experience an attack, independently from previous attacks and proximate locations.

### **3. Risk factors of maritime piracy in Somalia**

Establishing the factors that affect the occurrence of piracy is important for differentiating diffusion from common exposure. The first decision for pirates involves selecting the location where to search for targets. This decision is based on a set of characteristics, broadly defined as contextual, which describe the risk of operating in a given location. For pirates, location matters more than target features, since the targets are not fixed. While burglars can select a target and repeatedly victimize it, pirates rarely attack the same ship twice. This does not imply that pirates do not select specific targets. Rather, before being able to assess how easy it would be to board the ship that is sailing in front of them (i.e. Does it have ladders? Is anybody guarding the deck?), pirates have to decide which areas to scout. Pirates hold beliefs on the feasibility of attacks in several locations and these beliefs are partly based on their previous experience. Assessment of a vessel's level of security is contingent on whether one is ever spotted. It is not surprising, then, that pirates often operate in the same locations. As Figure 22 shows for the Somali case, most incidents occurred in a small area, rather than scattered across the entire western Indian Ocean.

The literature on the occurrence of piracy adopts an aggregated perspective and identifies at least three classes of risk factors. First, the state's institutional capacity affects the intensity of piracy activities within its territorial waters. Some authors have argued for a non-linear relationship, with weak states being more likely to suffer endemic piracy than failed states (Groot et al. 2011; Hastings 2009). More sophisticated typologies of piracy require some degree of governance and are threatened by instability caused by violent conflicts and anarchy.

Daxecker and Prins (2013) have qualified this finding specifying that the non-linearity holds only for extreme and rare cases of state fragility. Second, economic conditions affect the cost-opportunity calculations for individuals deciding to join the piracy business. These economic conditions include both the availability of opportunities in the fisheries sector and, more generally, macro fluctuation of capital-intensive and labour-intensive commodities (Daxecker and Prins 2013; Jablonski and Oliver 2012). Finally and intuitively, geographical and meteorological circumstances affect the risk of piracy. The seasonality of adverse weather conditions suggests that also piracy has seasonal variation, particularly in Somalia where summer and winter monsoons make waters too rough and dangerous for pirates (Hansen 2009; Percy and Shortland 2011). Among geographical factors, proximity to the coast (access to safe havens) and the presence of chokepoints are additional favourable conditions (Chalk and Hansen 2012). Differently from existing work, this paper focuses on factors affecting the pirates' decision-making instead of aggregate patterns of piracy. While I recognize the importance of aggregate-level factors and account for them in the analysis by operationalizing them subnationally, this paper explores very local manifestations of the phenomenon and the precise location of each single attack.

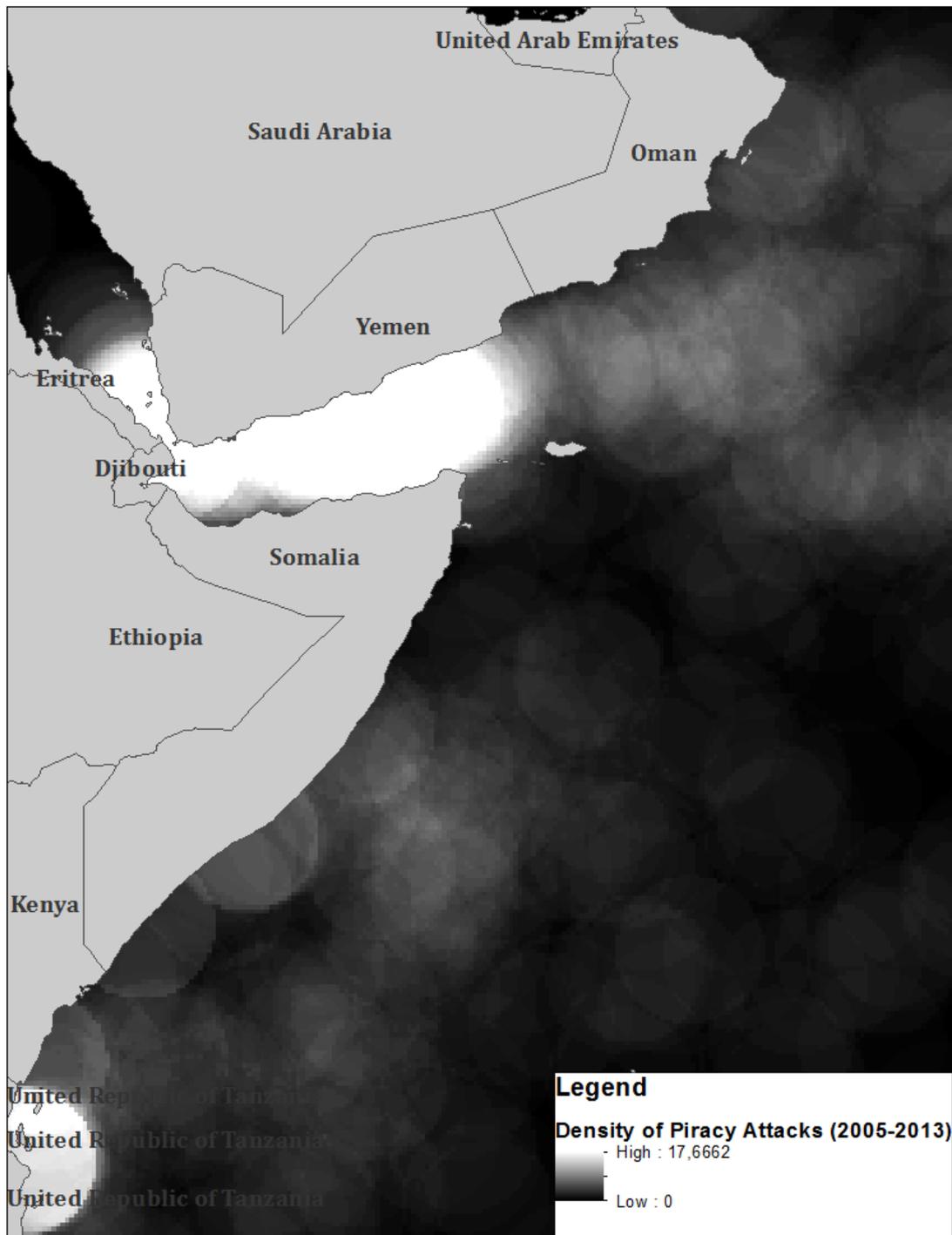
To conclude, quality of governance, economic opportunities, geography, and weather reveal something about the aggregate risk of piracy but fail to explore the diffusion of piracy. Some areas are more vulnerable than others, but high risk does not imply interdependence of events occurring in nearby units. The explanations in the literature are best conceived as permissive conditions that precede incidents, but there are also *consequences* of incidents that affect future events (Morenoff et al., 2001: 523). These consequences embed event-dependency and are the focus of the mechanisms driving the diffusion of piracy. This is not the first attempt to identify diffusion in piracy (see Marchione and Johnson 2013); however, it is the first that conceptualizes diffusion as a *process* and thus proposes explanations why we see diffusion as an *outcome* (Elkins and Simmons 2005).

#### **4. Piracy diffusion in Somalia**

Piracy is not so different from car theft or burglary: it is also an acquisitive crime, but with transnational and organized characteristics (UNODC 2010). Whether it involves robbing, hijacking or kidnapping, pirates engage in illicit behaviour aimed at acquiring money or valuables from a victim (Rosenfeld and Messner, 2013). As with other classes of crime, spatial analyses of piracy find clear evidence of regularities in the location of incidents (Marchione and

Johnson 2013). Pirates are also not that different from other actors that adopt specific practices by virtue of their experience, such as protesters or terrorists.

Figure 22. Density of piracy attacks (2005–2013)



However, whether the observed distribution of piracy incidents is a result of diffusion has not been explicitly tested. By focusing on maritime piracy, the aim of this paper is to clarify and separate the role played by the spatial distribution of risk-related factors from the actual diffusion of piracy incidents and to test transmission and inhibitor mechanisms.

Why should piracy be contagious? A common strategy for Somali pirates is to select a geographic area and launch several attacks within a short period of time (S. J. Hansen 2009). These boosts in piracy incidents begin in areas known to pirates, their “hunting grounds” (Hansen 2009:22; see also Bahadur 2011: 141). The campaigns may have varying duration, but if this tactic is common to all pirate groups in Somalia, a pattern of spatially and temporally clustered incidents should emerge. As described by Hansen (2009:22):

The pirates began to initiate pirating campaigns, a multitude of attacks within a short time span often in a limited geographical sector [...] scouting and selecting opportune targets within their “hunting grounds”, and returning to their bases when they ran out of supplies and patience.

Contrary to what is commonly thought about pirates selecting targets in advance, attacks are more based on patrolling instead of intentionally pursuing specific vessels (Hansen 2009). Roger Middleton, a Chatham House expert, paralleled piracy to “walking down the street, looking through windows: you see one that has a single glazing so you smash the window, go in and steal the TV” (cited in Bahadur 2011: 54). Patrolling, however, does not mean that pirates wander at sea waiting for vessels to find them. Instead, pirates patrol specific location based on what they have learnt from previous campaigns. Hence, acting as rational hunters, pirates attempt to maximize profit with the least effort, which includes reducing travelling time and increasing the likelihood of successful attacks. One of the factors determining repeat pirate attack is familiarity with and knowledge of the environment. More knowledge and familiarity increases the likelihood that pirates will return to the same locations and its surroundings as this information is used to reduce uncertainty and increase expectations of success. This strategic calculation should produce patterns of reinforcement (i.e. repeated attacks on the same location) and spatial contagion to nearby locations. Consequently, the following hypotheses are formulated:

*H1a: The intensity of piracy in a location is positively associated with incidents in the previous month (diffusion by reinforcement).*

*H1b: The intensity of piracy in a location is positively associated with previous incidents in neighbouring locations (diffusion by contiguity).*

In addition to reinforcement and diffusion by contiguity, pirates can use information from the outcomes of previous attacks to inform future strategic selection of locations. This mechanism implies a learning process from experience. Hence, successes are used to reduce uncertainty in future attacks. As in a Bayesian learning process, actors accumulate new information consistent with a previously hypothesized relationship (Dobbin et al. 2007: 460). As in the case of burglars, if offenders see a high success rate in a given area, they are more likely to return. Information about previous successes is immediately available to the pirates that carried out the attacks.

Besides in-group learning, other groups could gather the same information and learn by observing their counterparts. If these groups succeed, observers are encouraged to adopt the same behaviour, in this case increasing piracy activity in locations with higher rates of success. There is anecdotal evidence on links among pirate groups, supporting the hypothesis that they might learn from each other's practices. Piracy networks are fluid and can overlap and cooperate with each other (Monitoring Group on Somalia 2008). The two main pirate networks in Somalia, namely the Puntland Piracy Network and the Hobyo-Hardheere Piracy Network, have collaborated on some attacks since 2005, and some senior pirates also travelled around Somalia as instructors and head-hunters (Eichstaedt 2010; Hansen 2009). Cooperation and overlapping membership favour the flow of information among groups and support the hypothesis that pirates learn not only from their own experience but also from the success of others.<sup>26</sup> Both in- and between-group learning are relevant and expected to have the same effect on piracy incidence; therefore, I propose the following hypothesis on learning:

*H1c: The intensity of piracy in a location is positively associated with rates of success in the same location and its surroundings (diffusion by learning).*

If Hypotheses 1a, 1b, and 1c find empirical support, it can be argued that the location and time of piracy attacks are strategically selected instead of being opportunistic and unplanned. All three hypotheses outline decision mechanisms that explain different parts of the spatio-temporal clustering of piracy incidents, found in the literature. As will be clarified in the operationalization of the variables, the crucial difference between H1b and H1c is that the former explains diffusion due to geographical proximity, while the latter focuses on rational evaluation of previous attacks and success rates in each location.

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<sup>26</sup> Unfortunately, distinguishing between diffusion driven by learning from one's own experience from *observational* learning (Bandura 1973) is impossible with existing piracy data.

### *Countering diffusion: counter-piracy in Somalia*

Diffusion is not only instigated by what others do, but can also be “inhibited by the information [units] receive through time about one another’s behaviour and its consequences” (Pitcher et al. 1978). Hence, while some factors are expected to favour the diffusion of piracy (i.e. rate of success in close locations), there are also factors that inhibit and contain diffusion. One important factor that has potentially inhibited the pirates’ activity and altered their *modus operandi* off Somalia is the European Union Naval Force ATALANTA (EUNAVFOR). EUNAVFOR was established in late 2008 to reduce the incidence and diffusion of maritime piracy in the Gulf of Aden and the Somali basin. The deployment of warships from European countries has been extended until 2016. with the objectives of protecting vulnerable vessels (especially those carrying food aid), deterring and disrupting piracy, and monitoring fishing to support international organization that are building maritime security and capacity in the area ([EUNAVFOR webpage](#)).

The presence of warships is expected to have a decreasing effect on piracy. I distinguish between deterrence and compellence effects. Deterrence occurs when an actor is discouraged to initiate an action because he or she fears the threat of retaliation; compellence describes a situation where the cost-benefit calculation of the action is altered after the cost has been imposed (Schelling 1966). I argue that EUNAVFOR deployment has both a deterrence effect (overall reduction of attacks following the deployment of warships) and a compellence effect (reduction of risk of attacks in location where the navy has imposed costs on pirates by rescuing attacked vessels). Thus, the hypotheses on diffusion inhibitors are formulated as follows:

*H2a: EUNAVFOR patrolling in the Indian Ocean has decreased the risk of piracy attacks (deterrence)*

*H2b: An EUNAVFOR rescue intervention reduces the risk of piracy in the specific location and its surroundings (compellence)*

## **5. Empirical strategy**

The availability of spatially and temporarily disaggregated data on incidents allows for an empirical analysis of micro-level theories of violent actors’ behaviour. In order to test the hypotheses on how pirates select locations, I use a time-series, cross-sectional dataset with grid cells-month as the unit of analysis. Particularly for the Somali case, most of the events do not occur in ports but at high sea. This introduces the problem of defining what a “location” is at sea since there is no natural or administrative boundary separating different areas. The spatial unit

I refer to with the term location is a cell from the PRIO-GRID (Tollefsen et al. 2012). The PRIO-GRID consists of 0.5x0.5 decimal degrees cells and covers the maritime areas where Somali pirates allegedly carry out attacks against vessels. This includes the Somali coast, the Gulf of Aden and the Somali basin (see Figure 22). The total number of cells is 3,964 and the time period is from 2005 to 2013. I use months as the temporal unit in order to better identify diffusion processes and the effect of counterpiracy efforts, while controlling for temporal variation in risk factors (i.e. monsoon and stability on land). About 10% of the cells (397) experienced at least one attack in the period under consideration. Of these non-zero events cells, only 10% (57) recorded more than one incident, confirming how small the proportion of attacked locations actually is and, consequently, the spatial concentration of piracy. Information about incident locations is retrieved from yearly International Maritime Bureau (IMB) reports. This analysis includes actual and attempted attacks since the main research question focuses on pirates' strategic selection of favourable environments, rather than their effectiveness. The dependent variable is a monthly count of piracy incidents in each cell.

The estimation strategy proceeds as follows. I first present a logit model that estimates the effect of contextual risk factors (stability, economic conditions, geographical features, and weather patterns). I then test hypotheses 1a, 1b, and 1c on diffusion by reinforcement, contiguity and learning. Zero-inflated negative binomial estimation is used to model the intensity of piracy. Hypothesis 2a and 2b on counterpiracy are examined thereafter. Hypothesis 2a focuses on deterrence effect in the aftermath of EUNAVFOR deployment. I use a count model to assess whether the intervention reduced the incidence of piracy off Somalia. To test the compellence in hypothesis 2b, I examine the effect of EUNAVFOR actual intervention against pirates to rescue vessels rather than EUNAVFOR's mere presence. Since rescuing operations and intensity of piracy are likely endogenous, I perform a seemingly unrelated estimation (SUR) to test hypothesis H2b.

#### *Main independent variables*

##### *Reinforcement, diffusion and learning*

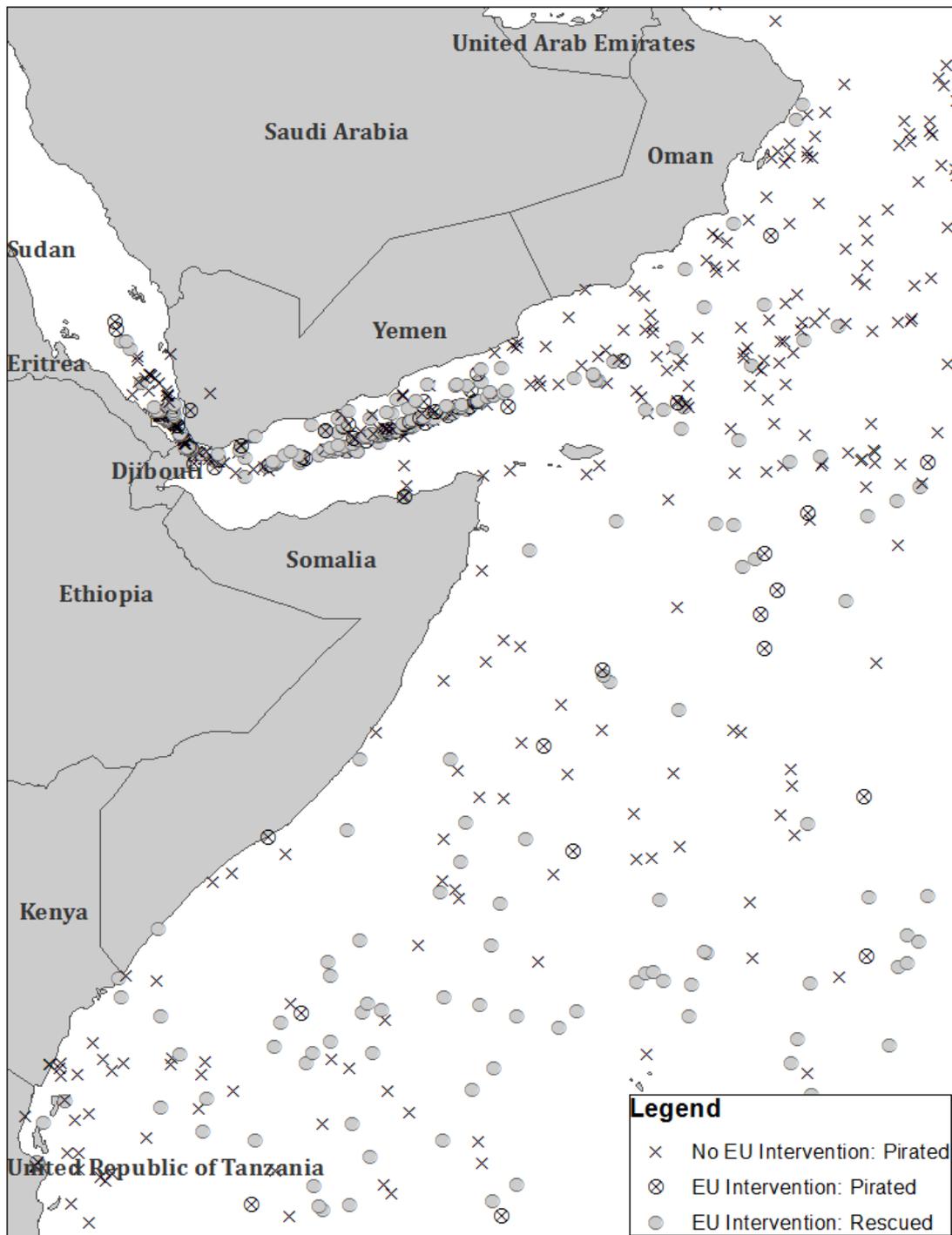
To measure reinforcement, I use the temporal lag of the dependent variable to test the hypothesis that number of incidents in previous month has a positive effect on the likelihood of future ones within the same unit. Second, diffusion requires that what occurred in a proximate unit  $j$  at time  $t-1$  has an effect on the nearby unit  $i$  at time  $t$ . Consequently, I calculate the spatial lag of incidents occurring in neighbouring units and also include its time lag. The neighbourhood of a cell is defined by the eight contiguous grid cells sharing a border or vertex with the cell. This is called a queen matrix of order 1. Third, the learning mechanism implies that pirates have the tendency to operate within areas where they carried out mostly successful

attacks. For example, if they know that most attacks perpetrated near the Gulf of Aden have been successful, it is more likely that they will keep operating there in the future. I measure the rate of success for each cell in the previous month as a simple proportion of actual attacks over the total number of incidents in the cell in the previous month. I also calculate the spatial lag of success to assess whether there is an increase in attacks next to successful locations.

#### *Deterrence and compellence*

Information on the location of EUNAVFOR Atalanta mission ships is not publicly available. It is known, however, that the locations where the EU ships intervened were scattered across the Somali basin as shown in Figure 23, suggesting that no matter where originally deployed, ships were able to intervene in the whole area under analysis, though not always promptly, as some unsuccessful rescue attempts indicate. The support of air patrols and drone surveillance along the coast improved the mission's capacity to operate in this vast region. Additionally, pirates are not informed where EUNAVFOR ships are located at different times, so they cannot purposely avoid specific areas based on the expectations that warships will be patrolling. To measure deterrence, I thus add a dummy variable for the EUNAVFOR Atalanta deployment that takes value of 1 for all grids after 2008. The compellence mechanism suggests that locations where pirates have previously confronted EU navies are less likely to be selected for subsequent attacks. The EUNAVFOR website provides data on the rescue of vessels since the deployment, although the location of the operation is very vague and refers to the Gulf of Aden or the Somali basin.

Figure 23. Piracy incidents and EUNAVFOR intervention from 2009 to 2013



Since I need to identify cells where the mission intervened to rescue a ship from an ongoing pirate attack, I cross the information reported by EUNAVFOR on the exact date and type of rescued vessels with IMB data on pirate incidents reported for the same date and vessel type. Using the exact date and type of vessel, I can assign coordinates to rescues recorded by the

mission.<sup>27</sup> I account for pirates' strategic adaptation after confrontation with EU warships by including a time-lagged dummy for grids where EUNAVFOR intervened to rescue a vessel. Table 12 summarizes hypotheses and operationalizations.

**Table 12. Hypotheses, Mechanisms and Operationalizations**

HYPOTHESES	Mechanism	Operationalization
H1: Diffusion	(a) by Reinforcement: More incidents after one has occurred in the same location in the previous time period	$DV_{t-1}$
	(b) by Contiguity: More incidents after one has occurred in neighboring locations	$W * DV$ $W * DV_{t-1}$
	(c) by Learning: More incidents if the location or nearby areas have high rate of successful attacks	$\left(\frac{Successful\ Attacks}{Total\ Attacks}\right)_{t-1}$ $W \left(\frac{Successful\ Attacks}{Total\ Attacks}\right)_{t-1}$
H2: Inhibitors of Diffusion	(a) Deterrence: Lower risk of incidents after EUNAVFOR deployment	Dummy Atalanta
	(b) Compellence: Lower risk of incidents after confrontation with EUNAVFOR	Dummy Rescue within cell

### *Control variables*

Most of the control variables are calculated and assigned to each cell using ArcGIS. I proxy institutional capacity (strength of local governance and the degree of instability) with the number of monthly killings along the Somali coast reported in the Armed Conflict Location and Event Data project (ACLED, Raleigh et al. 2010).<sup>28</sup> I expect that both very stable and very

<sup>27</sup> For example, EUNAVFOR reports four rescued vessels on 01 January 2011, namely two tugs, a chemical tanker, and an oil tanker. Similarly, IMB records five incidents on the same date, four of which involving exactly the same type of vessels. A fifth vessel is reported as hijacked by the IMB and is recorded as pirated in the EUNAVFOR database.

<sup>28</sup> This includes all casualties reported in ACLED within coastal Somali second order administrative units (identified using Global Administrative Units <http://www.gadm.org/>).

unstable on-land regions are associated with fewer pirate attacks close to the coast, as posited by the institutional capacity argument. I include a square term for this inverse-U relationship. Non-linear effects are also expected for measures of distance from ports and density of shipping traffic. I expect that pirates are more likely to attack in areas where vessels are passing, yet too high a density may be a problem because the crew may call for help from nearby vessels. Distance from ports should also have a non-linear effect. As pirates try to maximize gain and reduce effort, travelling too far is not the ideal strategy. Yet, vessels are actively avoiding the Somali coast. Consequently, pirates are sometimes forced to move a bit further while still preferring to be as close as possible to land. Quadratic functional forms for distance from ports and density of traffic are included to account for these non-linearities. Distance from ports is calculated with ArcGIS and data on shipping density are from the European Commission Maritime Forum (unfortunately, available only for 2010).<sup>29</sup>

Because of this limitation, traffic density also enters the inflation stage of the zero-inflated negative binomial since locations without shipping will never experience piracy. Assigning a low probability of attack to locations with low traffic is the best way to make use of static information on sailing vessels. I also include a dummy for cells within 200 nautical miles from the Bab-el-Mandeb chokepoint and a dummy for monsoon seasons (South-West monsoon in summer and North-East in winter). To show that piracy is also a function of labour opportunities, I interact the monsoon season with a dummy for the Gulf of Aden; more specifically, the growth in fishing production brought by the summer monsoon in the Somali Basin should reduce piracy in this area but have a less pronounced effect in the Gulf of Aden. Finally, the introduction of Best Management Practices (BMP) in 2009 and on-board private security can also be argued to have had an impact on the intensity of piracy off Somalia. I use EUNAVFOR data to calculate the time lagged number of rescued vessels that had implemented BMP and the number of vessels with private security on board for each cell-month. Summary statistics are presented in Table 13.

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<sup>29</sup> Available here: <https://webgate.ec.europa.eu/maritimeforum/en/community/commission-aissteering-dgmare/articles/1603>

**Table 13. Summary Statistics**

Variable	Observations	Mean	St. Dev.	Min	Max
Number of Attacks	320112	0.003	0.058	0	6
Density of Traffic	320112	3.943	12.36	0	148.15
Distance from ports	320112	9.442	5.972	0	25.792
Chokepoint	320112	0.58	0.233	0	1
Killed	320112	2.576	2.347	0	5.924
Summer monsoon	320112	0.25	0.433	0	1
Winter monsoon	320112	0.333	0.471	0	1
BMP	320112	0.0002	0.018	0	5
Private security	320112	0.002	0.013	0	2
Success	320112	0.002	0.026	0	0.625
Atalanta mission	177840	0.983	0.128	0	1
Rescue mission	177840	0.002	0.042	0	1

*Estimation and results*

Model 1 in Table 14 reports the estimated coefficients of a logit model, including only the control variables and the time lag of the dependent variable. Most variables behave as hypothesized. Shipping density is associated positively with incident occurrence; hence the likelihood of piracy is higher where there are more potential targets available. Increasing distance from ports reduces the odds of attacks. The square term for traffic density and distance, however, is not significant. Being in proximity of the Bab-el-Mandeb straits is also very risky for vessels as it is easier for pirates to identify target, attack and then quickly escape to the coast. The higher density of traffic in these areas also allows pirates to choose targets that seem more vulnerable. Meteorological conditions also affect the risk of attacks, though only the South-Western monsoon curbs piracy incidence; the winter monsoon has no impact. I argued that because of its intensity and the high summer temperature, coastal communities benefit from the South-Western monsoon as its upwelling increase the presence of sea nutrient making fishing more attractive than going out at high sea to rob or hijack vessels (Wiebinga et al. 1997). The interaction term between summer monsoon and the Aden region shows that risk of incidents is lower during the summer monsoon but this effect is more moderate in the Gulf of Aden. Here the increased marine productivity is half of the Somali basin's; therefore, fishery does not sufficiently substitute for piracy nor does it increase the opportunity cost of using

boats for piracy instead of fishing. Hence, few attacks still occur.<sup>30</sup> Finally, the number of battle-related deaths along Somali coasts measures the degree of instability and local governance. According to the results, instability but not complete disruption and chaos may provide advantages for illicit activities such as piracy. The baseline model confirms that quality of governance, economic opportunities, weather and geographic factors affect the location of attacks not only at the state level.

Yet, these models neglect the diffusion mechanisms since they cannot distinguish whether geographic clustering results from common exposure or actual diffusion. Piracy is not a widespread phenomenon occurring randomly throughout the Gulf of Aden and the Somali basin; it tends to cluster in hotspots (Figure 22). In order to understand how pirate behaviour relates to the emergence of these hotspots, we need to consider how many times each location experiences an actual or attempted attack. I estimate count models to assess patterns of diffusion. To begin with, I compare the fit between a negative binomial model (NB) and a zero-Inflated negative binomial model (ZINB) and then discuss the results. The estimates of the negative binomial model are reported in Model 2 (Table 14). First of all, the alpha parameter for overdispersion is significantly different from zero, thus clusters of piracy are the result of the fact that close locations present features that make them more likely to experience incidents than others.<sup>31</sup> Again, however, it can be argued that there might be locations with very low or even zero chances of attacks, for example, if vessels never cross that cell. The problem is that the reasons why some locations are immune to attacks may be different from those explaining high risk experienced by others. It is possible to model these two processes separately using a zero-inflated negative binomial model.<sup>32</sup> The zero-inflated negative binomial model is reported in Table 14 (Model 4). The covariate for the inflation equation is density of shipping traffic: locations where vessels never transit are expected to be rarely (if ever) targeted.<sup>33</sup> All statistics reported in Table 14 (AIC, BIC and Vuong) suggest that the ZINB model perform better than the NB.<sup>34</sup> I decided to select the ZINB model due to both statistical and theoretical reasons, as I

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<sup>30</sup> Interestingly, this effect is not observed during the winter monsoon, during which the beneficial effect of the upwelling on fish availability is less pronounced.

<sup>31</sup> Specifically, a significant alpha allows rejecting the Poisson model assumption that the emergence of hotspots is random.

<sup>32</sup> The model estimates two separate equations, one for the data generating process of the zeros and another for the positive counts. The inflation equation is a logistic model where the variables associated with low or no risk are used as covariates. The other model is a negative binomial, thus dealing with high risk and event dependency.

<sup>33</sup> Ships sometimes stray out of the shipping lanes, which explains why no density may still be associated to piracy occurrence.

<sup>34</sup> Vuong test is significant and the lowest (best) BIC and AIC are reported for the ZINB model.

believe that the density of shipping traffic does affect not only the intensity but also the risk that an incident will occur in a location.<sup>35</sup>

The ZINB Model 3 allows for assessing mechanisms on diffusion by reinforcement, contiguity and learning. The increase in expected count of incidents after at least one occurred in the previous month is indicative of a reinforcement process. The intensity of attacks increases 211% when an attack already occurred in the same location (Table 15). If the attack occurred in surrounding locations, the intensity is heightened by 152%, meaning the number of attacks more than doubles. The definition of “surrounding areas” in this analysis includes locations within 1.5 decimal degrees (approximately 160 kilometres) from the centre of each cell. The significance of the spatial lag and the non-significance of the spatio-temporal lag suggest that this neighbourhood effect occurs in the short run, namely within the same month. Incidents that occurred in the surroundings are not affecting the intensity of piracy in the following months. This is likely the result of the short campaigns often carried out by Somali pirates that generate chains of attacks, closely grouped and within a short period. Near-repeat analyses discussed further below confirm this expectation.

A third diffusion mechanism suggests that pirates assess their rate of success in locations where they have operated in the previous time period and decide to return to those with higher rates. Pirates might also observe the successes of other groups and select the most successful locations for future attacks. The model supports this explanation, as shown by the positive and significant coefficients for the learning variables. A 10% increase in the rate of success results in 9% more incidents in that unit and 62% more in the surrounding locations. The control variables retain significance and direction, as estimated in the logit and NB models, except for density, which is only significant in the inflation equation. As expected, less trafficked areas are important predictors of lack of incidents, meaning they are not selected by pirates.<sup>36</sup> The marginal effects of the diffusion-related variables and control are graphed in Figure 24.

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<sup>35</sup> A similar argument can be made about distance from coastline. Estimated ZINB models (not shown) with density and distance from closest Somali ports does not report different results.

<sup>36</sup> Recall that the inflate equation predicts the likelihood of 0s, not 1s.

**Table 14. Comparing baseline models for piracy diffusion**

	Model 1	Model 2	Model 3	
	Logit (interaction)	NB	ZINB	
			NB	Inflation
Reinforcement	2.751*** (0.184)	1.257*** (0.348)	1.135*** (0.333)	
Contiguity( $t - 1$ )		0.143 (0.125)	0.110 (0.118)	
Contiguity		0.993*** (0.121)	0.928*** (0.114)	
Rate of Success( $t - 1$ ) (Space lag)		4.856*** (1.411)	4.790*** (1.358)	
Rate of Success( $t - 1$ )		0.882** (0.396)	0.905** (0.356)	
Density	0.054*** (0.017)	0.037*** (0.009)	0.004 (0.014)	-1.715*** (0.433)
Density (sq)	-0.001 (0.001)	-0.0004 (0.0003)	-0.0001 (0.0001)	
Distance ports	-0.07** (0.034)	-0.039 (0.034)	-0.037 (0.034)	
Distance ports (sq)	-0.003 (0.002)	-0.004** (0.002)	-0.005** (0.002)	
Chokepoint	1.185*** (0.215)	0.843*** (0.197)	0.771*** (0.213)	
Summer monsoon	-1.160*** (0.180)	-0.593*** (0.112)	-0.592*** (0.112)	
Winter monsoon	-0.036 (0.1)			
Gulf of Aden	-0.540*** (0.199)			
Summer monsoon*Aden	1.031*** (0.228)			
Winter monsoon*Aden	0.076 (0.139)			
Killed( $t - 1$ )	3.691*** (0.531)	2.808*** (0.692)	2.821*** (0.674)	
Killed( $t - 1$ ) (sq)	-1.781*** (0.264)	-1.343*** (0.343)	-1.349*** (0.335)	
Constant	-6.938*** (0.327)	-6.875*** (0.322)	-6.171*** (0.320)	0.479** (0.241)
Observations	320,112	320,112	320,112	
LnAlpha			1.797***	1.514***
Vuong Statistics				4.75***
AIC			10,764	10,675
BIC			10,924	10,857

Clustered Standard Errors  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 24. Marginal effects for ZINB model for Piracy (Model 3)

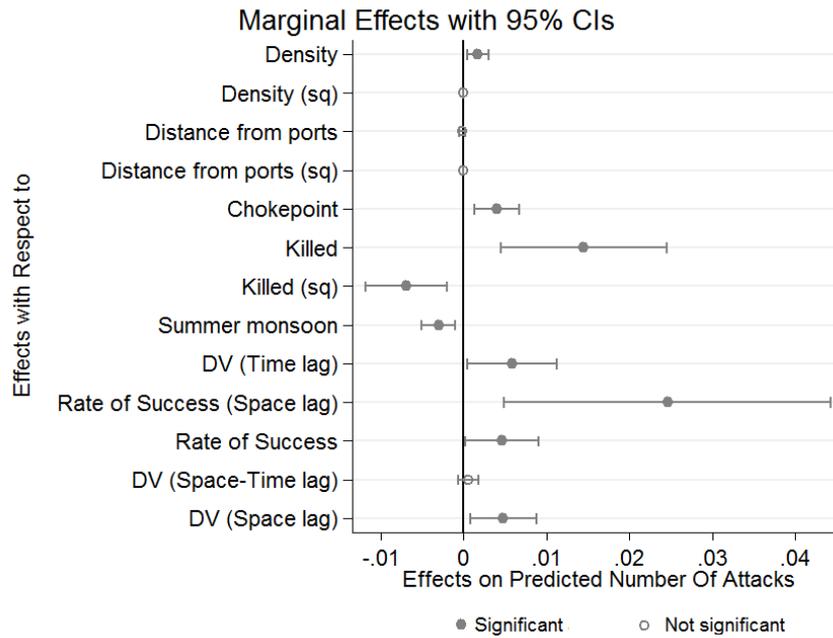


Table 15. Incident Rate Ratio (Model 3, 4 and 5)

Mechanism	Variable	IRR	% Change Piracy
Reinforcement	Count( $t - 1$ )	3.111	+211%
Contiguity	Count (Space lag)	2.530	+152%
Learning	Rate of Success $(t - 1)$ (Space lag)	1.049	+61%
	Rate of Success $(t - 1)$	1.009	+10%
Deterrence	Atalanta2011	1.3	+30%
	Atalanta2012	0.507	-49%
	Atalanta2013	0.123	-88%
Compellence	Success $_{(max)}$ *Rescue $(t - 1)$	0.51	-89%

I explore the finding on the short-term versus long-term diffusion by contiguity by moving to a higher level of temporal disaggregation, namely daily variation in attacks. Near-repeats analysis can be used to identify daily patterns of victimization and diffusion. Near-repeats are events that occur close in time and space in a non-random way. Results show that there is a clear pattern of near-repeats since the first attack by pirates is followed by a rapid increase of risk in nearby cells for a short temporal span.<sup>37</sup> Indeed, after several attacks the risk of getting caught

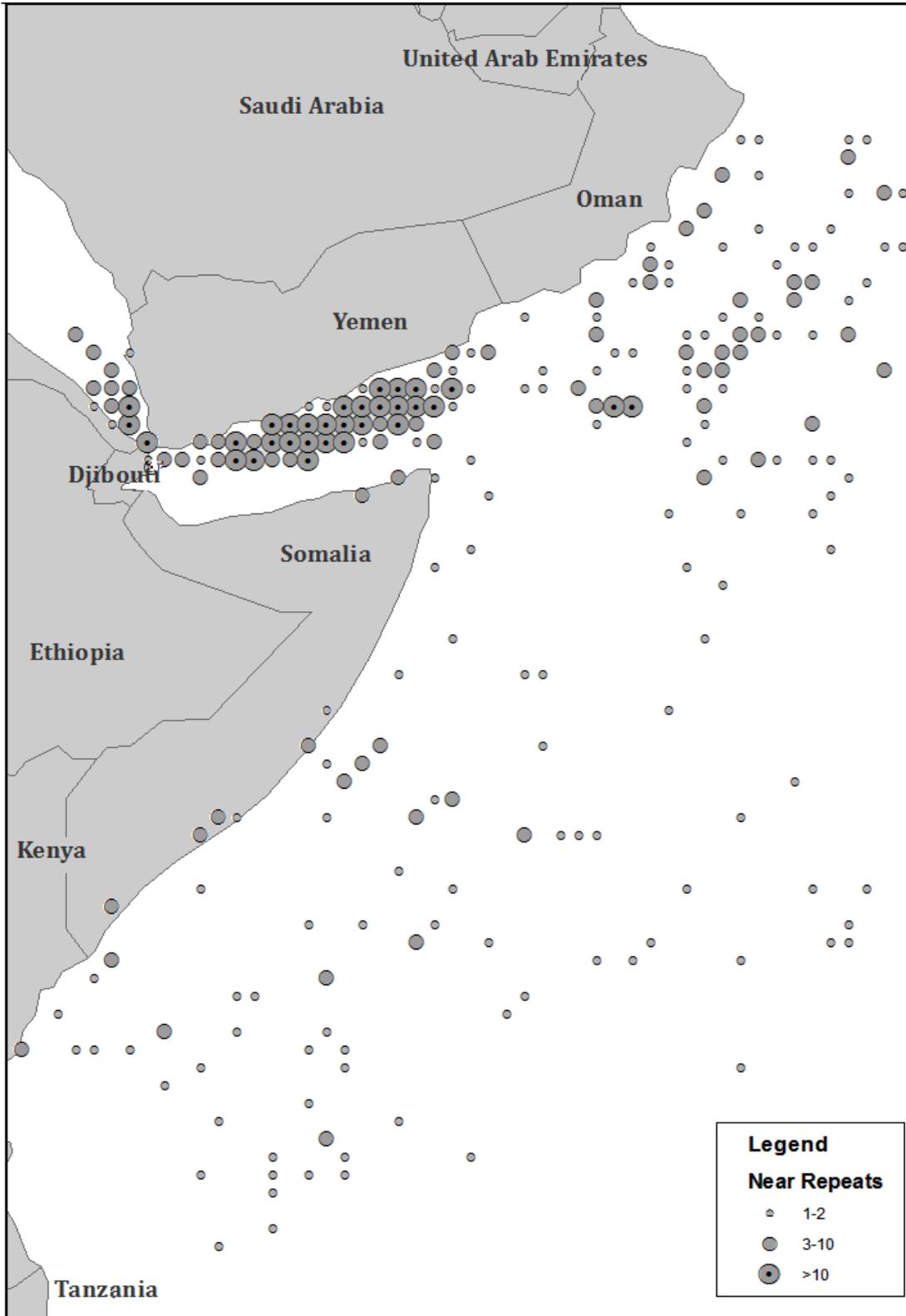
<sup>37</sup> Software for Near-Repeat analysis: <http://www.cla.temple.edu/cj/misc/nr/>.

is higher because vessels might have alerted authorities so the campaign has to stop. It follows that pirates can quickly carry out multiple attacks in close areas, then either moving on or retreating. The analysis also shows that the pattern of diffusion (or near-repeated victimization) exists only within three days from the first attack and at a maximum distance of 250 kilometres. Figure 25 maps the location of near repeats. The longest chains (>10 attacks) occur in the Gulf of Aden, close to the straits. Here, the conjunction of favourable geographic conditions probably allows pirates to attack multiple targets in a short amount of time (one day interval).

The results in Table 14 reveal that piracy spreads in space. More specifically, the hypothesis that this diffusion is driven not only by spatial contiguity but also by a learning process through which pirates identify successful areas is strongly confirmed by the empirical test. The same argument holds for reinforcement, that is to say, the expectation that pirates return to familiar locations.

I now assess the effect of EU counterpiracy in terms of deterrence and compellence (H2a and H2b). After the deployment of EU warships for the Atalanta mission this threat entered the pirates' decision-making calculations and posed constraints on the diffusion of piracy. Model 4 (Table 16) tests the effect of EUNAVFOR deployment on the intensity of piracy activity using year dummies that equal 1 for years after 2008. Model 4 reveals that the deterrent effect only started in 2012, with a 49% reduction of attacks, becoming even stronger thereafter with an 88% decrease in 2013 (Table 15). The level of piracy activity off Somalia did not drop immediately after the deployment, although the mission became a more effective deterrent later. Indeed, in 2012 EUNAVFOR was allowed to expand its operations to the Somali coasts and territorial waters and established cooperation with the Somali Transitional Federal Government (European Council 2012). Models with one single dummy variable for the Atalanta mission (not shown) would not capture this gradual improvement and report a positive coefficient. Also, it should be noted that BMP and private security on board do not reduce attacks.

Figure 25. Location of incidents occurring within near repeat chains



Proceeding to compellence, I test the effect of an actual EU rescue of a vessel under attack on the pirates' strategic selection of locations. The variable indicates whether pirates faced EUNAVFOR in a specific location during the previous month, thus testing the compellence effect following a confrontation. Disrupting attacks does not simply threaten; it actually imposes costs on pirates. Since the strategic interaction between pirate activity and EU intervention is endogenous, I use a seemingly unrelated regression (SUR) to test the hypothesis. The SUR model estimates two separate equations allowing correlation between disturbances. The two seemingly unrelated models are a ZINB model and a logit model. I expect the intensity of piracy to be related to EU activity in given units in the last month; hence, I use the ZINB with the number of attacks as the dependent variable and previous EUNAVFOR rescue interventions as the independent variable. At the same time, EU interventions are a function of piracy actually occurring, which is why the logit model uses a dummy for EUNAVFOR intervention in the previous month as the dependent variable and the previous number of attacks and success rate as covariates. I interact success rates and EU rescues in the ZINB equation because compellence is can be conditional on learning. If pirates attack a vessel in a cell that has 100% failure rate, they are less likely to return to the location independent from any EUNAVFOR intervention. A compellence effect occurs when successful areas become dangerous for pirates because of EU disruption. Indeed, models without the interaction term report no significant effect of intervention on future piracy incidents (not shown).

The results are reported in Model 5 (Table 16). The logit estimation shows that interventions are strongly and positively related to piracy activity not only in a specific unit but also in its proximity. Also rates of success in the location increase the probability of EU intervention, suggesting a learning effect also for counterpiracy operations. Focusing on the ZINB model, it is interesting to see that the disruption of attacks by EUNAVFOR reduces piracy incidence and discourages attacks even when the success rate is high. As reported in Table 15, when success rate is at its maximum (0.625), piracy is reduced by 89% by EU intervention. However, this compellence only lasts for one month. It disappears after two months as reported by the lags for rescues occurring two and three months before. Eventually, pirates go back to that location. A plausible explanation for this short-term effect is that, on the one hand, we know from the logit equation of the SUR estimation that EUNAVFOR intervenes more in areas where more successful attacks have occurred. On the other hand, this intervention is not followed or complemented by constant patrolling of these areas. After the rescue of vessels, the warships eventually move away. Thus, it is possible that pirates wait approximately one month, according to my analysis, and then again return to these areas because of their high success rates.

## 6. Discussion and conclusions

Analysing spatial interdependence of piracy incidents (which are sea-based) presents more challenges than performing the same analysis on land-based social phenomena. It could be argued that diffusion at sea is different from land-based contagion because socio-economic and environmental drivers of diffusion are not present on water. This claim seems to misunderstand diffusion. First, if socio-economic and environmental features are sufficient for explaining the spatial and temporal clustering of events, clustering is very likely the result of the initial spatial distribution of these features rather than an interdependent process of contagion. This is the difference between spatial interdependence and common exposure. Second, pirates are land-based actors that carefully select the locations for their base of operations. For example, they seek protection by local tribes and relatively secure ports. Hence, the decision where to sail from and to is not independent from land-based conditions. In other words, piracy occurs at sea but it is not a uniquely and purely maritime activity.

Another important point concerns the level of confidence on the mechanisms behind diffusion of piracy and other forms of violence and crime. Violence during civil wars spreads because actors attempt to establish control over contested areas. Starting from their home base, each party uses violence in surrounding areas whenever necessary to gain territory. In the case of sea-based crime, however, is it possible to identify the origin of the diffusion? Pirates have to move on water to commit attacks and each time they try to identify areas suitable for attacks. Possibly, they go back to the last location they operated within and then move to its immediate surroundings. Given the availability of GPS and other technological tools, pirates enjoy this opportunity. While conflicts escalate or relocate from a point of origin (Schutte and Weidmann 2011), piracy has no fixed beginning point. For diffusion patterns to emerge, it is necessary that pirates decide to go to a specific location to start their campaigns. If they simply were to go after specific targets, this behaviour would not result in spatio-temporal clustering. Once the campaign ends or at least one attack is carried out, pirates have to go back to shore again. Then, when a new campaign starts, they may decide to go back to areas that they already know and where they have already been successful. In this sense, the dynamics of Bayesian learning that are hypothesized to matter for other violent actors, such as terrorist or rebel groups, is particularly explicit and strategic in the pirates' decision-making. The fact that these actors carry out their attacks at sea simply facilitates the isolation of these mechanisms, more difficult to disentangle in land-based phenomena. The problem of many confounders and common exposure, while still of some relevance, should be less severe for the inferences made here.

**Table 16. Counter-diffusion models**

Variables	Model (4)	Model (5)	
	ZINB	SUR Rescue	
	Atalanta	ZINB+	Logit
Reinforcement	1.210*** (0.335)	0.601** (0.286)	4.696*** (0.657)
Contiguity <sub>(t - 1)</sub>	0.805*** (0.108)	0.902*** (0.120)	
Contiguity	0.0193 (0.121)	0.403*** (0.0821)	
Rate of Success <sub>(t - 1)</sub>	1.128 (0.759)	3.901*** (1.049)	17.65*** (1.560)
Rate of Success <sub>(t - 1)</sub> (Space Lag)	4.496*** (1.445)		
Atalanta2010	0.214 (0.141)		
Atalanta2011	0.261** (0.118)		
Atalanta2012	-0.680*** (0.160)		
Atalanta2013	-2.098*** (0.261)		
Success <sub>(t - 1)</sub> *Rescue <sub>(t - 1)</sub>		-7.331*** (2.180)	
Rescue <sub>(t - 1)</sub>		2.600 (0.946)	
Rescue <sub>(t - 2)</sub>		1.623*** (0.221)	
Rescue <sub>(t - 3)</sub>		1.535*** (0.202)	
BMP	-0.0420 (0.282)	-0.152 (0.391)	
Private Security	-0.122 (0.365)	0.124 (0.576)	
Constant	-2.887*** (0.800)	-5.034*** (0.749)	-8.761*** (0.405)
Observations	177,840	177,840	177,840
Clustered standard errors			

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

+ Inflation stage with Density (\*\*\*) not reported.

Other control variables are included in the estimation

Moving from existing work on diffusion of political and criminal violence, the analysis presented in this paper shows that violent actors strategically select location for violence and adapt their decision-making according to learning and counter-violence factors. Using the case of Somali maritime piracy, I show that, along with contextual factors that increase the profitability and attractiveness of piracy (economic opportunities, instability, geography and weather), pirates base their decision-making on three important factors that explain why piracy exhibits pattern of spatial interdependence. This pattern can be described as outbursts of activity followed by a contagious period, which is limited in time (one month) and space (up to 250 km). After this period, the contagion in the area stops. Additionally, successes may drive pirates to return to locations where they failed less. Interestingly, the learning process does not exclude the possibility that those who recognize the advantages of operating in a location are the same who achieved the first success. Practices, which also involve ways of carrying out attacks, may diffuse “in virtue of the signal they send” (Gilardi 2016), in this case success rates. Unfortunately, the data available does not allow distinguishing between groups and identifying diffusion processes due to observational learning.

The identification of sources of contagion and the spatio-temporal constraints of such processes have crucial implications for counter-piracy policy. Interventions aimed at reducing the impact of crime usually refer to hotspot maps to identify areas considered to be at risk. However, a static map of hotspot may result in misinformed strategies. Hotspots change over time, and it is easy to misinterpret a temporarily high concentration of piracy with a stable hotspot (Johnson and Bowers 2004; Johnson et al. 2008). Stable hotspots as the Gulf of Aden and Northern Somali coast suffer high counts of incidents over time, with no significant seasonal variations. Notably, stable concentration of piracy in this area is reported throughout the entire 2005–2013 period. The identification of the source of clustering requires making the distinction between risk factors and event-dependency made in this paper. Understanding the determinants of piracy clustering in specific locations is central for planning appropriate counter-piracy strategies, because it would allow for distinguishing between areas that needs to be patrolled constantly and those where the risk of attack is temporarily heightened for a limited period.

## CONCLUSIONS

This dissertation provides novel insights on external intervention and the ongoing transformation of UN peacekeeping. A central contribution of this thesis is its focus on specific types of violence, namely ethnic and criminal violence, which have their unique dynamics. Coupled with the expanding and increasingly pro-active role of UN peacekeeping, ethnic and criminal violence emerge as new challenges to peace missions – not because these are new manifestation of conflict but rather due to the increased attention they received by the international community during the last two decades. The dangerous spirals of violence that can engulf ethnic groups during civil wars and the flourishing of criminal networks present a dilemma for UN peacekeeping efforts. Conflicts have become more complex and the expectations about international responsibility to secure peace calls for a deeper reflection on the evolution of peacekeeping. It is not an exaggeration to argue that protection of civilians in the midst of ethnic violence and embeddedness of crime in post-conflict societies are among the top concerns in contemporary peacekeeping. This concluding section reflects on the policy implications stemming from the empirical findings of this dissertation, and proposes a broad agenda for future research.

### **1. Ethnic violence: avoiding backfire**

As soon as new missions were authorized in the 1990s, the first dilemma UN peacekeeping faced was intervening to restore peace without provoking escalation of violence, especially against unarmed civilians. The ethnic cleansings plaguing Africa and the Balkans made clear that deployment coupled with ethnic cleavages can have unintended consequences – even more so if the geography of ethnicity and territorial control that shape strategic use of violence are not taken into account when interventions are planned. The first chapter of this dissertation sheds more light on dynamics of ethnic violence by showing that specific geographic configurations of ethnic settlements influence conflict escalation. More specifically, when minorities are concentrated in enclaves within the opponents' territory and isolated from co-ethnics, they become easy targets because they are perceived as potential threat. From the perspective of the majority group, these enclaved populations are susceptible of being recruited for guerrilla or act as fifth columns in irregular warfare. In order to simultaneously remove the threat and establish almost uncontested territorial control, the majority ethnic group has incentives to attack these enclaves. Following this mechanism, I argued that some locations are inherently more vulnerable and more likely to experience escalation of violence. Interestingly, the perpetrator does not need to be the largest ethnic groups at the national scale; it is sufficient

that they enjoy majority status at the local level, where territorial control is particularly valuable.

If territorial control and thus the local distribution of power among ethnic groups affect conflict dynamics, it is also expected that it will constrain the performance of UN peacekeepers. The study on Bosnia in Chapter 1 incidentally controls for the role of peacekeepers but its core concern is to link territorial patterns of ethnic groups with the location of violence. How this also reflects the armed groups' concerns over the balance of power and, in turn, peacekeeping effectiveness is addressed separately. In Chapter 2, I moved from the observation that the capacity to reduce conflict intensity, as found in the peacekeeping literature, is unlikely to change dynamics of violence uniformly; rather, it should be mediated by the group's local capacity. These capacities are usually a function of territorial control and, as shown in Chapter 1, they shape the groups' incentives for victimizing civilians. Based on empirical findings for the UN missions in Sierra Leone, I found support for the general hypothesis that effectiveness of peacekeeping is conditional on power distribution as measured by ethnic polarization index.

The ethnic polarization index is used as measure of local balance of power among armed ethnic groups. The index ranges from 0 to 1, where 1 describes a perfectly bipolar and symmetric setting. In accordance to recent studies, missions with large contingents are found to effectively reduce violence against civilians; but when there is asymmetry among warring parties, civilians are more difficult to protect. If one group dominates, the deployment of UN Troops may create short-term incentives for escalating one-sided violence, as it alters the pre-existing power distribution. When ethnic groups are intermingled and cannot be easily separated (e.g., under low polarization), it is harder for external actors to monitor the use of violence, especially behind blurry frontlines. In these settings, the significant asymmetry of power makes the weakest group more likely to target civilians to either coerce civilian support or inflict losses to their opponents. Similarly, the dominant group also has motivations to escalate violence against civilians to secure its position before a full-scale mission is interposed. The findings of this paper shed some light on the local dynamics of the targeting and protection of civilians. By adopting a spatially and temporally disaggregated approach, I presented evidence of how blue helmet presence may reduce or spur civilian killings at the local level. Violence against civilians exhibits fluctuating patterns that, as noted by Heldt (2010), point toward the triggering role of local circumstances. Some circumstances are pre-existing (i.e. territorial control) while others are the result of the interventions itself, but both require local-level perspectives to be understood.

The policy implications of these first two chapters are not trivial. First, once the risk of specific settlements patterns emerging from high intermingling is established, third-party intervention could adjust deployment strategies accordingly in the objective of the mandate. By relying on data at a significant level of disaggregation, it is possible to identify specific areas at risk of violence *ex ante* and intervene locally. With regard to the Bosnian case, the UNPROFOR mission did not succeed in identifying violence-prone locations. Deployment decisions were mostly based on previous levels of violence and its geographic clustering. Since the vulnerability of areas within municipalities was not included in the decision-making process, it is not surprising that the presence of UN Troops in municipalities with vulnerable settlements made no difference on subsequent levels of violence. In Bosnia, peacekeepers could reduce violence in areas where they were deployed, but this effect was absent in presence of vulnerable settlements. If the intuition that vulnerability of settlements poses more risk for civilians than for armed groups is correct, the finding can be interpreted in line with other studies on peacekeeping effectiveness arguing that reduction of violence, especially against civilians, requires partiality, strong mandates, and adequate forces on the ground. Compared to this case, the Sierra Leone case looks like a more successful mission.

Overall, there is some empirical evidence, also in these Bosnia and Sierra Leone cases, that protection of civilians amid violence is possible when the scope of the mandate is clear, not too ambitious, and the mission has enough capabilities to halt widespread violence. However, I showed that armed actors react to interventions differently and, when deprived of opportunities for open confrontation with their rivals, they may decide to target civilians. Peace missions need to consider to what extent interventions make civilians more exposed to brutal attacks. At the core of this concern lies an information gap about local conditions and the groups' capacity. In the last High-level Independent Panel on Peace Operations (HIPPO) protection of civilians was defined as a moral responsibility for UN members (UN 2015). Addressing safety needs of civilians at risk, however, entails a well-judged assessment of the threat that also involves considerations of armed forces and "local sources of resilience" (UN 2015:39). The more field-focused approach outlined and repeatedly recommended in the report has the potential to fill the information gap and help peacekeepers accomplish their protection mandate.

## **2. Criminal violence: securing the status quo for thugs**

Another dilemma multidimensional peacekeeping and, more generally, external interventions are currently facing is how to move from a military focus to a broader approach to promoting

peace. Realizing this goal requires a thorough effort to address both political and criminal violence in host countries. The relationship between peace operations and criminal violence is very ambiguous, and there has been no attempt yet to look at this more systematically. To fill this gap, I presented an empirical analysis on the effect of peacekeeping on criminal violence in Chapter 3. I elaborated three mechanisms in support of the general hypothesis that peacekeepers inadvertently exacerbate criminal violence (and crime incidence in general) in host countries. First, at the individual level, the disarmament programmes create large pool of individuals willing to "invest" their violent skills in criminal activities. This willingness is not always dependent on the successful implementation of the programmes or on the actual availability of employment opportunities. While employment opportunities increased satisfaction among combatants in South Sudan (Phayal et al. 2015), wartime networks in Colombia seem to better explain decision to engage in crime, as the wartime network is transformed into a criminal one (Daly et al. 2016). Second, at the group level, peacekeepers contribute to relatively rapid decrease of political violence, thereby stimulating formal and informal local economies. The combination of these two shocks creates conditions and space for illegal business, thus increasing violent competition among criminal groups. Third, creating order requires the establishment of a partial monopoly of power by peacekeepers; they replace the state but only to the limited scope covering political actors. This means that crime and criminal violence are not effectively deterred by UN Troops or by the weakened post-conflict state.

The empirical analyses in Chapter 3 provide supporting evidence in favour of these mechanisms, at different levels of analysis. At the country-year level, UN Troops are robustly associated with more homicides while UN Police has a positive impact on curbing criminal violence. As expected, the indirect link between peacekeeping and higher homicide rates seems to work through the conflict-reducing effect associated with UN Troops. Conversely, UN Police assists, trains and conducts joint operation with national police, thereby countering the negative side-effect of troop deployment.

The subnational analysis of monthly homicides and the UN mission in South Sudan states confirmed these conclusions. While the country-level analysis aimed at identifying different dynamics in criminal violence in countries with and without peacekeeping, South Sudan and the UNMISS mission were used to take a closer look at the causal mechanism. The subnational analysis of monthly homicides and peacekeeper presence was consistent with expectations of a positive effect correlation with UN Troops and a negative one with UN Police. One major problem that this analysis highlights is the short-sighted approach to peace that most missions have and their focus on military activities and political actors. In theory, multidimensional

peacekeeping involves more civilian tasks and, while over time the number of non-military personnel does increase, troops still make up the largest share of personnel. As of August 2016, 85% of uniformed personnel are troops, and only 13% of all peacekeepers (uniformed and civilian) are civilians (UN website). Considering that reducing violence is certainly the top priority for peacekeeping missions this is not surprising, but it seems that the current deployment logic may not match the broad UN strategy for peace, especially as outlined in the 2015 HIPPO. The very first recommended shift put forward in the HIPPO is that peace missions “should be deployed as part of a broader strategy in support of a political process”, emphasizing the importance of protecting civilians “in all dimensions”, including criminal violence (UN 2015). With this regard and in line with the empirical findings, the role of UN Police is acknowledged as crucial.

It appears that what is mostly lacking in current UN peacekeeping efforts is the political commitment and willingness to move beyond the “Agenda for Peace” and the Brahimi report, which have guided the evolution of peacekeeping since the end of the Cold War. The findings of my study suggest that UN Troops *cannot* reduce criminal violence. A fairer conclusion could be that UN Troops cannot reduce criminal violence *under current mandates* that do not allow them to directly engage criminal actors (the effect on the ground are the same). Interestingly indeed, military interventions can curb criminal activities when explicitly designed to target criminals, even in the most unstable environments.

As argued in Chapter 4, the EUNAVFOR mission in Somalia is a case in point. Moving from the existing work on diffusion of political and criminal violence, the analysis presented in the last chapter of this dissertation shows that criminal actors strategically select location for crime and adapt their decision-making based on learning and countering factors. Once contextual factors that increase the profitability and attractiveness of piracy are considered (i.e. economic opportunities, instability, geography, and weather conditions), pirates take their decisions based on three additional important factors. These factors explain the clustering and spatial interdependence of piracy incidents. This pattern can be described as outbursts of activity followed by a contagious period, which is limited in time (up to one month) and space (up to 250 km). Higher success rates in a given location seem to increase the likelihood that pirates will return to the same location to carry out new attacks. The data do not allow for distinguishing whether the same successful group decide to return or whether it is another group that learned of these opportunities through observation. Besides identifying the sources of contagion, the analysis of piracy also accounts for factors that constraint piracy and the pirates’ strategic selection of locations. The EU counterpiracy mission successfully reduced the incidence of this type of crime, even in locations that were more successful (thus more

attractive) for pirates. The first important aspect that links this type of analysis to intervention is that counter-crime measures tends to rely on hotspot maps to identify at-risk areas. These risk snapshots, however, clearly hide the temporal dynamics of diffusion that would require different types of intervention. As mentioned in the concluding remarks of the fourth chapter, most hotspots are not constant over time. Although a static map of piracy off Somalia would suggest a concentration of incidents in several locations, the only stable hotspots in the region are limited to the Gulf of Aden and the Northern Somali coast. An appropriate intervention in this area would require almost constant patrolling, like the protection corridor established just outside the Gulf's chokepoint.

Another important point concerns the role of the peacekeeping mission that currently operates in Somalia. The EUNAVFOR mission was deployed at the end of 2008 with the explicit mandate to rescue vessels and tackle piracy off Somalia. Notably, Somalia was and still is hosting an African Union (AU) peacekeeping mission (AMISOM), which also receives support from the UN. While piracy is primarily a land-based problem, the presence of AU and UN peacekeepers did not have a clear beneficial impact on piracy, despite featuring prominently in several UN reports. It might be interesting to investigate this issue further to assess whether the presence of peacekeepers actually created more favourable conditions for piracy, as the findings of the third chapter would suggest. Pirates in Somalia outsource security, usually "buying" it from clan elders (Shortland and Varese 2012). Given their security needs, it is possible that also peacekeepers are unintentionally providing the minimum safety necessary for organized crime to thrive.

### **3. The way forward**

In the introduction to this dissertation, I illustrated how mandates for UN peacekeeping have changed, especially after the Cold War. Although the research questions addressed here are still focused on military and security tasks carried out by blue helmets, it is clear that these represent only a part of what peacekeepers do on the ground. Stopping wars is the primary function of peacekeepers, so it is reasonable to assess their performances in relation to this task. However, Figure 2 in the Introduction clearly shows that peace missions have shifted from merely military observation and interposition toward using multidimensional approaches to peace. The UN is no longer only concerned with negative peace (removing direct violence) but also with creating conditions for positive peace (removing structural and cultural violence). This intent is repeatedly made explicit in the last High-level Independent Panel on Peace Operations, where it is acknowledged that "lasting peace is achieved not through military and technical engagements, but through political solutions" (UN 2015).

While a more comprehensive approach to peace is necessary to reduce risk of conflict reoccurrence and improve the quality of peace in post-conflict societies, it is still unclear whether UN peacekeepers should take over this task. Ideally, if peacekeeping is apt at providing both negative and positive peace, then countries that hosted UN missions should perform better on economic and social indicators, score higher on human development scores (less economic inequality, better health conditions, small gender gap), have more political participation and less corruption. However, it is not entirely intuitive that the UN can succeed in the objective it sets for its peace operations. Given the lack of systematic assessments of peacekeeping on political, social, and economic outcomes in the long term, it is difficult to argue in favour or against this overstretching of peacekeeping mandates. For example, it is possible that replacing the state as the main enforcing actor delays or disincentivizes comprehensive domestic state-building, thus unintentionally promoting corruption. Peace would then only last as long as UN personnel are present, as shown by the cases of Central African Republic and Liberia. It could also be the case that delegating active state-building to peacekeepers instead of assisting autonomous reconstruction is harmful for the national government. In the eye of citizens, it is not the central government but the UN that is providing them security and public goods. When missions withdraw, citizens may have developed grievances against what they perceive as inept government and thus refuse to acknowledge its legitimacy. Looking at economic impacts, peacekeeping seems to sustain growth, but there is some evidence pointing toward a potentially distorting effect of the UN mission on the economy, especially at the local level (Carnahan et al. 2006). More generally, the peace dividend may only benefit a small portion of the population or takes time to spread. Post-conflict scenarios are severely threatened by spoilers when marginalization persists. Former combatants, unemployed young people, refugees, and displaced persons that do not enjoy the dividends of peace might have stronger incentives to withdraw their commitment to peace and embrace violence, by joining extremist political groups or criminal networks when alternative licit livelihoods are not available (as in East Timor and Nicaragua). Both scenarios have short-term and long-term implications for establishing durable peace and state-building.

The ongoing debates on the future of peacekeeping as well as concerns over long-term stability, state-building and human development are gaining momentum within the UN. In the past, documents such as Boutros-Ghali's "Agenda for Peace" and the Brahimi Report set new directions for the practice of peacekeeping in the UN system. The concomitance of the publication of the new HIPPO's Report and the election of new Secretary General António Guterres are likely to similarly bring about a change of direction in peacekeeping. Given the massive resources that multidimensional mission entail, compared to the more traditional and

military ones, it is of utmost importance to understand if and how peace missions can support the creation of positive peace, instead of only acting as temporary stopgaps for violence.

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