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Welcoming Words

We are incredibly pleased and proud to present this year's edition of the Pax et Bellum Journal. This seventh edition of the journal is being published during what can only be described as a hectic year. Due to the ongoing pandemic, this year's journal is not a spring, but a fall edition. We would like to express our utmost gratitude, once again, for the amazing authors and reviewers for giving their time to rewrite and review the publications submitted for this edition under these unique circumstances.

The Journal is overseen and organised by master students from the Department of Peace and Conflict Research at the University of Uppsala and aims to provide a platform to students from all over to world to publish their work. This year's published articles feature a wide range of topics, that expand pre-existing theories or engage with compelling questions of the present.

The first contribution is by Johannes Fritz Geiger, a master student from the University of Essex and the University of Bamberg. Building on his master thesis for the University of Essex, Johannes looks into country-level factors that have an effect on the cyber incidents within a specific state. Through a quantitative lens, Johannes concludes that states that employ conventional military strategies, have greater access to the internet, and have a high number of highly educated citizens are more prone to experience cyber incidents. With his article, Johannes shows the unique nature of cyber disputes as opposed to conventional conflicts.

The second contribution is by Maurice Schumann, a second-year master student at the University of Uppsala. Building on pre-existing theories regarding horizontal inequality and grievances, Maurice examines the ethnic conflict in Yemen through process-tracing articles from POLITICO and Al Jazeera. He further augments his analysis with descriptive statistics. Maurice concludes that political and economic discrimination trigger grievances in marginalized groups. He concludes that grievances combined with access to sufficient resources can increase the possibility of the outbreak of conflicts.

The third contribution, by Anna Luisa Araujo Mendes, engages with the local ownership of peace agreements in Côte d'Ivoire. Building on pre-existing theories, Anna Luisa assesses different peace agreements over time in Côte d'Ivoire. She examines factors that contributed to the local ownership of the later agreement and contributing to research focussed on the creation of more sustainable peace. Anna Luisa is a student at PUC Minas University, Brazil.

The last contribution is by Jack Breslin, a second-year master student at the University of Uppsala. The article is theory generating and aims to fill the current gaps regarding Sexual Exploitation and Abuse in United Nations peacekeeping operations. Jack outlines previous literature on this topic and identifies areas for future research by proposing several hypotheses within three dimensions.

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Determinants of Interstate Cyber Incidents
JOHANNES FRITZ GEIGER

University of Essex & University of Bamberg

Author Biography

Johannes Geiger holds a master's degree in *conflict resolution* from the University of Essex. An early version of this article was submitted as his master's thesis in late 2019. It was supervised by Prof. Dr. Tobias Böhmelt. Mr. Geiger's research interests focus on cybersecurity, international cyber conflict, and cyber intelligence. He is currently finishing his second master's degree at the University of Bamberg as part of a double master's program.

Abstract

This article presents an examination of the dynamics of interstate cyber disputes. More precisely, it explores which country-level factors will lead to a larger/smaller number of cyber incidents involving that state. A number of different predictors for cyber disputes are tested using negative binomial regression analysis. The dataset for this paper is based on the Dyadic Cyber Incident and Dispute Dataset. There are four main takeaways. First, more conventional military strength also leads a state to be more frequently involved in cyber incidents. Second, countries that are better connected to the internet employ cyber operations more often but they are also more appealing targets. Third, having a highly educated population makes countries more prone to using cyber tactics. Fourth, the dynamics of cyber disputes differ significantly from those of more conventional conflicts. GDP per capita, military alliances, and regime type do not affect cyber operations in the way they influence conventional warfare.

Introduction

"Cyber war is here" reads the headline of a recent news article on the technology news website *Information Age* (Ismail 2019). We live in a time where critical infrastructure is controlled through the internet, where highly classified government documents are stored on cloud servers, and where much of a country's economy depends on the security and reliability of its communications.

In 2009, Iranian nuclear physicists noticed that their Siemens-built centrifuges for uranium enrichment were experiencing increasingly frequent issues with overclocking and overheating. The physicists believed their equipment was merely experiencing persistent glitches. Nobody thought that they were witnessing the most sophisticated cyberattack to date, the Stuxnet worm, attributed to the US and Israel. Over time, the abnormal stress on the machines led to the destruction or damage of almost 1.000 centrifuges, which set back Iran's nuclear program by up to two years (Sanger 2012, 205f). The only reason we even know about this incident is that Stuxnet accidentally broke out of the Iranian nuclear facility and infected thousands of computers worldwide until it was discovered by a small Belarussian security company in 2010.

For all the hype that cyber conflict has generated in recent years, there is surprisingly little data-driven research on the topic, at least in the security studies discipline or international relations (IR) more generally. Computer scientists have been working on this phenomenon for a long time but until Stuxnet was discovered, the IR-community had paid comparatively little attention to cybersecurity and cyber conflict. Today, it is estimated that the US alone is losing up to $100 billion annually to the costs of cyber malice (McKenzie 2017, 2). To be clear, much of these costs are due to cybercrime, but the trend towards increasing numbers of state cyberattacks has been observed for many years (Rid 2011).

State-vs-state cyber conflict is something we are starting to see as normal despite very little knowledge about the causes, dynamics, or consequences of these interactions. Much of the scientific debate has centered around classic IR-concepts such as deterrence and arms races or was highly speculative and more interested in the future of cyberwar rather than its present reality.

Nonetheless, there has been a steadily growing body of empirical literature examining interstate cyber conflict. The vast majority of this work is qualitative but we have seen a number of large-N studies published since around 2015. This article contributes to this burgeoning research program by exploring which attributes make a country experience a larger or smaller number of cyber incidents.

The research question is: *which country-level factors will lead to a larger/smaller number of cyber incidents involving that state?* This means that I will examine a series of country-specific attributes and their impact on (a) how frequently a country utilizes cyber operations, (b) how often a country is targeted by such tactics, and (c) how often a country is involved in cyber operations overall.

In order to properly address this question, I will conduct a quantitative study, using version 1.5 of the Dyadic Cyber Incident and Dispute Dataset from Maness, Valeriano, and Jensen (2017). To the best of my knowledge, this paper presents the first quantitative study of the country-specific predictors of interstate cyber disputes. As such, it is largely exploratory and makes a first attempt to fill this significant gap in the literature. Cyber disputes are here understood as persistent engagements between two countries that involve several individual cyber incidents (Valeriano and Maness 2015, 8). Note that a cyber dispute is not the same as cyber war because the latter implies physical destruction and the loss of life (Singer and Friedman 2014, 121). This is usually not the case in cyber disputes.

This article will test several mechanisms, mostly suggested by previous case studies, using quantitative regression analysis. It is often argued that cyber tactics are not an isolated new form of warfare but rather a force-multiplier (Ducheine and van Haaster 2014). Hence, this paper also draws from the established literature on the onset of conventional interstate warfare. After all, if cyber operations are really just another tactic used to gain military or diplomatic advantages (Valeriano and Maness 2014), then one would expect similarities between the predictors of conventional war and cyber conflict.

The next sections will be structured as follows: First, a literature review will provide an overview of the existing literature on interstate cyber disputes and embed the current study in the broader scientific context. Second, key terms will be defined and important theoretical assumptions, as well as four hypotheses, will be outlined. Third, the research design, variable operationalization, and methodology will be explained before, fourth, the results of the analysis are presented and discussed. Finally, the concluding section will summarize the findings and suggest paths for future inquiry.

Literature Review

IR and security studies first took an interest in cyber conflict and cybersecurity more generally in the 1990s and early 2000s with a number of publications discussing the likelihood of cyberwar and the impact of the emerging hacker-subculture, network security, and similar topics (Arquilla and Ronfeldt 1996; Hundley and Anderson 1997; Cohen 1995). However, much of this work is speculative, limited by the observations of that time, and of little empirical relevance for the phenomena we observe today.

The empirical study of patterns of modern-day cyber conflict started around 2010, roughly at the time when the Stuxnet worm was discovered. This was a pivotal moment for the discipline as scholars started taking the phenomenon of interstate cyber conflict more seriously. Since then, a number of distinct debates have emerged.

The first major stream of literature examines the nature of cyberspace itself and how it differs from traditional domains of conflict and diplomacy. While there are countless differences between cyberspace and other domains, such as sea, air, or land, many scholars focus on three key distinctions.

First, imagine the domain of the sea. We use technology to access and navigate the ocean, but it exists independently of us using it. Cyberspace, on the other hand, does not exist independently of our technology. Thus, our technology does not just help us navigate this new domain, it creates it (Caton 2012).

Second, cyberspace allows for anonymity and this creates an attribution problem for cyberattacks (Brantley 2018; Irandoost 2018). It is very much possible (and quite normal) for cyberattacks to occur

without clear knowledge about the identity of the perpetrator. This problem is much less pronounced for conventional types of attacks.

The third unique feature of cyberspace is that cyber weapons are "use and lose" (Gartzke 2013, 60). Cyberattacks are only possible by exploiting flaws and vulnerabilities in the target's system. Libicki (2009, 17) points out "code always wins". You cannot do anything in cyberspace that the host system's code does not allow. This means that once you use one of your cyber weapons, the target will quickly patch that particular vulnerability in their software and your weapon becomes useless. Valeriano and Maness (2015, 63) mention a related problem, namely that once a cyber weapon is released, it can easily be replicated by anyone and turned against other unpatched systems.[1]

Another large outpouring of research concerns itself with the likelihood of cyberwar and what it would look like. Back in 2012, former Defense Secretary Leon Panetta used the term "Cyber-Pearl Harbor" (Bumiller and Shanker 2012) which quickly became a catchphrase in this body of literature.[2] While some authors argue that cyberwar and high-profile attacks are a likely scenario (Molfino 2012; Goldman and Warner 2017), most agree that cyberwar is very unlikely. The most influential work on this topic is Thomas Rid's book *Cyber War Will Not Take Place* (2013, 174), in which he argues that "[t]here was no and there is no Hiroshima of cyber war" and that it is "highly unlikely" that future cyberattacks will rise to the level of actual warfare. In an earlier article, he sarcastically claimed that cyberwar was more similar to the so-called war on obesity than to World War II (Rid 2011). Still, the wider consensus is that cyberwar is unlikely, but nonetheless possible under certain conditions (Libicki 2009, 121; Valeriano and Jensen 2019; Healey 2010).

A third stream of IR-research on cyber conflict focuses on the offense-defense balance. As Fearon (1997) points out, the question of whether a technology of war favors the defender or the attacker can have major implications for the likelihood of war. The mainstream thinking has long been that attackers have a clear advantage in cyberspace (Kanniainen 2017; Dean 2015; Libicki 2009, 35). However, more and more authors have begun to question this assumption. Brantley (2018), for example, points out that the attacker is working on the defender's turf (his computer networks) and the defender can manipulate every part of this environment to their heart's content. Similarly, Valeriano and Maness (2015, 27) argue that the complexities in the construction and use of cyber weapons make defense more feasible overall.

The final verdict is still out on who actually has the advantage in cyberspace, but this question is very much related to the last major body of work I will discuss here. Probably the most prominent question in cyber conflict research so far has focused on the relevance and dynamics of deterrence in cyberspace. Conventional- and nuclear deterrence theories have long been hallmarks of strategic- and security studies. Therefore, it is not surprising that many scholars attempt to apply similar concepts and strategies in cyberspace.

The main consensus is, however, that deterrence has limited applicability in cyberspace as it is not always clear who the attacker is and because retribution is often difficult (Valeriano and Maness 2015; Chen 2017; Lynn 2010). Interestingly, some authors have taken a wider perspective and examined the impact that states' actual deterrence policies have had on their international interactions. Elsa Kania (2016), for example, analyzed US and Chinese deterrence strategies. She finds that the US relies more on declaratory deterrence and verbal threats, whereas China focuses on more frequent demonstrations of their capabilities.

This brings me to the more empirically-oriented work. The most prominent scholars in the study of interstate cyber disputes are Brandon Valeriano and Ryan Maness. Their 2015 book *Cyber War versus*

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[1] This is one of the reasons why it is so important to never wait with installing important security updates on your system. In fact, code-reuse is so common that North Korea's 2017 WannaCry ransomware reused code originally written by the NSA and benefitted from the fact that thousands of people had not applied the latest security patches on their computers (Greenberg
[2] What few people know is that Secretary Panetta did not actually invent the term. The similar phrase "Electronic Pearl Harbor" had already been used by cybersecurity expert Winn Schwartau in his testimony before Congress back in 1991 (Healey 2017).

Cyber Realities: Cyber Conflict in the International System is one of the most seminal works on cyber conflict to date. In it, they lay out the first theory of how cyber conflict affects the interactions between rival states. They collect and analyze quantitative data on the topic and come to the conclusion that states exercise severe restraint.

Countries refrain from using massive cyberattacks because they fear (a) collateral damage, (b) that their weapons may be turned against themselves in retaliation, and (c) that they may inadvertently drag third parties into their conflict (Valeriano and Maness 2015, 63f). Also, they argue that there seems to be an international norm against the use of cyberattacks (*ibid.*, 64). This explains why even the major powers rarely use cyber tactics, even during times of war (*ibid.*, 49). For example, the Obama administration explicitly decided against using cyberattacks during the 2011 intervention in Libya, stating: "We don't want to be the ones who break the glass on this new kind of warfare" (Maurer 2011).

Maness and Valeriano (2016) also discover that cyber interactions, despite generating high levels of media attention, produce very little actual consequences on the bilateral relations between countries. There does seem to be a cyber arms race going on between a number of state rivals (Craig and Valeriano 2016), but actual cyber operations only lead to concessions or behavioral changes in about 5.7 percent of all observed cases (Valeriano, Jensen, and Maness 2018, 17).

What is very important for this paper is that they also find that cyber conflict is strongly linked to existing conflicts and, therefore, tends to take place between regional antagonists (Valeriano and Maness 2015, 47). The only exceptions to this rule seem to be the major global powers, which are involved in cyber disputes with states far away from their home territory (*ibid.*, 67) and seem to be more likely to be involved in cyber conflicts overall (*ibid.*, 76).

Valeriano and Maness (2015) were the first to quantitatively examine cyber disputes. Their observations that cyber conflict tends to be linked to existing tensions and that major powers are more likely to experience cyber conflict contribute to the foundation upon which I build my analysis.

Before moving on to the theoretical section of this article, there is one more paper that bears mentioning. In 2013, a team of four computer scientists and engineers set out to identify some of the causes behind cyber conflict. They examined nine major cyberattacks and found a number of interesting commonalities (Polatin-Reuben et al. 2013), some of which will be tested in the empirical section. They discovered that in seven out of nine cases, the attacker had a higher total number of internet users compared with the defender and the two countries experienced a trade-dip in the two years prior to the attack. Further, in eight out of nine cases, both countries tended to have overlapping regional interests and experienced diplomatic tensions directly before the attack.

The literature about interstate cyber conflict is wide and varied, despite the field being only about a decade old. Whyte (2018, 522) reviewed the existing literature on cyber politics research and summarized what he called the "four *classic* volumes" of the burgeoning field which were all published between 2012 and 2015. Having such young "classics" shows just how young the discipline is and how much work still needs to be done.

This review of the literature shows that much of the existing work is concerned with strategy (deterrence, offensive advantages) or predicting the future (cyber warfare, Cyber-Pearl Harbor). Less attention has been paid to the causes of cyber conflict or to the properties of the countries that are more or less frequently involved in cyber disputes. The last-mentioned study by Polatin-Reuben and colleagues (2013) looks at country-dyads and uses case studies to examine which incidents tend to precede cyber conflict. It pays less attention to the characteristics of the states involved. This article will fill this gap in the literature by exploring a number of country-specific attributes. I will ask which of these attributes make a country initiate more cyberattacks and which make it a more frequent target. The next section draws upon some of the work mentioned here and outlines some theoretical expectations. A total of four hypotheses will be postulated which will then be tested against the data.

Theory and Hypotheses

Before any theoretical mechanisms can be discussed, it is important to precisely define a number of important terms this paper will be using. Conceptual clarity is essential and phrases like "cyberattack" and "cyber conflict" are used in different ways by different authors.

First, this paper uses the terms "cyber incident" or "cyber operation" instead of "cyberattack" because the latter implies a warfare-level occurrence which the former do not. Following Valeriano and Maness (2015, 8), a cyber incident is defined as "an isolated operation launched against a state that lasts only a matter of hours, days, or weeks". I should stress that actors not directly affiliated with a government (cybercriminals, hacktivists, etc.) are not counted as aggressors because this study focuses only on interstate cyber disputes.

Another reason why this work does not use the term cyberattack is that it excludes espionage (Libicki 2009, 23). However, in the long run, espionage and theft of intellectual property may arguably be of greater harm than cyberattacks (Lynn 2010). One example that concerned many strategists was China's theft of the plans for Lockheed's F-35 fighter jet in 2009, which they then reportedly used to develop their own J-20 jet (Valeriano, Jensen, and Maness 2018, 166). Since about half of all interstate cyber incidents at least include elements of espionage, I argue that it makes sense to include these events in this analysis.[3]

It also bears mentioning that this article does not examine cyberwar. According to the US government, a cyberattack would need to cause significant physical damage or human casualties in order to be considered an act of war (Singer and Friedman 2014, 121). That is simply not the reality of what we observe today. In this regard, Rid (2013) was correct when he argued that cyberwar has not yet occurred.

Cyber incidents, on the other hand, occur frequently. Therefore, I interchangeably use the terms "cyber dispute" and "cyber conflict" to describe more persistent engagements between countries that include several cyber incidents (Valeriano and Maness 2015, 8). Recall that the main question is: *which country-level factors will lead to a larger/smaller number of cyber incidents involving that state?* Given these definitions, I will be looking at cyber disputes and, more precisely, I examine the number of times a state initiates- or is targeted by cyber operations.

Cyber disputes do not start spontaneously and for no reason. They generally occur within existing geopolitical tensions and rarely stem from pure opportunism (Whyte 2018). In other words, the willingness to initiate cyber operations is just as important as having the opportunity to do so. Valeriano and Maness (2015, 101) concur with this expectation and argue that cyber disputes usually stem from more traditional conflicts. Put simply, they reinforce existing patterns rather than revolutionizing international interactions (*ibid.*, 105). In fact, cyber incidents are often used as signaling tactics to avoid escalation beyond a certain level (Valeriano, Jensen, and Maness 2018, 48).

This means that when trying to identify attributes that make a country more or less likely to be involved in cyber disputes, a good starting point is to look at the existing work on interstate war. If one agrees that cyber tactics are simply another form of managing tensions between states, then one may reasonably expect to find overlapping dynamics between the onset of conventional interstate war and cyber disputes. Gartzke (2013), for example, argues that cyber tactics simply mirror existing power-disparities and typically need to be backed up by kinetic force. The reason is that they usually fail to do lasting harm, so cyber operations need to be accompanied by military force in order to develop coercive potential. Therefore, cyber tactics should be more effective if the balance of power already favors the initiator. If we accept this argument, it means that states with more conventional power will likely initiate more cyber operations than weak states. The reason is twofold. First, only strong states can use cyber tactics to create true coercive potential. Second, it has been observed that major global powers have an increased risk of being involved in conventional interstate wars (Bremer 1992; Choi 2011). This means

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[3] In the Dyadic Cyber Incident and Dispute Dataset, 50.52 percent of all incidents are coded as different forms of espionage.

that there are more instances in which those states may have both the willingness and the opportunity to use cyber operations.

On the other hand, it has been argued that cyber tactics are cheaper, more accessible, and less likely to cause significant escalation than kinetic force. Therefore, if smaller states lack the capability to conduct conventional high-impact operations against more powerful opponents, cyberspace provides them with a playing field on which they can compete (Valeriano and Maness 2015, 28). For example, North Korea and Iran have both been involved in long-running cyber disputes with the US. In terms of conventional military capabilities, neither country could ever hope to compete with the superpower, but both countries have built highly capable cyber forces. North Korea, for example, is attributed with the much-publicized Sony Pictures hack of 2017 and with the Bangladesh Bank heist, where they reportedly stole $81 million from the Bangladesh Central Bank's account at the New York Federal Reserve (Finkle 2017). While smaller states may lack the physical power to back up their cyber operations, they can still pursue a *death by a thousand needles* approach. Thus, if cyberspace allows smaller countries to compete with their more powerful rivals, one would expect stronger countries to be frequently targeted. The reason is that small states that already have the willingness to take on a large power now also have the opportunity to do so.

The first hypothesis reflects this dichotomy of strategies that are enabled by cyberspace. On the one hand, conventionally strong states are probably better able to use cyber tactics and they have more opportunities to do so. On the other hand, cyberspace also makes them very large targets.

Hypothesis I: The larger a country's conventional military power, (a) the more cyber incidents it initiates and (b) the more frequently it is targeted.

In conventional domains, states with more allies have a lower risk of experiencing interstate wars (Cunningham and Lemke 2013). Is it possible that alliances also matter in cyberspace? Consider that NATO did not invoke Article V following the 2007 Bronze Soldier cyber incident perpetrated by Russia against Estonia. Does that mean that cyber incidents are a purely bilateral problem?

If cyber incidents present a form of costly signalling to manage conflict escalation, then alliances could also matter in cyberspace. In fact, the US is already operating a global cybersecurity network linking many of its allies, businesses, and civil society actors (Valeriano and Jensen 2019). Further, NATO recognized cyberspace as a new domain in 2016, which means that significant cyber incidents may now trigger Article V. In 2018, the alliance even started constructing its very own cyber operations center in Tallinn (Brent 2019). This indicates that traditional alliances are indeed becoming involved in defending against- and responding to cyber threats.

Rid (2013, 167) observes that cyberspace has lowered the entry costs for cyber disputes, while at the same time increasing the costs of success. Contrary to popular belief, large cyber operations are immensely costly and require high resource-investments (Valeriano and Maness 2015, 16).[4] Therefore, sharing information and combining resources should improve states' capabilities, both to defend and to attack. Having allies backing you up may also bolster states' confidence in cyber interactions. Having allies may increase your leeway as you do not have to fear escalation as much as more isolated countries do. If you have strong allies and you initiate a cyber operation, your target will be less likely to respond using conventional force. This increased confidence, combined with increased capabilities overall, could make conventional alliances a vital part of any country's cyberdefense strategy. This is reflected in the second hypothesis.

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[4] The widespread image of the lone-wolf hacker, taking down a nation's power grid from the comfort of his parent's basement is largely a product of Hollywood. In fact, Valeriano and Maness (2015, 17) argue that even most countries do not have sufficient resources and technical expertise to conduct such large-scale cyberattacks.

Hypothesis II: If a country has a larger number of allies, that country will (a) be less frequently targeted in cyberspace and (b) more often use cyber operations against its opponents.

The first two hypotheses are strongly connected to the literature on conventional interstate war. The next two hypotheses are more geared to capture the idiosyncrasies of cyberspace. After all, cyber disputes are a very different phenomenon than conventional conflicts and there are likely a number of unique dynamics at play.

After examining nine significant cyber incidents, Polatin-Reuben and colleagues (2013) found that in seven cases, the aggressor had a higher total number of internet users compared with the target. They took this as an indicator to claim that "countries with a greater number of internet users are more likely to initiate cyber conflict" (*ibid.*, 308).[5] Gartzke (2013) makes a related claim, namely that better-developed countries that are more dependent on advanced technologies, will be better able to use cyber tactics. Both these claims are intuitively plausible. A country that is highly connected to the internet and whose people are more accustomed to using information technologies should be better equipped to engage in cyber disputes. After all, it will have a big advantage in terms of the know-how and human capital necessary to build capable cyber forces.

At the same time, however, a highly connected country will also have a larger attack surface. There will simply be more targets worth hitting. In 2007, Estonia was one of the most connected countries in the world. This made it especially vulnerable to Russian denial of service attacks[6] following disagreements about what to do with the Bronze Soldier, an old Soviet-era monument (Rid 2011). Conversely, countries that are not very well connected to the internet may have very few worthwhile targets. Poorly-connected North Korea is an interesting example in this regard because it has strong offensive cyber capabilities, but offers little attack surface for cyber retaliation (Irandoost 2018).

The third hypothesis reflects the expectation that countries with more internet users should have better offensive capabilities but also make for more appealing targets. If one assumes that cyber operations are an attractive tactic to states at war but also as a signalling tactic in peace-times, then opportunity may translate directly into action.

Hypothesis III: The better connected a country is to the internet, the more frequently it will (a) employ cyber operations and (b) be the target of cyber incidents.

For conducting cyber operations, a country requires a high level of technical skills and expertise. Valeriano and Maness (2015, 28) argue that more technologically capable countries are also more likely to develop offensive cyber capabilities. This is similar to the argument above about human capital. However, a measure of a country's connectivity may be insufficient to capture this aspect on its own. Not every person with internet access is automatically capable of hacking into highly secured government systems. It takes years of training for a person to become proficient in the use of advanced computational tools.

To develop offensive cyber operations, governments require a highly skilled pool of potential recruits. Therefore, a measure of how well educated a society is may help explain a country's behavior in cyberspace. If a country's population is poorly educated, it is unlikely that the government will find a sufficient amount of specialists who possess the necessary skills and knowledge to conduct or defend against cyber operations. Therefore, even if a country is willing, it would lack the opportunity to employ cyber tactics. If, on the other hand, a country's population is highly educated, it should be much easier to

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[5] Note that Polatin-Reuben and colleagues (2013) used absolute numbers of internet users to make this prediction which gives them no way to control for a country's overall population size. I will include this variable in my model but control for population size

[6] Distributed Denial of Service Attacks (DDoS) describe the act of bombarding a server with requests until it is no longer able to handle the artificially increased volume of traffic. This is an effective and common way of temporarily shutting down websites and online services.

find such professionals. Thus, the lack of opportunity would no longer be a restraint and the country may be involved in a higher number of cyber incidents. At the same time, its stronger cyber defenses may also act as a deterrent against foreign cyber aggressions. The fourth hypothesis reflects this expected impact of education on a country's involvement in cyber disputes.

Hypothesis IV: The higher a state's level of education, (a) the more frequently it initiates cyber incidents and (b) the less frequently it is targeted.

These four hypotheses will test four country-specific factors that are expected to influence the frequency with which a state is involved in cyber incidents. The following section will explain the research design with which these hypotheses will be tested.

Research Design
Data
To date, there has only been one scrutinous large-scale effort to collect quantitative data on interstate cyber disputes for social science research. The Dyadic Cyber Incident and Dispute Dataset (DCID) by Maness, Valeriano, and Jensen (2017) is assembled using publicly available information from the media, government publications, and reports from security firms such as Symantec, Kaspersky, or McAfee (*ibid.*, 392). It counts all cyber incidents that occur between rival states. Note that cyber incidents are only those instances that involve the malicious manipulation of computer code. This includes activities such as the disruption of online activities, degradation, and espionage.[7] Radar jamming, electromagnetic pulses, etc. are seen as electronic warfare and not cyber operations (Maness, Valeriano, and Jensen 2017, 392).

DCID version 1.5 covers the years 2000 to 2016 and includes 266 individual cyber incidents. Since the focus is on interstate cyber disputes, it only counts incidents perpetrated by states. Targets, however, can also be critical sub-state entities such as national security contractors, utility companies, or media organizations (Maness, Valeriano, and Jensen 2017, 391).

The DCID only counts cases where attribution of the attack can be verified using at least two reliable sources (cybersecurity forensic- or government reports). The operation need not have been successful in achieving its primary objective.[8] All coding is checked by a group of military officers (Valeriano and Maness 2018). There is the possibility that some cyber incidents go unreported and, therefore, do not show up in the data. Valeriano and Maness (2015, 82f) acknowledge this problem, but argue that it is likely much more limited than most people would expect. The reason is that there are always incentives for publicizing one's offensive or defensive capabilities. Attackers often seek to humiliate their victims or boast of their success. Victimized governmental agencies can use an attack as a justification to seek more cybersecurity funding. Internet security firms regularly report about the incidents they have worked on in order to demonstrate their capabilities and gain new clients. Despite all this, secrecy is a caveat that affects all scientific work on cyber conflict, and this must be kept in mind.

I should mention that there are other data-collection efforts besides the DCID, such as HACKMAGEDDON (Passeri 2019) or the Cyber Operations Tracker (Council on Foreign Relations 2019). However, the DCID is the best systematic data-collection effort for social science research with a focus on state-vs-state interactions and with a high level of scrutiny. Thus, the choice of my dataset is driven not only by the good quality of the DCID data but also by a lack of many alternative options.

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[7] The authors define espionage as activities that "leverage critical information for an immediate advantage" or seek to "manipulate the decision-calculus of the opposition [...] through leveraging information gathered during cyber operations to enhance credibility and capability" (Maness, Valeriano, and Jensen 2017, 397). This goes beyond merely spying on someone. For example, the Russian hack of the Democratic National Committee in 2016 along with the subsequent release of the stolen information falls into this category.

[8] This is important because this paper aims to examine the frequency of cyber incidents, not only the frequency of successful incidents. The downside is that I can make no claims about whether certain factors raise a country's cyber-effectiveness.

Since the DCID data is in dyadic form but this analysis requires a monadic data structure, I transformed the dataset. My unit of observation is country-year, and the observation period covers 17 years - from 2000 to 2016. There are 26 countries that were involved in cyber incidents during that period, which leads to a total of 442 observations. The number of observations is very low, and missing values on other variables reduce it even further. This needs to be taken into account when interpreting the results of the regression analysis. Further, the vast majority of country-years do not experience any form of cyber dispute. The small number of observations combined with the extreme rarity of the examined event will reflect itself in the regression results.

Another limitation to keep in mind is that there is no data about those countries that have never been involved in interstate cyber operations. Therefore, all findings in this paper apply only to that relatively small subset of states that have at least once been involved in a cyber incident. This article cannot examine the factors that place a country in this small group of states but only which factors increase or decrease a state's involvement in cyber operations once it is in this group.

The transformed DCID data was merged with several indicators from the World Bank Group, the Polity Project, Freedom House, and others. I will go into more detail on this in the next part, where I outline the operationalization of my variables.

Dependent Variables and Model Selection

The dependent variable counts the number of cyber incidents a country experienced for each year in the observation period. It was created by adding up all DCID-incidents per country per year. I subdivided the variable into three distinct count-variables.

Initiations: The first variable counts the number of cyber operations a country initiated in that year. Its minimum value is zero, which occurs in 81.22 percent of all observations. Its maximum value is 21 (the number of incidents Russia initiated in 2014). The data clearly shows that most countries do not initiate any cyber incidents in most years.

Victimizations: The second dependent variable counts the annual number of cyber incidents that target a specific state. It ranges between zero and 17 (the US in 2014). In 72.85 percent of observations, there are no victimizations. Again, this shows that cyber operations are a comparatively rare event.

Total Incidents: The third dependent variable counts the total number of incidents involving a specific state. It is simply the sum of the previous two variables. It ranges between zero and 21 (again, Russia in 2014). The value zero occurs 64.48 percent of the time.

A total of three models will be estimated, one for each dependent variable: *Model 1* (Initiations), *Model 2* (Victimizations), and *Model 3* (Total Incidents). The set of independent variables will be the same across all three models.

Since the dependent variables count the number of cyber incidents per country-year, this paper will employ negative binomial regression analysis to test the hypotheses. I also tested Poisson models, but they were mostly outperformed by the negative binomial model which is likely due to the presence of slight overdispersion. Given the high frequency of zeros, I employ a zero-inflated negative binomial model to test the robustness of my findings by controlling for the possibility of a biased data generation process.

Core Independent Variables

Hypothesis I looks at how a country's conventional military power impacts its interactions in cyberspace. Conventional military power is proxied by a country's annual military expenditure. This data is taken from the Stockholm International Peace Research Institute (SIPRI 2020) and is available for the complete observation period.

Hypothesis II predicts that the number of allies a country has will influence its interactions in cyberspace. To measure the number of allies, I use version 4.1 of the COW Formal Alliances data (Gibler

2009). This contains the number of formal alliances of which a country is a member of all observation years up to 2012.

Hypothesis III predicts that countries will experience more cyber incidents if they are better connected to the internet. To measure how connected a country is to the internet, I use data from the World Bank Group (2019). This indicator will measure the percentage of a country's population that has access to the internet. Because the distribution of this variable is skewed to the right, I use the natural log.

Finally, *hypothesis IV* argues that countries with higher education levels will initiate more cyber incidents but be less frequently targeted. Given that the proposed mechanism for this hypothesis focuses on the recruitment of highly skilled professionals, I use an indicator focusing on tertiary education only. The variable measures the number of people who are enrolled in tertiary education programs (both in public and private institutions). The data is taken from the UNESCO Institute for Statistics (2020).

Control Variables

To increase the validity of my results, I control for two likely confounders that are commonly used in the study of interstate war onset: GDP per capita and Polity scores.[9] First, I include the natural logarithm of a country's GDP per capita in current US dollars. This is one of the most commonly used indicators in the study of interstate wars and, since cyber tactics require relatively sophisticated tools, a country's wealth may have a confounding influence on my model. This data is obtained from the World Bank (2019). Second, I include the Polity Project's Polity V scores (Marshall and Gurr 2020) to control for the possible confounding influence of regime type. It is, for example, conceivable that autocracies use cyber tactics more often than democracies (or vice versa).

As mentioned before, I need to control for the possibility of a skewed data generation process. Cyber operations that are never revealed to the public do not show up in the data. Thus, it is plausible to assume that more restrictive regimes may lead to excess zeros because they are less transparent and have tighter control over the media as well as would-be whistle-blowers. To control for this, I use the Freedom of the Press Index (Freedom House 2018) as the predictor for excess zeros in a model accounting for zero-inflation.

Empirical Findings

Presentation and Discussion of Results

The previous section explained the data, model choice, and variable operationalization. This section will present and discuss the results of the empirical analysis. Table (1) shows the results of the three negative binomial regression models used to test the hypotheses. *Model 1* used the number of initiations as its dependent variable, *Model 2* used victimizations, and *Model 3* used the total number of incidents.

Hypothesis I stated that more conventional power would (a) lead to more initiations and (b) more victimizations. The results offer support to both parts of the hypothesis. Military expenditure has a positive impact on the number of cyber operations a country initiates per year. The result is significant at the 99 percent confidence level. Higher military expenditure also increases the frequency with which a state is victimized. This latter result is significant at the 95 percent confidence level. The third model aligns with the previous two, which is to be expected.

This result appears to support the notion that conventional power also matters in cyberspace. The more powerful a state is, the more willing and/or capable it appears to be, which results in more frequent cyber operations. At the same time, victimizations also increase along with military strength. This observation may have a number of reasons. Two of the most plausible ones are that, firstly, more powerful states may attack each other, so their initiations and victimizations mutually increase. Second, it is possible, as some have suggested (Libicki 2009, 32; Valeriano and Maness 2015, 28), that certain smaller states use cyberspace to level the playing field and launch attacks against their larger rivals

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[9] Different lagged time variables were also tested but they did not meaningfully improve the model.

This finding has wider implications for the stream of research examining deterrence in cyberspace. Many authors have argued that deterrence if at all applicable in cyberspace, needs to be cross-domain (Brantly 2018). In this view, states need to leverage conventional military, economic, or diplomatic strength to achieve deterrence in cyberspace. However, it appears that at least conventional military strength by itself is an insufficient deterrent against cyber operations. States, therefore, need to come up with alternative strategies for deterring cyber aggression.

Overall, I find that states with a stronger conventional military force experience a significantly higher number of cyber incidents than weaker states. They initiate more operations and are also targeted more frequently.

Hypothesis II predicted that having more allies would make a country more willing to use cyber operations but less likely to be targeted. The data does not support this hypothesis. The coefficients are insignificant across all three models. The signs do, however, point in the expected directions. The coefficient is positive in model one and negative in model two. Unfortunately, due to the lack of significance, no substantial conclusions can be drawn from this. It does not appear to be the case that conventional alliances have any impact on states' behaviour in cyberspace. Whether this is due to the relative novelty of the phenomenon or due to the idiosyncrasies of cyberspace is not deducible from this data. It could be that existing alliances simply have not yet adapted to cyber threats or that alliances, regardless of their form, do not have an impact in cyberspace. Either way, this finding demonstrates how much of the cyber phenomenon we do not yet understand. Alliances have massively shaped the dynamics of conventional conflicts but, as of now, they do not appear to be shaping cyberspace in the same way.

Table 1: *Negative Binomial Regression Coefficients*

	Initiations (1)	Victimizations (2)	Total Incidents (3)
	Dependent variable:		
Log Mil. Expenditure	1.012***	0.200**	0.423***
	(0.163)	(0.101)	(0.095)
Alliance Memberships	0.003	-0.066	-0.010
	(0.033)	(0.042)	(0.030)
Log Share Internet Users	0.458*	0.499**	0.564***
	(0.263)	(0.244)	(0.207)
Tertiary Education	0.006***	0.002	0.003**
	(0.002)	(0.002)	(0.001)
Log GDP per Capita	-0.736***	-0.454**	-0.608***
	(0.238)	(0.230)	(0.195)
Polity V	-0.033	-0.011	-0.032
	(0.024)	(0.025)	(0.021)
Constant	-6.921***	-0.462	-1.155
	(1.905)	(1.332)	(1.165)
Observations	243	243	243
Log Likelihood	-142.821	-173.558	-248.153
theta	0.674** (0.288)	0.409*** (0.130)	0.468*** (0.115)
Akaike Inf. Crit.	299.642	361.115	510.306

Note: *p<0.1; **p<0.05; ***p<0.01

Hypothesis III predicted that better-connected countries would initiate more cyber operations, but also be targeted more often. The data does offer tentative support for this notion. The first coefficient is positive, though only significant at the very weak 90 percent confidence level. It suggests that better-

connected countries do, indeed, initiate more cyber operations. However, this result needs to be treated with appropriate caution given that the p-value fails to surpass the conventional 0.05 threshold.

The coefficients for the second and third models are strongly significant and positive, lending firmer support to the hypothesis. Overall, there is a positive impact of how well-connected a country is to the internet on how frequently it is involved in cyber incidents. One explanation I propose for this is that a higher share of internet users leads to a larger pool of capable recruits for a country's cybersecurity agencies. At the same time, a better-connected country offers more points of interest for potential attackers.

Finally, *hypothesis IV* suggested that a country with a better-educated population will initiate more cyber incidents but will be targeted less frequently. The first part of this hypothesis is supported by the data and the coefficient for the first model is positive and strongly significant. This means that a country that has more people enrolled in tertiary education will use cyber tactics more often than countries with a less educated population. This is not surprising given the immense sophistication required for employing cyber tactics. If a country is unable to recruit enough highly skilled professionals, it will simply lack the opportunity to initiate cyber incidents.

The second part of the hypothesis is not supported by the data. More education does not appear to scare off potential adversaries. The coefficient in model two is insignificant. The third model does show significance, indicating that countries with better-educated people appear to be more involved in cyber incidents overall. This effect appears to be driven by the increased frequency of initiations.

It is also interesting that the first control variable, GDP per capita, shows strong significance across all three models but that the signs are negative. This is the opposite of what is often observed in conventional conflict research. Using dyadic models, it has been found that richer state dyads are also more likely to engage in warfare (Gartzke 2007, Choi 2011). Contrary to this observation, this monadic model indicates that higher GDP per capita reduces the number of both initiations and victimizations of cyber incidents. Given the positive impact of military expenditure, this result is intriguing. It appears that wealthier nations are less involved in cyber operations while more powerful states are more involved. This puzzle warrants more research and it should be tested if this observation is robust across other model specifications and once more data becomes available.

For the polity variable, all coefficients are insignificant. This suggests that there is no systematic difference in the frequency with which democratic or autocratic countries are involved in cyber incidents.

Table 2: *Mean Marginal Effects*

	Initiations	*Victimizations*	*Total Incidents*
Log Military Expenditure	0.0978	0.0581	0.2031
Alliance Memberships	0.0003	-0.0192	-0.0047
Log Share Internet Users	0.0443	0.1448	0.2710
Tertiary Education	0.0005	0.0001	0.0016
Log GDP per Capita	-0.0711	-0.1318	-0.2920
Polity V	-0.0032	-0.0033	-0.0154

Throughout this section, I have not discussed the substantive significance of the empirical results. That is because cyber incidents are an exceedingly rare event and the dataset used for this regression is relatively small. The combination of these factors makes the estimation of marginal effects rather difficult. Table 2 presents the mean marginal effect for all coefficients.

The small scale of the effects makes it difficult to draw substantive inferences from these findings. The main takeaway from table 2 is just how rare of a phenomenon cyber operations are. This is especially true when considering that the dataset only contains those countries that have at least once

been involved in such an incident. Despite widespread media coverage, cyber operations remain a comparatively elusive phenomenon and difficult to grasp empirically.

Robustness

In order to check the robustness of these findings, I employ a zero-inflated negative binomial regression model. As mentioned previously, the DCID data relies on information that is in the public domain. Therefore, it is entirely possible that it is incomplete. There are many cases where countries may have an interest in hiding the fact that they were the target (or initiator) of a cyber operation.[10] Valeriano and Maness (2015, 82) argue that "eventually the truth comes out", but this may only be true for certain countries. If a country has a free and independent press, it is arguably more likely that cyber incidents get revealed than in more restrictive countries. Even in free countries, it is possible that not all incidents get reported but this problem increases for more restrictive states.

To control for this, I use the Press Freedom index by Freedom House (2020) to approximate how repressive a government is with regard to journalism and transparency. The results of this model are presented in table 3.

Table 3: *Zero-Inflated Negative Binomial Regression Coefficients*

	Dependent variable:		
	Initiations	*Victimizations*	*Total Incidents*
	(1)	(2)	(3)
Log Mil. Expenditure	0.993***	0.197**	0.436***
	(0.164)	(0.095)	(0.088)
Alliance Memberships	-0.007	-0.059	-0.005
	(0.031)	(0.038)	(0.026)
Log Share Internet	0.384	0.489*	0.546**
	(0.311)	(0.251)	(0.213)
Tertiary Education	0.006**	0.002	0.003*
	(0.002)	(0.002)	(0.002)
Log GDP per Capita	-0.664**	-0.388*	-0.517**
	(0.270)	(0.234)	(0.204)
Polity V	-0.009	0.003	-0.014
	(0.028)	(0.025)	(0.020)
Constant	-6.704***	-0.818	-1.659
	(2.109)	(1.429)	(1.345)
Press Freedom	-0.014	-0.052	-0.029
	(0.014)	(0.041)	(0.026)
Observations	231	231	231
Log Likelihood	-136.423	-168.865	-239.997

Note: *p<0.1; **p<0.05; ***p<0.01

The results of the zero-inflated regression mostly mirror those in table (1). Military expenditure retains its significance and the direction of the effect. The same is true for education and GDP per capita, though the significance levels drop and in some cases fall short of the 0.05 threshold. Alliances and polity scores remain insignificant. The already low significance level of internet users in the first model completely goes away.

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[10] Though this problem may be somewhat mitigated by the fact that conflict always involves two parties. The more embarrassing an incident is for the victim, the more incentive the aggressor has to make their success publicly known.

The second part of table (3) presents the coefficients for the zero-inflation part of the model. This part estimates excess zeros using logit regression. None of the coefficients in this model show any statistical significance. To test whether the zero-inflated model is even necessary, I estimated Vuong statistics comparing the models in tables (1) and (3). In all cases, the zero-inflated models outperformed the regular negative binomial models. This suggests that controlling for press freedom this way does improve the model overall. Still, many of the results are at least somewhat robust when controlling for this particular source of zero-inflation in the data generation process.

Conclusion

This paper has uncovered a number of interesting dynamics surrounding the phenomenon of interstate cyber incidents. The main question it set out to answer was which country-level factors will lead to a higher or lower frequency of cyber incidents involving a particular state? The literature review discussed a number of salient topics but ultimately showed that the factors that contribute to more or less cyber conflict are not well understood. To fill this gap, I proposed four hypotheses. Two of these ran parallel to the literature about conventional war onset and two were tailored more specifically to the unique properties of cyberspace. Finally, this paper conducted the first quantitative analysis examining the impact of country attributes on the frequency of cyber operations.

The results are very interesting, especially because they show that there is a lot we still do not understand about cyber disputes. I find that a more capable conventional military force raises the number of cyber incidents a country is involved with, both as an aggressor and a target. This would tentatively support the common notion that cyber operations may be used as a way in which weaker states try to compete with stronger adversaries. Whether this is true or not, the finding means that conventional power matters in cyberspace. However, there is still much important work to be done to enhance our understanding of deterrence and the balance of power in this new domain.

A second result is that alliances do not appear to matter in cyberspace. I had originally proposed that alliances could help spread the costs of developing and maintaining cyber capabilities and decrease the risk of cross-domain escalation. However, either states are not taking advantage of these mechanisms or alliances are just not (currently) important in cyberspace. Either way, this result offers interesting paths for future inquiries into the role of conventional alliances or the potential of dedicated cyber alliances.

The third main result is that countries with a higher share of internet users tend to initiate more cyber operations but that they are also more frequently targeted. The latter observation can easily be explained by the larger attack surface that highly connected countries offer. With regard to the initiations, I suggested that this may be due to the wider availability of qualified recruits for government cybersecurity agencies. If more people use the internet, there will be more people with the computer skills necessary to conduct cyber operations. Another factor in recruiting professionals is education. I find that having more people enrolled in tertiary education programs will increase a country's utilization of cyber tactics. It was also expected that more education would lead to better defenses and, thus, to fewer attacks. This, however, does not appear to be the case.

Overall, this article has found a number of very interesting results but it has also demonstrated how limited our understanding of the dynamics of cyber disputes is. Conventional warfare is strongly affected by alliances, GDP, and regime type. These factors are either insignificant in this analysis or point in an unexpected direction. Cyberspace is an idiosyncratic phenomenon that cannot be broken down to the classical concepts of IR research. There is something else at play here. We appear to be dealing with a new domain in which many conventional rules of conflict and deterrence do not apply.

Cyber tactics present a new tool for conducting foreign policy and nobody seems confident in how to use them yet. This paper focused more on the predictors of opportunity rather than willingness. It concentrated more on factors that create capabilities and less on what makes countries willing to actually use those capabilities. Recall the previously quoted statement where the Obama administration explained

why they refrained from using cyberattacks during the 2011 intervention in Libya: "We don't want to be the ones who break the glass on this new kind of warfare" (Maurer 2011). Apparently, firing Tomahawk missiles at Libyan forces was acceptable, but conducting cyberattacks was deemed too risky. Why is that? In theory, cyber operations can span the whole range of escalation ranging from relatively benign website defacements all the way to blowing up nuclear power plants. So do countries fear a slippery slope scenario? There are many questions like this that are not well understood and present enticing opportunities for further research.

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Horizontal Inequality, Resources and Civil War:
The Political Economy of Ethnic Conflict in Yemen

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Abstract
Many civil wars nowadays are the result of escalating tensions between ethnic groups. Prior research has identified 'horizontal inequality' (HI) among groups as a driver for such conflicts. Testing this theory in the recent case of intrastate conflict in Yemen, this paper explores which factors need to come into play to spark inter-group grievances and how these can trigger violence. However, discontent alone does not automatically lead to civil conflict. Therefore, this paper proposes a causal link connecting grievances to civil war onset, drawing on contemporary research on proxy wars. A supply-demand logic is introduced to explain at what point external sponsors intervene, under which conditions the warring parties decide to accept that support, and whether this moderates the effect of HI on civil war onset. Examining the case of Yemen yields the following results: economic and political discrimination can be a driver for civil conflict if these are the precondition for sparking grievances among a marginalized group. When both groups gain sufficient resources to fight each other civil war becomes more likely.

Introduction

> *"Without resources and organization, anger alone can do little to challenge powerful defenders of the status quo"* – (Cederman et al. 2011, 482)

How can 'horizontal inequality' (HI) between ethnic groups lead to civil war? Over the past decade, inequality between groups has gained considerable traction as an explanation for intrastate conflict. A wide range of recent quantitative studies show that a high level of group-based economic and political inequality makes civil war more likely (Hillesund et al. 2018, 468). Thereby, scholars ascertained that different dimensions of HI have different effects. While political exclusion seems to have a strong effect on its own, economic deprivation increases the risk of civil war particularly in combination with political discrimination (Buhaug et al. 2014; Cederman et al. 2011). Moreover, economic inequalities rather lead to an increased risk of civil and communal conflict, while political exclusion often promotes targeting the government instead of other groups, since only the executive can change political distribution (Bartusevicius 2019; Hillesund 2019). Additionally, contextual factors like crosscutting cleavages, the political system, or natural resource wealth might determine the effect of HI on the likelihood of civil war (e.g. Asal et al. 2016; Gubler & Selway 2012; Østby 2008). However, research examining conditional factors in the relationship between HI and conflict is scarce and many studies struggle with methodological and conceptual pitfalls (Hillesund et al. 2018, 472).

This paper strives to explore this research gap by examining whether external support can lead to civil war between ethnic groups, which are economically and politically unequal. Building on the HI

framework by Lars-Erik Cederman (Buhaug et al. 2014; Cederman et al. 2011, 2013; Cederman & Wucherpfennig 2017) the paper proposes a causal link connecting grievances and support by external actors to civil war onset. Therefore, the HI theory is supplemented with implications from the research on proxy wars. A supply-demand logic (cf. Rauta 2018; Salehyan et al. 2011) is introduced to explain at what point external sponsors intervene, under which conditions the warring parties decide to accept that support, and how this leads to a culmination of violence. These theoretical considerations are applied to the recent case of intrastate conflict in Yemen. Using process-tracing, evidence is found which supports the notion that external support increases the likelihood of civil war onset if the conflict is rooted in HI between ethnic groups.

This paper proceeds as follows: the next section introduces the theory and elaborates on the two parts of the causal mechanisms. Subsequently, the research design is described, including the case selection and the operationalization of the theoretical concepts. Thereafter, the analysis part covers the results of the case study which is conducted to find empirical evidence for the theoretical arguments. The concluding part summarizes the findings and displays the limitations of this paper.

Theory

Horizontal Inequality, Grievances and Civil War

This paper builds on the theoretical baseline centering around grievances as the main link connecting HI between ethnic groups to the onset of civil war. The theoretical construct originates in work on inequality as a trigger for violent collective action (Gurr 1970), especially among ethnic groups (Horowitz 1985). Stewart (2008) followed up on this by creating a narrower defined term of HI and highlighting the importance of 'grievances' as mechanisms that lead to violence. Accordingly, this paper's theory rests on the group level of analysis, looking at 'HI between ethnic groups' in a country as the independent variable (IV). The concept of HI in this regard is defined as "inequality in economic, social or political dimensions or cultural status between culturally defined groups" (Stewart as cited by Cederman et al. 2013, 30). In this regard it is important to mention that this paper follows Cederman et al. (2013, 32) in only focusing on the political and economic dimensions of HI since they have arguably the most significant impact on conflict. The effect of the IV is examined on the dependent variable (DV): civil war onset. The DV is specified according to the UCDP/PRIO Armed Conflict Dataset (version 19.1) where an internal war is characterized through at least 1000 battle related deaths in a given year with one party being the government while the other side consists of one or more rebel groups. A conflict is internationalized if there is "involvement of foreign governments with troops" (Petterson 2019, 5f). Since foreign troops are present in the conflict examined in this paper the DV in this paper should be labeled 'internationalized internal war onset' but the paper sticks with 'civil war onset' for simplification.

For conflicts between ethnic groups to escalate into civil wars, a significant number of individuals need to be motivated to fight. Previous research has identified several factors which together link inequality to conflict, namely identity, motive and opportunity (Hillesund et al. 2018, 464). To overcome the Collective Action Dilemma individuals foremost need to be aware of social categories and of belonging to a well-defined group in this system. Then a motive for collective action can be formed if group members compare their own group's prosperity and influence with that of 'the other' (Cederman et al. 2013, Gurr 1970). When those two preconditions are met, actors can evaluate whether their group experiences marginalization compared to other groups. Finally, all of this can cascade into grievances if the country's government or another ethnic group is seen as protector of an unjust status quo. The process is facilitated by a strong leadership which engages in a process of collective action framing focused on shaping the group's narrative (Benford and Snow 2000, Cederman et al. 2013). However, this mechanism can apply to nonviolent as well as violent forms of mobilization (Hillesund 2018, 466). To explain how these grievances can result in civil war Cederman et al. (2013, 44ff) focus on two factors: "mobilization" added up with "claims and repression". They argue that emotions triggered by grievances

are a powerful tool in mass mobilization. Furthermore, whether groups take-up arms against the state depends on how the incumbent government has responded to the group's political demands. Repression from the government's side is thereby likely to be met with violence by the rebels, which yields the potential of escalating into civil war. Although this causal path is mainly focused on weaker groups who are deprived of executive power, previous research indicates that violence can be initiated from both sides: ethnic groups within and outside the government. While one side wants to challenge the status quo, the other side wants to maintain it (Cederman et al. 2011; Østby 2008; Stewart 2008). Moreover, in many contemporary intrastate conflicts the differences between government forces and rebels are increasingly blurred.

The Role of Resources

While this explanation provides a narrative of how HI can lead to conflict, it doesn't take into account the role of contextual factors, which could shape the relationship between inequality and civil war. One factor can be whether armed actors have the resources required to start a rebellion and sustain it (Hillesund et al. 2018, 466). Previous findings indicate that natural resource wealth moderates the effect of exclusion of ethnic groups on conflict (Asal et al. 2015). This is not very surprising given the extensive literature which indicates a significant effect of natural resources on civil war (e.g. Collier 2000; Collier & Hoeffler 2004; Keen 1998). Although such economic explanations for civil war are often treated as alternatives to grievance-based frameworks (Collier & Hoeffler 2004), this paper uses them in tandem. Cederman et al. (2013, 37) state that "not all inequalities produce grievance, and not all grievances trigger violence". Thus, combining explanations from both schools to a causal link might be required to provide a full picture of the link between HI and civil war onset. Besides income from natural resources there are several options of how rebels can gain the means to sustain a war, such as small-scale criminal activities, support from a wealthy diaspora, or international and transnational support (Collier 2000, 850f). To shed light on one way of how groups can gain considerable material resources, this paper supplements the theoretical framework around HI with insights from research on proxy wars.

Figure 1: Causal Mechanism from HI to Conflict Escalation
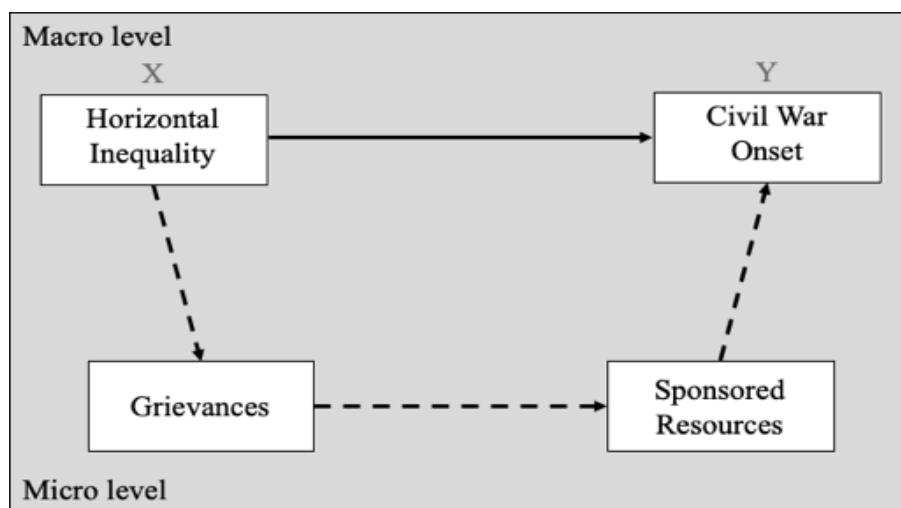
Source: own depiction, based on Cederman et. al (2013: 36)

The support of proxy actors in intrastate conflicts "constitutes a phenomenon spanning nearly the whole of recorded human military history" (Marshall 2015). In order to supplement the HI theory, this paper adopts theoretical considerations by Salehyan et al. (2011) based on the Principal-Agent Model to explain when actors accept foreign support and what consequences this has. 'External resource

support' is thereby defined as any sponsoring from foreign actors which helps to fuel war efforts, such as finances, military equipment, advisors and intelligence (Marshall 2015, Salehyan et al. 2011). The motivation of foreign sponsors only plays a minor role in this analysis, since the focus still lies on the inter-group interaction leading to the escalation of violence. According to Salehyan et al. (2011, 715ff) the "demand-side" in this case rebellious groups on the one side want to maximize the amount of resources they have at their disposal, while on the other side try to stay as independent as possible from foreign influence. Thereby, transnational linkages as well as interstate conflicts are very important for external funding of rebels. Moreover, conflicts where the government side has foreign support are more likely to also experience external sponsoring of rebels (ibid., 734). These findings fit very well in the context of inter-group conflicts. Logically, states ruled by a certain ethnicity are likely to support their group's struggle for power in another country and rebels might rather accept patronage from a sponsor with a shared identity. This causal chain is visualized in Figure 1.

Notably, this mechanism should not be seen as an alternative but rather a conditional addendum to the causal mechanisms theorized by the previous literature on HI. When ethnic groups develop grievances, they might not have enough resources to voice their political demands and mobilize their people for violent collective action. However, when foreign sponsors start funding these groups this can be the tipping point for the conflict to escalate into a civil war. With external support, ethnic groups not only possess an emotional argument to recruit fighters but can also convincingly persuade these recruits that their endeavour could be successful. Additionally, greater resources increase a group's ability to reach greater sections of society, building the basis for mass mobilization. Derived from those theoretical considerations, this paper tests the following hypothesis:

H1: *"External resource support increases the effect of horizontal inequality on the likelihood of civil war onset"*.

Research Design

Method and Case Selection

To test the probabilistic relationships sketched in H1 it is vital to collect empirical evidence and compare two cases or different observations within a case to evaluate the theorized relationship between an IV and a DV (Kellstedt & Whitten 2013, 70). Small-N case studies are suitable to observe dense variables and complex relationships (cf. Gerring 2007). Since the goal of this paper is to test a theory on a specific case and generalize it to a wider population by adding a conditional factor to the causal mechanism, this design is chosen for the analysis. A single-case study with a temporal within-case comparison (ibid., 28) is conducted to control whether the effect of the IV 'HI between ethnic groups' on the DV 'civil war onset' is moderated by 'external research support'. The comparative analysis is complemented with the application of qualitative process-tracing techniques in order to test the theoretical narrative step by step, comparing the differences in the time periods before and after the escalation of the conflict in Yemen. Process-tracing is a suitable method in this regard as a tool "for drawing descriptive and causal inferences from diagnostic pieces of evidence [...]" (Collier 2011, 824). However, while the paper relies on tools from the so called 'theory-testing process-tracing' method (cf. Beach & Pedersen 2013: 14ff), it does not follow the methods procedures strictly since this could narrow down the focus of the analysis too much on the case and limit the possible inference of the findings (Blatter & Haverland 2012, 31f).

George and Bennett (2005, 5) describe a case as "an aspect of a historical episode". Following this definition, the conflict between the Houthis (now the group that forms the Government of Yemen according to UCDP/PRIO definitions) and the former 'Government of Yemen' (now 'Forces of Hadi') in the time period from 2009 until 2018 is examined (Pettersson 2019). This time frame provides the opportunity to compare the period before the civil war onset in 2015 with the time thereafter, to check whether the theoretically suggested mechanisms led to the escalation into the war.

Operationalization and Data

The first part of the empirical examination in this paper serves the purpose of controlling whether a simple comparison of descriptive quantitative statistics for the IV (HI between ethnic groups) and the DV (civil war onset) indicates a trend linking those variables. Following the example of previous research, multiple measures are used to cover the 'thick' concept of HI in a valid way (cf. Cederman et al. 2011, 483ff). These include several economic indicators such as GDP per capita, and Gini coefficients to measure economic inequality. In order to account for political inequality data on 'relevant ethnic groups' including the percentage of the population being politically discriminated is examined.[11] While the data for the economic variables is retrieved from the World Bank, the political indicators are drawn from the Ethnic Power Relations (EPR) dataset (Vogt et al. 2015). To measure the DV 'civil war onset' the paper depends on the measures of the UCDP/PRIO, which returns the value 1 for a violent conflict from 25 battle-related deaths upwards in a given year and the value 2 for a war from at least 1000 deaths upwards (Pettersson et al. 2019). Thereby, in accordance with the theoretical framework it is expected that with an increase in the descriptive quantitative measures for the IV the binary conflict and war indicators in the UCDP dataset are more likely to take on the value 2. The empirical analysis is complemented with the qualitative process-tracing part to evaluate the presence and functioning of all parts of a hypothesized causal mechanism (Beach & Pedersen 2013, 11).

Table 1: Operationalization

	Descriptive Statistics	Process Tracing
	Observable Manifestations	
Horizontal Inequality Between Groups	Low GDP per capita, high Gini coefficient, high discrimination rates in EPR data	Significant number of mentions about high HI in newspaper reports
Grievances		High number of statements in newspapers by group leaders voicing grievances and blaming government for circumstances
External Resource Support		High number of reports about sponsoring or other funding by external actors for fighting groups
Civil War Onset	UCDP/PRIO returning value 2 for war in respective variable	Significant number of mentions of civil war in newspaper articles

Observable implications for the IV (HI between ethnic groups) in this regard are a high number of statements by experts as well as group leaders reporting economic and political discrimination of an ethnic group. This is represented by a high number of newspaper articles in this regard. To operationalize the first part of the causal mechanism of how HI can lead to grievances this paper looks at the three interlinked conditions defined by previous research (cf. Hillesund 2018, 464). Identity, motive, and opportunity are measured by examining statements of group leaders. Observable implications for this link between HI and grievances are a high number of articles where leaders declare that their group is discriminated against and blame this on another group which is upholding the status quo. An observable manifestation of the moderating effect of 'External resource support' is a significant increase in the

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[11]The use of country level indicators instead of more fine-grained spatial data is discussed in section 5.

number of newspaper articles reporting said interventions. These include reports about indirect involvement of sponsors through funding or military equipment as well as reports about direct engagement by external actors in the conflict, for instance through the deployment of troops. Finally, with the start of the civil war in 2015, observable qualitative indicators of the civil war onset is a steep increase in media attention and thus newspaper reports about the conflict.

For the sake of triangulation, the paper combines different qualitative data sources. Namely, newspaper articles are taken into account from the news organizations Al Jazeera and POLITICO. The two sources are chosen because they offer free content and provide extensive coverage of the case in the English language. The author is aware that Al Jazeera is affiliated with the Government of Qatar, who itself has stakes in the conflict in Yemen. However, previous research indicates that while being too focused on shocking headlines about mass death and displacement, the news network does not report more or less biased about conflicts than its western counterparts (cf. Musa & Yusha'u 2013; Zhang & Luther 2019). Nevertheless, the validity of those qualitative sources is questionable since they are only secondary sources. Unfortunately, due to the nature of the conflict it is difficult to get unbiased data. This data is complemented with insights from previous research on the conflict. Overall this paper tries to achieve a high validity by supplementing the inaccurate descriptive quantitative statistics with finer grained qualitative indicators. Regarding reliability the results of the descriptive analysis are presumed to be reproducible while the qualitative measures are less reliable since they partly underlie individual interpretation (cf. Kellstedt & Whitten 2013, 101ff).

Analysis

Background

In 1990 the Republic of Yemen was founded, unifying the states of North and South Yemen. While the young republic has experienced many conflicts in the short period of its existence, this analysis focuses entirely on the aforementioned conflict between the former government and the Zaidi Shia Muslim movement 'Ansar Allah', commonly known as 'Houthis', who currently control Yemen's capital. They formed in the early 2000s and engaged in an unsuccessful rebellion against the central government in 2004. Nevertheless, fighting between the movement and the government continued at a low-level between 2004 and 2010.

The Houthis gained new momentum in 2011 when popular protests inspired by the 'Arabic Spring' emerged in Yemen. By the end of the year, the demonstrators achieved their main goal and the former president Saleh had to relinquish power to vice-president Abd Rabbo Mansour Hadi, who was charged with reforming the political regime. Subsequently, the government and opposing groups engaged in a national dialogue. However, the Houthis were not satisfied with the results of the dialogue and saw themselves further marginalized. In 2013, they advanced their troops further and forced Hadi first out of office and later into exile in Saudi Arabia. The conflict escalated into a civil war shortly after that when Hadi gained the support of a Saudi-led military coalition (cf. Byman 2018, Swietek 2017, Orkaby 2017).

Discrimination of Whom?

Yemen's population consists of 52% Sunni Muslims who are mainly spread over the southern territory, while the north is occupied foremost by Shiites who make up 45% of the population. The Houthis emerged from the Zaidi Shia community, which accounts for the majority of the Shia in Yemen. The movement appeared first in the region of Saada, "an economically neglected mountain province" (Swietek 2017, 39). Their main aim is to end the discrimination and political as well as economical marginalization of the Zaidi minority (cf. Byman 2018, ´Swietek 2017, Orkaby 2017). Although this suggests that HI could be a possible cause for the conflict in this dyad, evidence for this needs to be untangled first before a clear narrative of inequality between the groups unfolds. Table 2 displays the descriptive statistics of the indicators on the country levels, but the evidence drawn from this is hard to interpret.

Table 2: Descriptive Quantitative Statistics
Yemen Inequality and Conflict on the Country Level 2009-2018

Year	GDP per capita	GINI coefficient	Relevant ethnic population	Share excluded population	Conflict Dyad
2009	7.702	34.7	YES	0.01	-
2010	7.702	-	YES	0.01	-
2011	-12.72	-	YES	0.01	-
2012	2.39	-	YES	0.01	-
2013	4.82	-	YES	0.01	-
2014	-1.89	36.7	YES	0.01	CONFLICT
2015	-16.68	-	YES	0.01	WAR
2016	-13.62	-	YES	0.01	WAR
2017	-5.94	-	YES	0.49	WAR
2018	-2.70	-	YES	0.49	WAR

While the economic measures indicate that the Yemeni economy is tumbling due to the ongoing conflicts and inequality is rising, the measures suffer from missing geo-coding and a lack of data to actually provide proof for the discrimination of the Zaidi people. Moreover, the economic indicators can also be biased by previous conflicts which prevent the Yemeni economy from developing. The interpretation of the indicators for political discrimination is even more complex. To understand the change in the values it is key to dive into the coding procedure of the EPR dataset. The dataset counts the Houthi rebels as well as the Government of Yemen under president Saleh and his successor Hadi to the group 'Northern Zaidi' since both presidents are of Zaidi origin. Thus, the EPR does not assess the Zaidi community including the Houthi as politically marginalized. Looking at the dependent variable, the UCDP/PRIO dataset reports a civil war onset in the year 2015 for the relevant dyad.

Although this quantitative evidence does not substantively support the theoretical argument, examining the power structure within the Yemeni regime changes the picture. Saleh's government consisted predominantly of members of his family and his tribe. They also gained the most revenue from a state-owned business cooperation. Saleh further consolidated his power through cooperation with a party described as a branch of the Sunni 'Muslim Brotherhood' in Yemen (Transfeld 2016, 153). Hence, the political influence of other Zaidi tribes was very limited. Economically, the excluded tribes of the north were further marginalized since the government cut public funding for those regions (Orkaby 2017, 2). Out of those preconditions emerged the Houthi movement. It carried, however, also a religious message which distinguished them further from the ruling tribes. The Houthis did not recognize Saleh as the leader since they believed that only prophets should lead states and resented the anti-Shia propaganda the government allowed to be circulated (Bymann 2018, 145). From this perceived HI the Houthis motivation emerged to identify themselves as Shia Zaini group which blamed the government for their

discrimination.[12] The number of newspaper articles on the topic of HI remains low but steady from 2009 to 2014. That the Houthis evaluated the injustice and blamed the government for their marginalization can be best demonstrated by a quote from their leader Al-Houthi during the low-scale conflict between the group and the Yemeni army in 2009: "[The war] is part of the official discrimination, marginalization and separation practiced against us as a social group described by the authorities as a minority".[13]

Therefore, in accordance with the theory, grievances arising from HI are identified as driver for the conflict in the past years (cf. Juneau 2016, 651f). When Hadi took over the government the situation remained unchanged for the group since they were not included substantially in the regime or the negotiations for the national peace plan (Juneau 2016; Transfeld 2016). This discrimination further laid ground for the violent campaign by the movement which lead to the ousting of Hadi's government and the escalation of the conflict[14]. Whilst tensions increased substantially in this first period, it is important to note that violence remained relatively low scale until 2015. Although the Houthis engaged in the rebellion which led them up to obtaining power of the country's capital, the two sides engaged in smaller clashes for the most part as the UCDP/PRIO dataset reports (cf. Juneau 2016).

External Resource Support and Mobilization

From 2015 onwards, the amount of external support increased substantially and led to a severe escalation of the conflict. However, before looking at this period it is important to examine the foreign influence pre the 2015 mobilization, which was smaller and less direct. Accusations that Iran provided the Houthis with external sponsoring can only be verified from 2009 onward (Juneau 2016, Swietek 2017). In 2009, the clashes between the Houthi's and the government intensified as the group started voicing their claims whilst Saleh's government responded with increasing repression.[15] This generally supports the theoretical argument made in this paper. However, the conflict did not escalate into a civil war at that time. After 2011, it seems that Iranian support for the Houthis increased.[16] However, the supply of weapons and cash did not reach a significant level yet (Juneau 2016: 657). Thus, in this time frame the Houthis preferred independence over additional resources by an external sponsor, as Juneau observes in his in-depth study of the case (ibid., 661). Moreover, the opposition group of Hadi and his Sunni allies lacked resources to oppose the advance of the Houthis substantively. In particular, Hadi struggled to sustain his power without further resources, eventually resulting in his flight to Saudi-Arabia.[17]

In 2015, a Saudi-led coalition started to support Hadi's claims for power and began to fight with his mostly Sunni allies against the Houthis.[18] At the same time, Iran increased its support for the Houthis.[19] As a result, the advance of the 'Forces of Hadi' soon slowed and a deadly equilibrium of forces emerged (Juneau 2016: 654). This also supports the findings of Salehyan et al. (2011) that one side is more likely to receive increased support when the other party is sponsored as well. The resulting civil war is ongoing. The number of articles reporting about the civil war as well as external resource support increased significantly in 2015. Therefore, the contribution of further resources to the conflict is identified as a driver for the escalation. Since the resources each party had to their disposition varies from the period before the civil war onset and thereafter, this can be identified as a convincing mechanism for further escalation of the conflict as illustrated in Table 3.

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[12] Al Jazeera, 10.03.2011, and Al Jazeera, 12.01.2012, see appendix.
[13] Al Jazeera, 28.09.2009, see appendix.
[14] Al Jazeera, 22.03.2014, see appendix..
[15] Al Jazeera, 08.11.2009, see appendix.
[16] POLITICO, 15.03.2012, see appendix.
[17] Al Jazeera, 07.03.2015, see appendix.
[18] Al Jazeera, 27.03.2015, and POLITICO, 03.08.2015, see appendix.
[19] POLITICO, 13.05.2015, see appendix.

Table 3: Variety in Operationalized Indicators for Variables and Causal Mechanism

	Horizontal Inequality	Grievances	External Resource Support	Civil War Onset
From Horizontal Inequality to Civil War				
2009 – 2014	High	Strong	Low	NO
2015 – 2018	High	Strong	High	YES

However, it is important to keep in mind the differences between the two sides with regards to their relationship to the sponsors and the role their resources played in mobilizing troops. While Hadi and his Sunni allies are fully dependent on the support of the 'supply-side' and could only mobilize their people as well as raise their claims against the group in power (now the Houthis), the former rebels always kept a distance to Iran and not necessarily relied on external resources to wage war (Juneau 2016, Orkaby 2017). Thus, it can be concluded that the evidence found in this case overall supports the hypothesis. HI can be considered a driver for war between the ethnic group of Shia rebels and a Sunni dominated coalition, while external resource support plays a key role in the civil war onset.

Conclusion

The explanatory power of the theoretical framework is particularly strong in explaining HI as a trigger for grievances against the government, when the Zaidi Houthi movement is characterized as a separate ethnic group. Although this contradicts the EPR coding, drawing on the qualitative evidence presented above, this distinction seems valid. After some digging into the power structure of the former Yemeni government it becomes apparent that the 'Forces of Hadi' are dominated by Sunni forces (Transfeld 2016). With this in mind, the conflict can be categorized as a 'ethnonationalist war' (cf. Cederman et al. 2011, 481). Adding external resource support as a contextual variable highlights that it is important to observe where the means for violence come from when examining whether grievances trigger civil wars. Nevertheless, it should be explored in depth in further research how external resource support moderates the effect of HI on group mobilization, forming a causal mechanism leading to war. This could not be covered as extensively as necessary within the limited framework of this paper.

The analysis also yields limitations which need to be pointed out. A common problem of small n case studies is the limited external validity (Blatter & Haverland 2012, 31f). Although the HI conflict link has already been analyzed in a large n study (Cederman et al. 2011) it needs to be examined whether a moderating effect of external resource support is significant in other cases as well. Adding external resource support to the causal mechanism also affects the size of the population of cases this theoretic model can be applied to. Further research needs to reveal whether external resource support in this model is representative for any mechanism providing the conflict parties with resources. The data collection should also be engaged critically. A standardized procedure for selecting the qualitative sources would make the indicators more reliable. However, this was not feasible within the scope of this paper. In the same manner, more valid descriptive quantitative statistics need to be located. Looking at statistics on the country level doesn't reveal much about discrimination on the group level. However, it was particularly hard to find geo-coded group-level data for this case. For instance, the Nordhaus database only reports spatial economic data for the year 1990 for Yemen (cf. Nordhaus 2006). Similarly, quantitative data on external resource support could not be located. Amongst others, the UCDP External Support Database does not report external support for either party in the examined case.

To conclude, economic and political inequality among groups increases the likelihood of civil war onset by sparking grievances among the marginalized groups. As theorized by the existing literature, those groups can mobilize their supporters and raise demands for a change of the status quo. Since the group in power usually desires to preserve their status, both groups have a higher risk of getting drawn into a

conflict (Cederman et al. 2011, 483). The effect of HI between ethnic groups on the likelihood of civil war is increased further if one or more parties receive external resource support. This causal narrative is drawn from the qualitative analysis conducted in this paper. However, it lacks valid quantitative data to conclude that this construct can be generalized to a broad range of cases. Further research is necessary to explore how exactly external resource support moderates the effect of HI on civil war onset and whether this does not only affect the likelihood of civil war but also conflict intensity or conflict escalation.

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Local Participation in Peace Processes:
A Case of Côte d'Ivoire

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Abstract
How to build a more sustainable peace? Is it possible to ensure that peace processes are not seen as external interventions? When thinking about conflict resolution, multiple factors must be considered: the origins of the war, the warring parties, the involvement of civil society, regional organizations, etc. These points, to a greater or lesser extent, directly influence the drafting and acceptance of a peace agreement. That said, this article aims to understand the local ownership of a peace process and how it contributes to the creation of long-term peace agreements. To understand this problem, the case of Côte d'Ivoire is examined. The theoretical apparatus employed is based on the studies of Ginty & Richmond (2013), Öjendal, Leonardsson, and Lundqvist (2017), and Väyrynen (1999). At the end of the research, it was concluded that the peace agreements of the Ivorian conflict, when negotiated and drafted mostly by external actors, failed to identify the causes of the conflict and ways to control them. This only received appropriate attention when the warring parties themselves owned the process and negotiated a peace agreement without the mediation of countries other than Africans.

Introduction
Since its independence from French colonial rule, Côte d'Ivoire has faced disputes over the country's power and political instability: this can be seen through the constant postponement of the first multi-party elections, the 1999 *coup d'état,* and the outbreak of a civil conflict soon after. In addition, the religious and ethnic differences between the North and the South of the country have generated constant debates on the issue of citizenship and who, in fact, could run for political offices.

Thus, from the 2000s, with the outbreak of a conflict in the country, peace processes began. It should be noted that there were several attempts to promote a ceasefire, most of them led by France and the United Nations (UN), but it was only when the warring parties decided to initiate a peace agreement, produced and carried out by themselves, that the roots of the conflict had its due attention. In view of this, the present article aims to answer the following question:

How does the local ownership of a peace process contribute to creating long-term peace resolutions?

The hypothesis raised is that the local community and/the warring parties have a more structured and systemic view of the conflict and the reasons for its outbreak. Consequently, when local actors own the peace process, they have the knowledge and motivation to develop more assertive documents, identify the roots of the conflict, and to build long-term resolutions. In contrast, international actors, as outsiders, may have an erroneous view of the conflict and may create short-term forged stability.

This article focuses on to what extent local ownership of a peace process contributes to creating agreements that address the specific issues of the conflict. In order to understand this, this article uses the

Côte d'Ivoire case study, with a time frame from 2000 to 2011. This case was chosen because of the great influence of external actors in the peace process, the top-down view of the conflict, and the focus on developing institutional apparatus rather than long-term solutions to the structural problems that led to the outbreak of war. Therefore, the Ivorian situation is a good way to visualize the importance of local ownership.

This article is based on deductive and qualitative research, with bibliographic and document review. It is divided into three sections: the first presents theoretical studies on peace, and local participation/local ownership of peace processes; the second section presents the methodology used in this article; the third, and last, will talk about Côte d'Ivoire, its peace process and the local participation in the negotiations of the agreements. This research is important for the study of international relations as it demonstrates how much the participation of local actors can change the course of a particular conflict, and advocate for the need of warring parties, civil society, and regional organizations to be increasingly more present at negotiating tables, as such actors are often still excluded.

Building long-term peace and the local turn
The discussion about the reformulation of the peacebuilding model began to take shape in the 1990s. With the events and consequences of the processes in Bosnia, Somalia, and Cambodia (among other countries) there was a concern and yearning for the reformulation of peace interventions in order to make them more sustainable. This launched the establishment of a liberal peace, with interventions aimed at the fast democratization of the country with the establishment of an open market economy. In this sense, there was (and, in a way, there is still today) the attempt to apply the same pattern of development and conflict resolution around the world, regardless of local peculiarities (Öjendal; Leonardsson; Lundqvist 2017).

In this context, there are two types of fundamental criticism of the peacebuilding model linked to liberal peace: the mainstream criticism, whose emphasis is on "the need for broader participation, more transparency, local institution-building, and localized capacity building" (Öjendal; Leonardsson; Lundqvist 2017, 30); and radical criticism, which urges the need to reformulate peacebuilding practices and processes as a whole. For authors adhering to this second view, peacebuilding and building long-term peace must be "[…] contextualized and adapted to the particular cases, [and must] considerably enhance inclusion of concerned communities, contain a higher degree of local level engagement, promote local agency, [and] encourage the existence of diverse voices, and support the establishment of formal and informal institutions for local governance" (Öjendal; Leonardsson; Lundqvist 2017, 30).

Väyrynen (1999) argues that traditional theories of conflict resolution must be strongly criticized when they aim at explaining short-term results and the application of 'development patterns' across the globe. The focus on purely institutional developments, organization of elections, or attempts to impose a peace model precludes the construction of long-term peace. Ginty & Richmond (2013) emphasize this point when they talk about the 'local turn' in peacebuilding. In adopting a more critical view, the authors argue that peace should be hybrid and multiple. According to the authors, what can be seen in various existing peace negotiations (East Timor, Iraq, Afghanistan) is that there was an attempt to impose a model of peace considered 'ideal', without the due participation of local stakeholders. Therefore, the result was an imposed peace, little accepted and with weak legitimacy internally.

Richmond (2016) points out that peacekeeping negotiations generated by external actors take on a very top-down character due to the limited view of these actors towards local realities. Thus, when thinking about building effective peace, it is essential to have attention to cultural, social, economic, and political details. For Richmond (2016, 58) "increasing amounts of evidence indicate that local and community level peace organizations have these sensitivities; whereas internationals and state elites operate from a simplistic and blinkered vision of the interaction of peace, society, politics, institutions,

and economics". Hence, the inclusion of the 'local' in the construction of long-term peace is fundamental, avoiding unilateral and imposed top-down decisions in peace agreements.

In this regard, according to the report by Peace Direct and the Alliance for Peacebuilding (2019), local participation on a peace process can have many levels and can happen in different degrees: "It includes small-scale grassroots initiatives, as well as activities undertaken on a wider scale […] (1) locally led and owned, where local people and groups design the approach and set priorities, while outsiders assist with resources; (2) locally managed, where the approach comes from the outside, but is "transplanted" to local management; or (3) locally implemented, primarily an outside approach, including external priorities that local people or organizations are supposed to implement (Vernon 2019:3)". Thus, it can vary from the 'local' as an active actor implementing the result of the negotiation process, to 'local' as an owner of the process. Note that in all three degrees presented above, the local actors are essential parts of the peace process, to a lesser or greater degree.

Finally, despite existing discussions in academia attempting to conceptualize what the 'local' is, the definition can "[…] range from using the local as a fixed, small-scale spatial unit to a fluid network of actors and actions" (Öjendal; Leonardsson; Lundqvist 2017, 33) – 'Local' here refers to actors from within the war-affected society, more specifically the belligerent actors. Moreover, it is worth mentioning the importance of problematizing the understanding of the 'local' as inordinately homogeneous with little regard for the differences that may exist based on ethnicity, social classes, or other cultural complexities.

Methodology

This work can be characterized as deductive and qualitative research, with bibliographic and documentary research as its main techniques. In order to achieve the objective of this article, a case study of the conflict in Côte d'Ivoire was used, with the time frame from 2000 to 2011. This choice was due to the degree of involvement of the belligerent parts in the elaboration of peace agreements: firstly, as negotiation parts, mediated by France, and secondly, as owners of the peace process. The Ivorian conflict suggests that the willingness and involvement of local actors and regional organizations in the drafting of peace agreements bring a better understanding of the roots of the conflict and a greater propensity to put into practice the clauses and topics discussed.

Moreover, both primary and secondary sources were used for this research. Firstly, a bibliographic study on the peace agreements of Côte d'Ivoire (Linas-Marcoussis, Pretoria I and Ouagadougou) was used. In order to analyze the local participation, they were reviewed on the content, the articles, and the signatories – the preamble and preliminary clauses offered information on what was being taken into account in the documents and the main issues of the conflict to be resolved. Secondly, secondary sources (such as articles, think-tank reports, United Nations reports, and news) analyzing the agreements were also used to understand other authors' perspective on the matter. This paper focuses on those of African provenance.

After gathering these documents, an analysis was made under the theoretical lens of local participation in peace processes, from studies by Ginty & Richmond (2013), Öjendal, Leonardsson, Lundqvist (2017), and Väyrynen (1999). It is necessary to research this matter under a more critical view as its results may contribute to the understanding of the nature and processes of armed conflict resolutions, and to our understanding of the importance in local ownership of peace processes.

The civil war in Côte d'Ivoire and the local involvement in peace process

Côte d'Ivoire is a country located in the western part of the African continent. It was a French colony until the year 1960, when it declared its independence. However, shortly after its autonomy from colonial rule, the country faced a civil conflict that had its origin in the disputes for the succession of power and over who could or could not be considered an Ivorian citizen (Fakhoury, 2017).

The issue of citizenship in Côte d'Ivoire began to stand out when Houphouët-Boigny, the country's first president, named Alassane Ouattara Prime Minister, who lived abroad for many years and whose father was originally from Burkina Faso. This intense criticism of the Prime Minister and his citizenship, arising from the opposition, was accentuated in 1993 when Houphouët-Boigny died and was succeeded by Henri Bédié, who started to argue about nationality to disqualify his political opponents, mainly Ouattara (Bah 2010; Human Rights Watch 2011).

In 1995, ultranationalist speeches, regarding nationality and who was Ivorian, resulted in the development of the *Ivoirité*, a vision of who the real citizens of Côte d'Ivoire would be: "[...] this concept gained momentum, it ended up becoming a factor of exclusion from political participation and citizenship for some citizens alleged to be immigrants from neighboring countries" (United States Institute for Peace 2010:4). The *Ivoirité* doctrine was institutionalized in the Ivorian state through electoral and political reforms that identified who the country's citizens were and who could run for political offices, obtaining support from anti-immigration groups (Bah 2010; Human Rights Watch 2011).

Bédié's presidency lasted until 1999, when a coup d'état brought General Robert Guëi to power, who rose by promising the organization of inclusive, free, and fair elections. However, in October 2000, Guëi maintained the *Ivoirité* doctrine and prohibited some candidates from running for the presidential elections. Despite trying to disqualify some of his opponents, Guëi lost the elections and Laurent Gbagbo rose to the presidency of the country.[20] Two years later, in 2002, there was another coup attempt: a group of military officers led by Guillaume Soro took control of the northern region of Côte d'Ivoire (Bah 2010).

According to the United States Institute for Peace (2010, 5) "Fighting ensued between northern-based rebels and elements of the national army loyal to President Gbagbo". As for the causes that generated this dispute, Ogwang (2011, 1) argues that "the conflict in Côte d'Ivoire is a by-product of deep-seated cleavages revolving around ethnicity, nationality and religion. Politicians tapped into these differences to consolidate their monopoly on power, and in the process, pushed the country toward civil war". Peace initiatives started to take place in 2003.

The peace process in Côte d'Ivoire
In 2003, the first Côte d'Ivoire peace agreement (Linas-Marcoussis) was developed as a result of negotiations promoted by the French president Chirac. The document involved the political forces of Côte d'Ivoire, the President of France, the African Union, The Economic Community of West African States (ECOWAS), and the Secretary-General of the United Nations. One of its initiatives was the creation of the National Reconciliation Government to guarantee the return of peace, the development of transparent and credible elections, and the strengthening of institutions and democracy. In addition, the agreement developed the program of the Reconciliation Government, allowing for initial improvements within issues such as the citizenship, electoral system, land regime, media, and civil liberties (United Nations 2003).

Regarding this first agreement, it is possible to observe the criticism raised by Väyrynen (1999) about traditional theories of conflict resolution, which focus on very institutional factors and do not look at the roots of the conflict. It is a noticeably top-down performance by external actors and an attempt to establish peace along the traditional lines, focusing on elections and the creation of a temporary government, while not giving due attention to what led to the outbreak of the conflict itself. In addition, another aggravating factor is the French leadership, which makes evident the colonial remnant of the relationship.

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[20] It is worth noting that after his defeat, General Robert Guëi did not accept the electoral results and declared himself president. However, a popular uprising broke out in Côte d'Ivoire, forcing Guëi to leave the country. The consequence was the rise of Gagbo, who had won the elections, to the presidency (Bah 2010).

The most direct participation of the United Nations in the conflict occurred through the establishment of the United Nations Mission in Côte d'Ivoire (MINUCI) in 2003, which aimed at facilitating and assisting the implementation of the Linas-Marcoussis agreement and sent troops to stabilize the region. It is important to highlight how MINUCI was aimed primarily at supporting the actions that were already being undertaken by France and ECOWAS, rather than creating a robust and multidimensional mission for the situation. This is noticed by the small number of officers sent by the United Nations for the mission – initially 26, with the possibility of an additional 50 to be sent (United Nations 2003).

In 2004, with the continuation of hostilities, the United Nations transformed MINUCI into a larger and more structured mission. The United Nations Security Council (UNSC), by resolution n°.1528, transformed MINUCI into the United Nations Operation in Côte d'Ivoire (UNOCI), for an initial period of 12 months. The UNSC decided that the operation would have a maximum component of 6,240 people and, with the assistance of French troops, UNOCI would have the function of monitoring the ceasefire and the movement of armed groups, promoting disarmament, demobilization, reintegration, repatriation and resettlement of ex-combatants and individuals, in addition to supporting humanitarian assistance and the implementation of the peace process (United Nations 2004).

After the establishment of UNOCI, with greater strength, the Government of National Reconciliation advanced in the development of state administration, as well as managing to provide some basic services to areas previously dominated by guerrilla forces. However, the warring parties refused to submit to disarmament, which led to continued hostilities and attacks on civilians and soldiers. According to researcher Alexandra Novosseloff (2015), despite advances in structuring the Ivorian government, air strikes from both warring parties continued throughout the country.

In addition, implementing what was envisaged in the UNOCI mandate faced four key obstacles, related to "the weak consent of the host country; the French policy and interests in the country; [...] divergent regional mediation processes; and an UN Secretariat with mixed feelings on the mere existence of the mission" (Novosseloff 2015, 714). In view of this, their difficulty in successfully achieving the planned objectives is evident.

Novosseloff (2015) also argues that most of the times when the actors involved in the conflict seemed to want to cooperate with the agreements, it was due to pressure actions carried out by the United Nations. For Piccolino (2017), the situation in Côte d'Ivoire is characterized by a "consensus under pressure" (a consensus that was only reached because of the pressure inflicted by other parties) that was linked mainly to national elections, which were constantly postponed. The existence of such a consensus leads to an increasing difficulty of implementing peace agreements. The lack of ownership by warring parties can lead to a feeling that such resolutions are obsolete and therefore do not promote the cooperation of the warring parties, creating additional obstacles.

Therefore, this lack of a true, willing consensus demonstrates what Richmond (2016) points out when he says that international actors operate from a simplistic view of the reality of the conflict. In this case, the lack of involvement of local stakeholders in the construction of agreements, and the focus on the development of government institutions, demonstrate a lack of sensitivity towards the Ivorian reality and the roots of the conflict. In addition, the "consensus under pressure" reaffirms the construction of a mostly unilateral and top-down peace.

In 2005, three years after the signing of the Linas-Marcoussis Agreement, the presidential elections in Côte d'Ivoire had not yet been organized and Gbagbo was still in power. In April of the same year, the Pretoria I agreement brought the warring parties back to the negotiating table, but this time with the mediation of the African Union and the president of South Africa, Thabo Mbeki. In general, the agreement reaffirmed the commitment to end hostilities and put an end to the Ivorian conflict, repudiating the use of force, and (repeating previous documents) urging the parties involved in the agreement to accept the immediate disarmament process nationwide (United Nations 2005).

It is noteworthy that Pretoria I did not bring any very considerable innovation to the context of peace building in Côte d'Ivoire. What is visible is a greater role of African countries, evidenced by the participation of the AU and South Africa. However, in this case, the regional agents only reaffirmed topics already raised in the Linas-Marcoussis Agreement and in the Security Council resolutions. Therefore, as much as there was an attempt to play a leading role by regional agents and organizations, they acted in a limited and repetitive manner – in addition to not being sufficient to promote the end of hostilities.

Even though the parties involved agreed on the ceasefire, the scenario found in practice was different, that is, the attacks continued, the security situation gradually became more unstable, and the activities and the performance of external actors faced more difficulties. In addition, in October 2005, President Gbagbo's term ended with no prospect of when the next elections would be organized (Novosseloff 2015).

It is notable that the turn of the Ivorian conflict occurred when Gbagbo organized, in 2007, a round of negotiations with *Forces Nouvelles*, led by Guillaume Soro, to seek a solution that would please both parties and that would not have the participation of France and the United Nations. In this sense, a meeting was held in the capital of Burkina Faso which resulted in the Ouagadougou Agreement (OPA), signed in March 2007 (Yabi 2009). This agreement was the first of the conflict developed by a mobilization of the warring parties and not by external actors, and it was marked by an effort of the local actors to take ownership of the peace process. According to Novosseloff (2018, 19) "another important difference was that the negotiations were conducted over a period of one month, while previous deals were rushed through and patched together in a matter of days under pressure from foreign countries".

Right in the preamble, the agreement reiterates that despite the identification of problems related to the implementation of Linas-Marcoussis and Pretoria I, the parties involved agreed and committed to apply them and to respect their decisions, as well as to stimulate territorial integrity, sovereignty, respect for the Constitution and the independence of the Ivorian State. In addition, the actors pledged to create conditions to allow free, open, and transparent democratic elections (United Nations 2007).

In the first article of OPA, a difference is visible in the way it approached the conflict and the path to peace. The previous agreements focused on measures that would contribute to the end of hostilities, not being attached in any considerable way to the roots of the conflict. Much of the solution proposed by these external actors was linked to the democratic transition and the organization of presidential elections. In contrast, the Ouagadougou Agreement, already by the first article, recognized that the greatest concern was the identification of Ivorians and the foreign population living in the country, that is, the issue of citizenship (United Nations 2007). According to OPA "the absence of a clear and standard identity document and of individual administrative documents attesting to the identity and nationality of persons is a source of conflict" (United Nations 2007, 4).

Bah (2010:611) recognizes that although the OPA did not define who would be an Ivorian citizen, "it provided a mechanism for resolving the *Ivoirité* citizenship grievances", and the scholar argues that the weakness of the application and respect of the previous documents were linked to carelessness regarding citizenship – which was understood in the OPA as the source of the conflict. In this sense, the OPA can be considered a watershed in the Ivorian conflict, because it clearly identified the belligerent parties' main criticism of the prior agreements and created a mechanism to solve it. This is a particularly important aspect of building long-term peace according to Richmond (2016).

However, it is important to note that the agreement itself did not solve all the problems in Côte d'Ivoire, because if only the willingness of the parties and the written documents were the solution for everything, the conflict could have ended in 2002. However, it showed that the local ownership of a peace process leads to agreements in which identify the roots of a conflict, and consequently, contributes to build long-term peace. Thus, based on the empirical analysis, the degree to which the agreements dealt with issues related to promoting local ownership can be summarized as follows:

Table 1. Summary on Côte d'Ivoire peace agreements

Agreement	Date	Summary
Linas-Marcoussis	2003	French leadership and consequent limitation of the participation of local actors in the peace process; little attention to citizenship issues; focus on organizing presidential elections; greater involvement of other external agents.
Pretoria I	2005	Repetition of topics already covered in the previous agreement; no attention to the issue of citizenship; focus on organizing presidential elections.
Ouagadougou	2007	Attempt to remove and limit the role of the United Nations and France; local ownership of the peace process; recognition of citizenship as the source of the conflict.

Despite the post-OPA limitations (mainly related to the delay in organizing the presidential elections), the development and the initiative of the agreement demonstrate some important indicators for the peace process in Côte d'Ivoire. First, related to the way of looking at the conflict: from the beginning, the OPA identified one of the key causes of the conflict and how to resolve it; second, there is a notable aversion to the external presence and the actions of the United Nations and France, since the OPA did not count on the participation or mediation of these two actors; third, the OPA demonstrates that local ownership and the involvement and willingness of the warring parties to cooperate are essential in a peace process, since, if it does not exist, the development of agreements will be seen much more as an external intervention than a will of the parties.

Nevertheless, it is important to point out that although it is possible to see an increased participation of political parties in the Côte d'Ivoire peace process, there are still some improvements to be made in the integration of civil society and civil society organizations (CSOs). In a workshop hosted by the United States Institute for Peace (USIP) about inclusive peace in Côte d'Ivoire, CSOs pointed out a struggled in their relationship with the government, the obstacles to remain autonomous and neutral, and their exclusion from the negotiations of the peace process (USIP 2006). "Most CSOs do not have observer status at forums sponsored by the UN, ECOWAS, or the national government, and thus are not privy to much of the information discussed at major negotiations" (USIP 2006, 1). Thus, local participation continues to face a big challenge when thinking about the construction of peace, as the dominant strategies exclude local participation in peace-support interventions, however, its inclusion could mean a turning point in building a long-term sustainable and inclusive peace (Richmond 2016).

Conclusion

In view of the case study utilized by this article, the Linas-Marcoussis Agreement is a considerably a top-down peace agreement, which is reflected in its low acceptance among the Ivorians– this fact is observed by the number of resolutions and documents that had to be developed later to reaffirm the commitment to Linas-Marcoussis. In addition, the agreement addressed, in a very superficial way, the issue of citizenship since it sought to focus on the development of democratic elections. However, the root of the conflict was precisely citizenship (who was an Ivorian citizen and the *Ivoirité* doctrine), which triggered the impasse among presidential candidates, stimulated the *coup d'état* promoted by the army in the 2000s, and fostered the separation between regions. Another point of concern is the low consent and acceptance of documents and agreements by local parties. As this article has argued, the Côte d'Ivoire's consent was made under pressure from external actors, and did not reflect the wants of the Ivorians. The document

was only taken seriously when certain enforcement actions, such as sanctions were implemented. Although even then these sanctions mainly affected the local elites.

In addition, it should be noted that in all the agreements described here, at least one African country or organization was involved. However, in some moments these actors had little, or almost no role (as was the case with the Linas-Marcoussis Agreement) or owned the process (such as the OPA). In the case of OPA, the document was organized by the warring parties and mediated by an African country. As already argued, this participation is fundamental in the process of building a peace that encompasses singularities of a place, and it was only in the OPA that the issue of citizenship (considered as the root of the conflict) had its due attention. Thus, it is clear that when an agreement is developed by the warring parties, the singularities of the conflict, and the reasons for its outbreak, are more taken into account – recognizing that the importance of the local parties and confirming the hypothesis argued in this article.

However, it is worth mentioning that it is still necessary to research ways of further integrating civil society in the peace process and making it even more sustainable. Even if the case of Côte d'Ivoire confirms the problem raised here, it is evident that the negotiation process was limited to the Ivorian elites and it is necessary to investigate ways to include other social and civil society organizations, in addition to the belligerent parts. Thus, as a suggestion for future research, it is essential to think about how to facilitate the participation and integration of other civil actors in peace processes.

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Sexual Exploitation and Abuse in UN Peacekeeping Operations: Re-Examining Our Understanding

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Abstract

The phenomenon of conflict related sexual violence has been gaining attention in academic literature in recent years. However, occurrences of sexual exploitation and abuse [SEA] committed by peacekeeping forces remain understudied. Considering the terrible impact of SEA on host communities and the legitimacy of UN PKOs, improved understanding of the phenomena can only improve the effectiveness of future operations. This paper's key contributions are a critical re-evaluation of how SEA data is handled and outlines of causal mechanisms that future research might explore. These mechanisms are categorised as either environmental, structural, or individual to make it easier for practitioners to understand and apply the knowledge. Taking advantage of the growth in available data, this paper also presents a novel empirical measure for examining SEA. Merging data on UN mission staff with temporally corrected UN allegation data results in a new Incident Rate index, which can replace binary mission-year SEA variables from previous studies and reduce some of the noise surrounding allegation data. Potential pitfalls in the use of SEA data are discussed and addressed to assist in future research.

Introduction

For more than half a century, the UN has sought to ease the path from conflict to peace through the deployment of Peacekeeping Operations [PKOs]. These multifaceted operations take on many responsibilities; among them the protection of civilians, empowerment of women, and promotion of human rights. Despite such noble aspirations, UN Peacekeeping has been unable to throw off the spectre of Sexual Exploitation and Abuse [SEA] offenses committed by peacekeepers. Indeed, according to the UN's own investigative branch, there were an average of 79 SEA allegations against UN peacekeeping operations staff reported per year between 2007 and 2019 (UNCDU, 2020). Even a single instance of UN staff victimising those they are supposed to protect causes immeasurable damage not only to the victims, but to the legitimacy and effectiveness of the UN as a whole. For how can PKOs function effectively without the trust of their charges and how can civilians trust their abusers, blue helmets or no? Understanding the occurrence of SEA is the first step towards eliminating it, and it is the duty of researchers to further that understanding.

While these allegations represent a failing of the UN's PKOs, it is not a universal one; for there is a great degree of variation in the number of allegations made against different operations. Therein lies an important puzzle; why is this variation occurring? A growing body of literature has examined the phenomenon, but a lack of available data has made it difficult for researchers to truly penetrate the issue of SEA. The purpose of this paper is not to find an answer to this puzzle through rigorous empirical testing, but rather to lay the theoretical groundwork through which future research might address the issue and to highlight some of the potential pitfalls in the use of SEA data.

The remainder of this paper will be split into three main sections. Section I explores the phenomenon of SEA by PKO staff in greater detail. A visualisation of the allegation inconsistencies is provided, and previous literature related to the topic is briefly outlined. Section II presents several compelling theoretical relationships that might help to further explain what factors influence the occurrence of SEA. This is broken down into three areas: environmental, structural, and individual. Section III introduces an Incident Rate measurement as a potential means of using UN data on SEA and proposes several hypotheses and operationalisations for future research.

Section I: The Puzzle of SEA

Visualising the Variation

SEA is often underreported, even in peaceful societies. This makes it extremely difficult to acquire empirical measures for the phenomenon in conflict and post-conflict countries. Fortunately, the UN has published data on allegations of SEA against its peacekeeping staff since 2007. While it must be acknowledged that this dataset is likely far from complete, due to the underreported nature of SEA, it can still be used as a research tool to measure the phenomenon. The dataset provides the recorded number of allegations made against each operation per year from 2007 to 2019. It is important to note that this does not show the year the offense took place, rather when the survivor came forward. In order to draw accurate conclusions from the use of this data, it is absolutely vital to acknowledge and correct for this temporal imbalance, which will be discussed more in Section III.

Figure 1 & 2
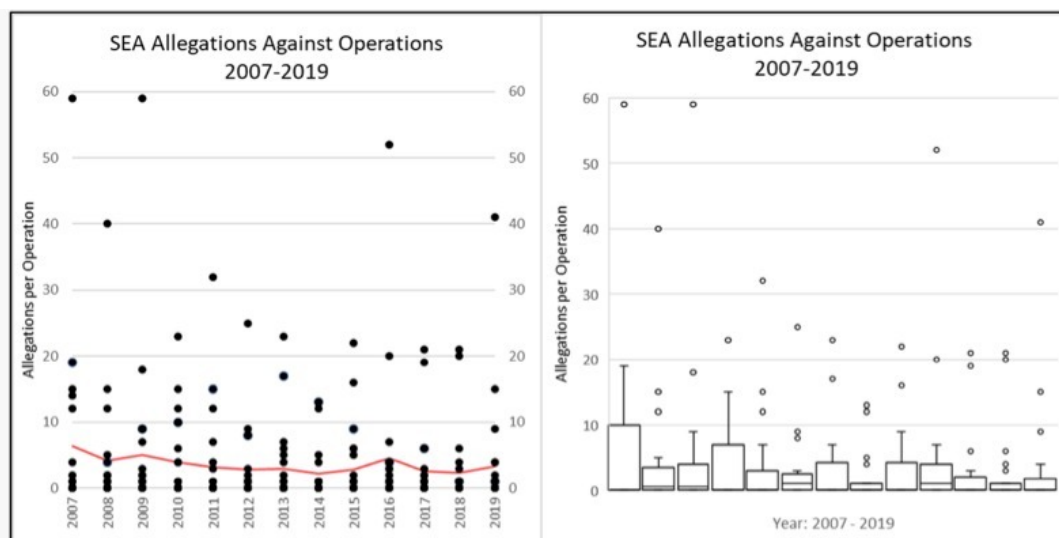
Source: UNCDU (2020)

Figure 1 shows the average allegations per year as a solid red line, demonstrating that a substantial number of operations receive an above average number of allegations. However, Figure 2 truly emphasises the extent of the variation. In no year was the median number of cases greater than 1, meaning 50% of PKOs had 1 or less allegations made against them. Furthermore, the upper quartile is never in excess of 10, meaning 75% of operations received 10 or less allegations each year. Outlier operations are displayed as dots. Every year at least one operation received allegations substantially outside of the standard range, with missions such as MONUSCO and MINUSCA showing persistently high levels. The question is why?

Overview of the Literature

Sexual violence in conflict has garnered greater levels of attention since the early 2000's. However, with the notable exceptions of Nordås and Rustad (2013) and Karim and Beardsley (2016), little empirical testing on the causes of peacekeeper SEA abuses in particular has been conducted. A large part of the relevant literature has focused on militarised masculinity and privilege as an explanation for sexual violence from conflict actors and peacekeepers alike (e.g. Alexandra 2011, Bjarnegård & Melander 2011, Caprioli & Boyer 2001, Goldstein 2001, Higate 2007, Nagle 1998, Vojdik 2007). The argument, in brief, being that an institutionalised emphasis on powerful and dominating behaviour by men, alongside a devaluation of women's bodies and feminine traits, results in increased sexual violence. While this might prove to be a necessary component of any comprehensive theory, it is by no means sufficient. For how can non-offending by military men and variations in offending rates between operations be explained by this lens alone?

There are of course more detailed variables proposed by the literature. Among these theories, gender issues have become a central focus. One such avenue of interest is the importance between gender balances in PKOs. The consensus being that, through a variety of causal mechanisms, gender balanced missions can credibly lower rates of SEA (e.g. Simic 2010, Bridges and Horsfall 2009, Karim and Beardsley 2016, Horne and Barney 2019). A similar approach is the idea that the gender norms of troop contributing countries [TCCs] have an effect on the likelihood of troops to commit offense, with studies establishing that socialisation at home and the record of the contributing military heavily influences the behaviour of troops (Karim and Beardsley 2016, Nordås and Rustad 2013, Horne and Barney 2019, Horne et al 2020, Moncrief 2017).

Beyond this, research has also pointed to numerous structural factors. Nordås and Rustad (2013) discuss the relationship between the severity of a conflict and allegations of SEA by PKOs. The host country's economic development, rule of law, press freedom, and attitudes towards sex crimes and gender have also been shown to have significant effects on SEA (Nordås and Rustad 2013, Rodriguez and Kinne 2019). Finally, oversight procedures have been theorised to influence the recurrence of misconduct (Defeis 2008, Rodriguez and Kinne 2019).

Research Question

While the above literature offers insightful observations into some factors which contribute to SEA in PKOs, they do not sufficiently resolve the puzzle about variation between missions posed by this paper. Different approaches to data handling, which is discussed below, could provide greater insights into mission variations and novel causal mechanisms currently lacking in the literature can open new avenues for investigation. The following sections will approach the issue of SEA in UN PKOs in terms of occurrence. While no new empirical tests are being conducted, the remainder of this paper is written with the following research question in mind.

RQ: What accounts for variance in the occurrence of SEA between PKOs?

The myriad of approaches taken in previous research could be sorted into a number of categories. For example, Nordås and Rustad's (2013) 'host' and 'mission' factors or Rodriguez and Kinne's (2019) 'institutional, societal, and military' influences. Because this paper's question is quite broad, it is useful to also break it down into three sub-sections: Environmental, Structural, and Individual. The first consideration is 'Environmental' factors, those which are beyond the control of the PKO. Secondly, 'Structural' factors, which are internal to the PKO and can thus be influenced. This distinction is important to make; much of the literature discusses ideas fitting both of these categories at the same time, blurring the line between them and making the results difficult for practitioners to respond to. Lastly, there should be a consideration of 'Individual' factors. The justification for this is that even in the mission

with the worst allegations rate from 2019, the vast majority of PKO staff committed no offenses. This implies that, even if all of the environmental and structural factors contribute to higher allegation rates, there must be some factors on the individual level that distinguish offenders from their colleagues. Section II will lay down the proposed theoretical influences within each of these categories, borrowing from peacekeeping literature and other fields.

Section II: Theoretical Framework

Previous empirical testing on SEA in PKOs and on wider trends of misconduct have established a few solid causal relationships for the occurrence of SEA. The norms of the TCC have been rigorously tested by a number of authors using a range of indicators such as rule of law, corruption, press freedom, and gender norms. For the most part, these factors have been shown to significantly influence the occurrence of SEA (Nordås and Rustad 2013; Karim and Beardsley 2019; Rodrguez and Kinne 2019; Horne, Robinson, and Lloyd 2020). Similarly, though less extensively tested in the literature, the gender balance of PKO staff has been shown to have a potentially significant effect on SEA and other misconduct (Karim and Beardsley 2019; Horne, Robinson, and Lloyd 2020). Finally, host country institutions have been tested with similar indicators as TCCs and shown to also have a significant level of influence (Nordås and Rustad 2013; Rodriguez and Kinne 2019). While all these causal mechanisms might benefit from retesting as more data becomes available, this paper instead proposes some novel causal relationships for testing, based in part on elements of previous studies.

Environmental Causes

Two of the hypotheses outlined by Nordås and Rustad (2013, 523) relate to the nature of conflict in a host country. They show that extensive sexual violence in the preceding conflict increases the likelihood of SEA whilst the host security situation has a similar, though not significant, effect. Taking inspiration from these hypotheses, this paper believes that both sexual violence in the preceding conflict and violence against civilians more generally are part of the same causal story. That an increase of civilian victimisation results in the normalisation of violence against non-combatants and other previously unacceptable behaviours. Peacekeepers deployed to such an environment may reassess their own behaviour in relation to this normalisation and as such a rise in SEA may be observable. This leads to the following hypothesis:

H1: Greater Levels of Civilian Victimisation in the Preceding Conflict Will Result in More Incidents of
SEA

While a culture of violence may lead to civilian victimisation being normalised, it alone could not account for misconduct by peacekeepers. A well-established driver of criminality is that of opportunity; if more opportunities to commit criminal acts present themselves, a greater number of such acts are likely to be committed. The same logic is no less applicable to SEA committed by peacekeepers. This paper proposes that greater numbers of vulnerable civilians present more opportunities for offenses to be committed, leading to an increase in the allegation rate. With a notable assumption being that peacekeepers will be deployed to the same areas where vulnerable civilians are most concentrated. Essentially:

H2: Larger Populations of Vulnerable Civilians in the Host Country Will Result in More Incidents of
SEA

While elements of these two hypotheses have been touched upon in previous studies, for example through the use of control variables for population density and GDP, they persist as a gap in our understanding of SEA in UN peacekeeping. That they are, as environmental factors, beyond the power of

the UN to influence prior to deployment does not diminish their relevance. A greater understanding of how these factors may increase the risk of SEA would allow practitioners to be prepared in advance and pre-emptively take action to avoid abuses.

Structural Causes

Returning again to the discussion of opportunity raised above, it can be suggested that a similar mechanism exists on a structural level. Rather than focusing on access to potential victims, however, the analysis on this level would examine official proscription and oversight. Indeed, one need not search far to find calls from academia and beyond for the UN to take harsher measures against offenders. As it stands, the standard procedure in cases where SEA is verifiable only results in dismissal from the UN at worst. It is the responsibility of the TCC to decide what to do with offenders once they are repatriated. It is not unreasonable to assume that personnel from countries with harsher penalties for misconduct see their behaviour constrained in the same way as domestic law is intended to deter lawbreaking. From this line of thinking in follows that:

H3: Stricter Oversight Will Result in Fewer Incidents of SEA

Moving away from concepts of punishment and towards ideas of prevention, it is natural to look next at the training of UN staff pre-deployment. Since the adoption of UN Security Council Resolution 1325, greater attention has been paid to incorporating gender perspectives into UN peacekeeping. While it is not yet clear to what extent this has translated into training, it is clear that there is an awareness of the need for gender training pre-deployment (Caparini 2019, Johansson 2020). In a similar manner to how gender norms have been shown to influence levels of SEA (Karim and Beardsley 2019; Horne, Robinson, and Lloyd 2020), it is possible that comprehensive gender training may be able to replicate the effect of progress gender norms in TCCs. The argument for this paper is that more comprehensive gender training will generate an awareness of exploitative behaviour in PKO staff and reduce the likelihood of infractions like transactional sex, which might otherwise be viewed as less problematic by peacekeepers.

H4: Comprehensive Gender Training for Staff Pre-Deployment Will Result in Fewer Incidents of SEA

Just as the training received by each mission may not be comparable, so too is the balance of police, military, and civilian personnel likely to be varied. Based on observation of the UN's data, there is a great deal of inconsistency between missions when it comes to what section of staff is committing offenses. It seems clear that a relationship between the composition of missions and the occurrence of SEA might exist, but it is hard to predict in what direction. It may be that police are less influenced by the ideals of militarised masculinity and therefore less likely to offend. Alternatively, it is equally possible that their great proximity and access to the local community could in fact see an increase in allegations. In addition, complaint mechanisms through police forces in contact with the public could make reporting offenses easier, and thus lead to an increase. For the purposes of posing a hypothesis, this paper will assume police reduce offences.

H5: Higher Proportions of Police Forces on Missions Result in Fewer Incidents of SEA

Individual Causes

Even should all of the above hypotheses be proved true in future research; they would still not capture the entirety of the causal story. As mentioned in Section 1, PKO staff who commit offenses represent an extremely small minority of the overall staff base. This means that there are still factors on an individual level that influence the decision to commit acts of SEA. It is especially important that future research

takes inspiration from other fields of study, or better yet, that specialists from other fields also take up the task of understanding SEA in PKOs. Before continuing the discussion, it is important to note that any future attempts to expand on these ideas will have to carefully navigate potential ethical concerns of such detailed individual level analysis. For example, causal relationships that might emerge from such research should be used to inform policymaker's prevention strategies and not to vilify individuals fitting a particular characteristic.

One such potential causal relationship is that previous criminality could be a predictor of future behaviour. UN PKOs are made up for staff from numerous national forces, none of which have unblemished records with regards to misconduct. While it will not be universally true, it seems probable then that those PKO staff involved in SEA offenses are likely to have some record of previous misconduct in their home countries. This rests on the assumptions that criminality forms patterns of behaviour and that major misconduct is unlikely to be an individual's first offense in most cases. Thus, the following hypothesis emerges:

H6: Individuals with Records of Misconduct Will be More Likely to Commit Acts of SEA

However, despite the logic laid out above, it is not always the case that individuals will continue to behave as they always have. This is especially true when faced with dramatic changes in their environment. In a similar manner to how Hypothesis 1 discussed a reassessing of behaviour in violent conflict areas, it is possible that exposure to particularly traumatic experiences during the course of deployment in conflict zones may prompt drastic changes in behaviour of staff with otherwise clear records. While this would by no means be a universal rule, as all individuals react to trauma differently, this paper still posits that it is an interesting avenue of investigation with potentially important implications for policies surrounding staff welfare.

H7: Individuals Suffering from Trauma May be More Likely to Commit Acts of SEA

While this section has only proposed a few formalised hypotheses for the individual level, it must be emphasised that this has the potential to become a remarkably interesting area of research. For example, greater understanding of the gender and nationality of perpetrators has the potential to either reinforce or upend theories tying gender balance and troop contributing country norms to rates of SEA. The development of future hypotheses in relation to this topic would benefit greatly from cross-disciplinary cooperation.

Section III: Operationalising the Phenomenon
*A Dependent Variable*

In order to rigorously test any of these theories, future research will need to identify a dependent variable [DV] and set indicators. This paper proposes to use UN data of allegations of SEA against PKOs as a basis for the DV. While this data will by no means truly reflect the extent of SEA, it can give a snapshot of the issue and be used to generalise. However, the yearly allegation data as presented by the UN does not distinguish when the alleged incident occurred. To make the data useful for inference, it must first be cleaned so that only the incidents alleged to have occurred in each year are shown, otherwise the results of any mission-year analysis may become misleading. Fortunately, the UN also provides information on what year an allegation relates to from 2010 onwards. By excluding any allegations without clear dates and by recategorizing allegations received years later into the year they occurred, it is possible to get a clearer picture on the extent of alleged incidents each year. Figure 3 demonstrates the significant difference this cleaning process makes when viewing the data.

Figure 3: Total Allegations Received versus Alleged Incidents
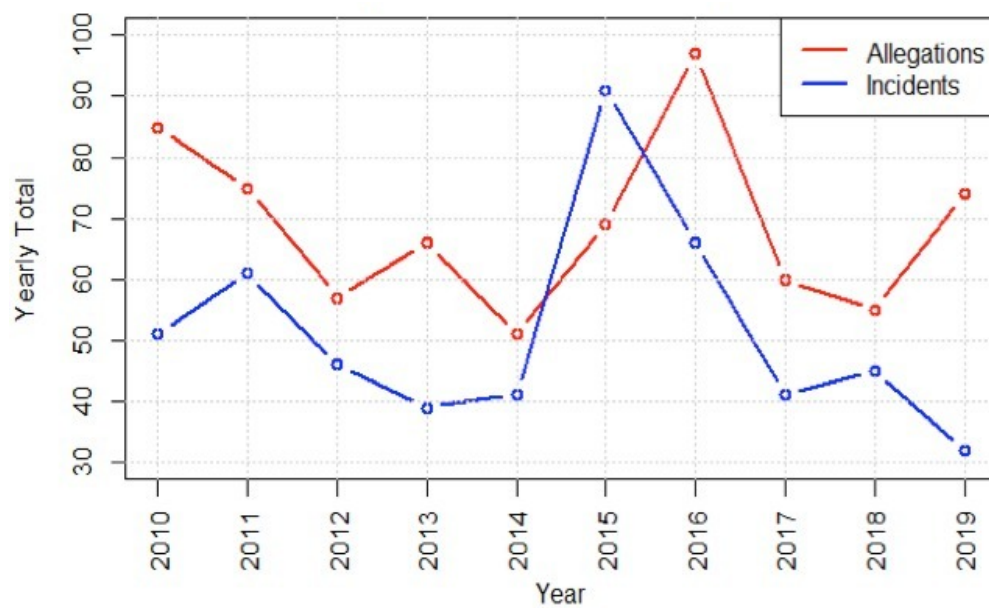
Source: UNCDU (2020)

Choosing indicators based on this new data still requires careful consideration. To use a binary measure of whether incidents were alleged to have occurred or not each year, similar to the method used by Nordås and Rustad (2013), does not capture the variation between missions that this paper has emphasised. Similarly, using the absolute number of alleged incidents would be inappropriate due to the variations in staff numbers between missions. Which notably has been a significant control variable in previous studies (Karim and Beardsley 2016, Rodriguez and Kinne 2019).

For these reasons, the rate of alleged incidents is a better measure. This paper proposes to calculate such by dividing the year's total alleged incidents by the average staff level, then multiplying by 10,000 to give an Incident Rate useable as an indicator for the DV. Figure 4 displays the incident rate for the missions listed as active in 2017 as an example of how such data would look in practice.

Figure 4: 2017 Incident Rate
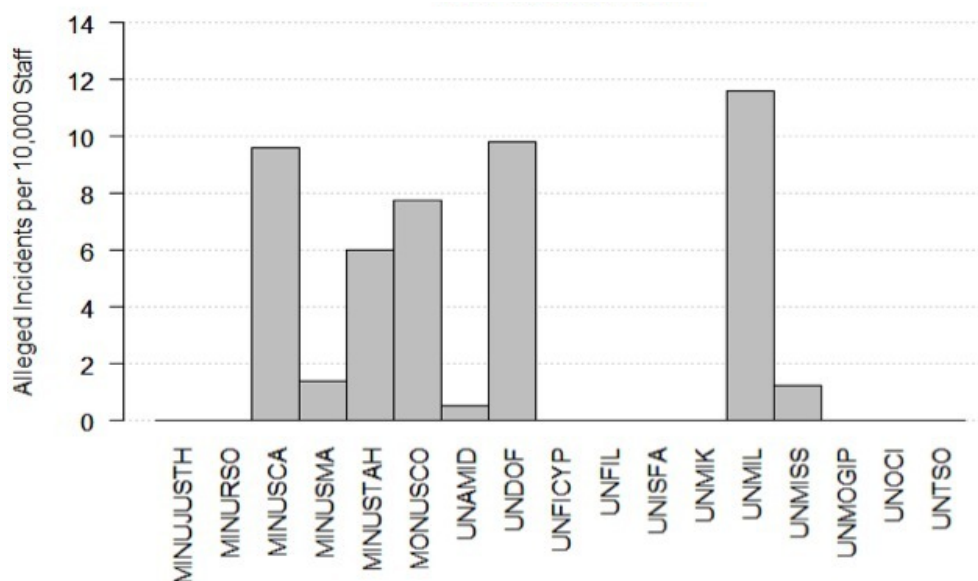
Source: UNCDU (2020) & UN Peacekeeping (2017)

Important to note is that controlling for mission size demonstrably changes the appearance of outliers. When only accounting for allegations made per year, both MONUSCO and MINUSCA presented as significant outliers in 2017, whereas Figure 4 demonstrates that this is not strictly true. This not only serves as proof that Incident Rate is a useable DV indicator for future research, but also emphasises the care that must be taken to properly understand and handle SEA data.

Hidden Cases and Reporting Variation

It is appropriate at this point to briefly revisit the aforementioned issues of underreporting and data scarcity regarding SEA. As stated, SEA is chronically underreported. It would be naïve, however, to believe that the extent of this underreporting will be consistent across all missions. It is undeniable that variation between missions will have had an impact on the data available to researchers and this must be kept in mind when drawing conclusions.

What precisely affects levels of reporting of SEA is not well understood. Empirically, research cannot create a true to life scaled variable for the proportion of SEA incidents being reported. However, it is possible that dummy variables could be created to serve as a proxy for reporting in future studies of SEA occurrence. While the main concern of this paper was to open up the discussion around the occurrence of SEA, any future research into the mechanisms behind levels of reporting would be an invaluable contribution to the field.

Hypotheses for Future Research

Environmental Factors

The causal mechanisms explored in Section II could be approached in a number of ways, though this paper will only suggest a few hypotheses. As discussed, the research question will be approached in three distinct categories: Environmental, Structural, and Individual. Within each of these categories the hypotheses will be discussed and potential independent variables [IVs] presented.

Hypothesis 1: Greater Levels of Civilian Victimisation in the Preceding Conflict Will Result in More Incidents of SEA

Due to the data limitations associated with this topic it is difficult to identify indicators for levels of victimisation. Nordås and Rustad (2013, 525) measured sexual violence in the preceding conflict as a dummy variable and, due to the aforementioned data scarcity, this paper does not offer an alternative approach. Additionally, this hypothesis would be well served by using an indicator for one-sided violence against civilians (UCDP 2020). Finally, the extent of internal displacement of civilians, as measured by the IDMC (2020) should also be brought into consideration. While these three indicators could potentially be measured individually to test the hypothesis, it may be advantageous for future research to create a new index for civilian victimisation in the preceding conflict.

Hypothesis 2: Larger Populations of Vulnerable Civilians in the Host Country Will Result in More Incidents of SEA

Measuring variables for this hypothesis runs into the same data scarcity issues as identified for H1 above. Where accessible, variables on the number of internally displaced persons [IDP]s and unaccompanied minors would be ideal indicators for vulnerable populations. The separation from networks of support and, most likely, means of subsistence would open up these populations to abuse, increasing the opportunity for crime as outlined above. Additionally, significant literature points towards the relationship between low GDP and the concept of peacekeeping economies. Essentially, substantial wealth disparities between locals and the mission staff establishes the mission as a potential source of income for locals. This can take several forms, including prostitution (Kent 2007, Defeis 2008). This would be classified as transactional sex under UN guidelines and, as such, a form of SEA. Based on this, it may also be advisable to include indicators for unemployment and GDP for this hypothesis.

Structural Factors

Hypothesis 3: Stricter Oversight Will Result in Fewer Incidents of SEA

Clarifying what is meant by 'stricter oversight' could lead to a few different angles of approach for this hypothesis. Were it to be approached from the angle of active oversight or prevention, then an indicator for the presence and capacity of conduct and discipline bodies could be utilised. Alternatively, should a deterrence approach be pursued, then both the number of previous allegations of SEA and the previous consequences faced by perpetrators should be considered for indicators. It is also advisable that lagged versions of these indicators be included to allow their effect to be felt in the operations.

Hypothesis 4: Comprehensive Gender Training for Staff Pre-Deployment Will Result in Fewer Incidents of SEA

The operationalisation of gender training for peacekeeping staff could be approached in two ways: the amount of time spent on gender training and the quality of said training. For measuring the time, a simple variable of training hours should be adequate. For quality of training it seems likely that an ordinal scale will have to be developed through greater insight into the intricacies of operational training. The first hurdle for any study would of course be to define what exactly is meant by gender training. For this reason, future qualitative investigation into training practices would be of great benefit to furthering the research field.

Hypothesis 5: Higher Proportions of Police Forces on Missions Result in Fewer Incidents of SEA

Operationalising for this hypothesis is fairly simple and can follow the same approach used to measure gender balance in PKOs as utilised in previous studies. The ratio of police to military PKO staff on a deployment is an adequate indicator, for which data is readily available from the UN. To acquire a variable usable for mission-year analysis, it would be necessary to average the monthly staff reports published by the UN.

Individual Factors

Before continuing the discussion on operationalisation, it is important to note that the hypotheses related to individual factors may present the greatest challenge to research. As it currently stands, access to the disaggregated micro-level data required to test these ideas is not available as the UN does not publish offender details more specific than the nationality and staff category.

Hypothesis 6: Individual with Records of Misconduct Will be More Likely to Commit Acts of SEA

As stated, operationalising this hypothesis faces significant challenges in terms of access to data. The most effective indicator to use would be either a dummy variable or ordinal scale of offences previously committed by each member of peacekeeping staff implicated in abuses. As this information will likely be held only by the contributing nation, it is likely that future research will either have to overcome major information barriers or develop alternative indicators.

Hypothesis 7: Individuals Suffering from Trauma May be More Likely to Commit Acts of SEA

Operationalising trauma in offenders is perhaps the single most challenging of the approaches discussed in this paper. A dummy variable of whether an offender has been diagnosed with trauma is unlikely to be useful as too many cases will likely be missed. Similarly, an indicator for if the offender has been receiving trauma counselling is problematic. While counselling would indicate the presence of trauma, it also serves as a form of treatment and therefore muddles the causality, and again not all individuals will receive such. It is possible that substitutes for trauma, such as the danger of missions, could be applicable. Still, this serves as a strong example of why a cross-disciplinary approach to future research would be of great benefit to strengthening the field as a whole. Experts from other fields may have greater insight into how best to measure for such a hypothesis or indeed if it is applicable at all.

Conclusion

The purpose of this paper was not to conduct an empirical test of a phenomena relating to sexual exploitation and abuse by peacekeeping staff. It has been written with the intention of expanding on the discussion around the topic of SEA and to provide a potential starting point for future research endeavours. The use of peacekeeping operations will almost certainly be a persistent feature of the international community's conflict resolution efforts for the foreseeable future. That thousands of civilians rely upon peacekeeping operations for stability and protection makes any increase in our understanding of their dynamics infinitely valuable. Sexual exploitation and abuse continue to threaten the wellbeing of civilians under the protection of peacekeepers and consequently undermines the legitimacy of operations and mandates.

Overall, this paper offers three key contributions to the field. Firstly, it is hoped that the Incident Rate developed above and the discussion of potential pitfalls in examining the UN SEA data can serve to assist or inspire continued investigation into SEA. Secondly, whilst the hypothesised causal relationships outlined in Section II are by no means exhaustive, they offer fertile ground for future research of great relevance to practitioners and policymakers. Finally, the discussion of operationalisations makes clear that nothing is more valuable to the understanding of this topic than increases in the quantity, scope, and quality of data. To allow researchers to continue making meaningful progress in the understanding of SEA, international organisations must continue to build upon their publicly available data.

As previously discussed, a greater understanding of the environmental factors beyond the control of peacekeeping operations will allow practitioners to prepare effective prevention strategies before and during deployment. Likewise, further demystifying how the internal structure of operations can contribute to a reduction in SEA offences will be of great use to practitioners and policy makers alike. Finally, it is hoped that the discussion of individual level factors that can predict SEA will encourage interest and collaboration between diverse fields of study. A cross-disciplinary approach to this micro-level analysis could help to shed light on what differentiates offenders from their colleagues and would allow organisations to move from punishment to prevention.

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Submission Criteria
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What Are We Looking For?
The *Pax et Bellum Journal* is looking for academic papers written in English, produced by bachelor's or master's level students or recent graduates that are relevant to the field of peace and conflict. We will publish short papers between 3,000 and 5,000 words, and longer papers between 8,000 and 10,000 words (references excluded). Papers will multiple authors are accepted; please clarify whether there is a main author or all authors contributed equally to the writing process. Papers are expected to be of first-submission, if this is not the case a waiver giving us the right to publish the paper must be included.

Recommended Academic Structure
- Abstract: Approximately 100-200 words in length, should include your research question, methodology, theoretical framework, conclusion, and up to 5 keywords.
- Introduction: Should clearly identify your research question and a corresponding hypothesis, the structure of your article and its relevance to the field. Present a clearly formulated hypothesis.
- Literature Review: Should highlight the research puzzle and position your work within existing scholarship.
- Methodology: Should explain and justify your choice and use of methodology. Highlight any theoretical advantages and potential weaknesses. If applicable, please submit proof of approval from your institution's ethical board.
- Analysis: Should evaluate and assess your data within the chosen theoretical structure.
- Conclusion: Should summarize your analysis, argument, and findings. In addition, explain their academic and societal relevance. This section should identify limitations of your study.
- Bibliography: Should cite all your sources according to the *Chicago Manual of Style*. All submissions will be checked for plagiarism.
- Author Biography: Should in approximately 100 words, present your name, university, degree, applicable work experience, and any other relevant information. It is necessary for you to acknowledge your supervisor within this section.

Submission Format
Times New Roman, size 12, line spacing 1.5

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Appendices

Appendix 1 - "Determinants of Interstate Cyber Incidents" by Johannes Fritz Geiger
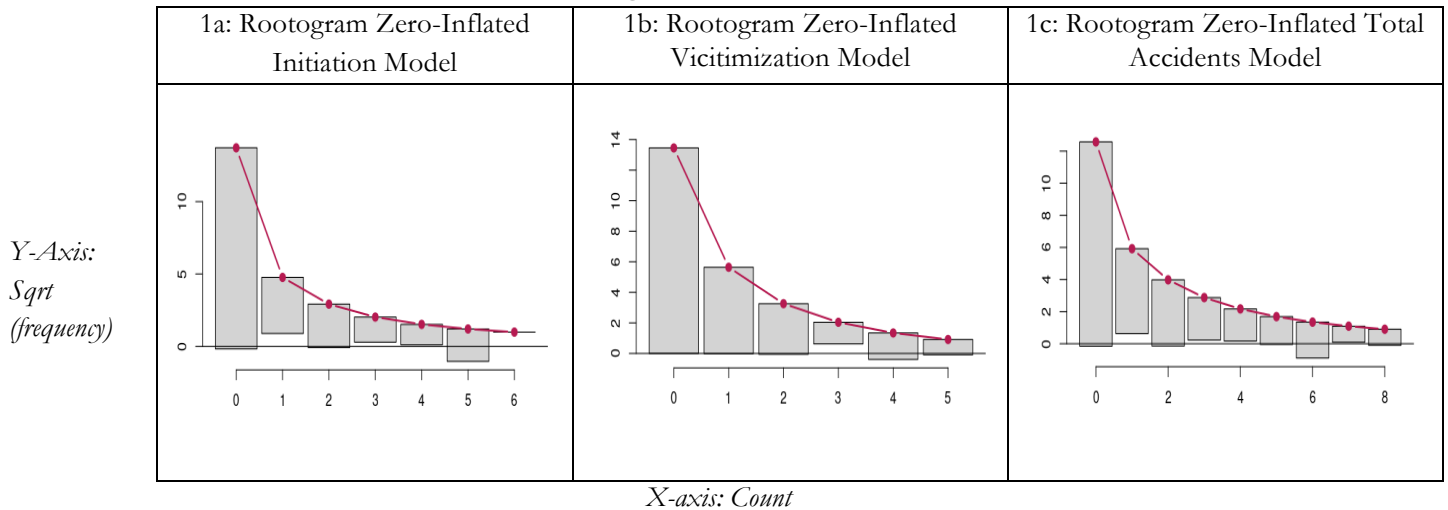
Table 4: List of Variables

Variable	Description
Initiations	The number of cyber incidents initiated by the country in that year. Recoding of the DCID dataset by Maness, Valeriano, and Jensen (2017).
Victimizations	The number of cyber incidents that targeted the country in that year. Recoding of the DCID dataset by Maness, Valeriano, and Jensen (2017).
Total Incidents	Total number of cyber incidents the country experienced in that year (= SUM of Initiations + Victimizations).
Military Expenditure	Based on SIPRI Military Expenditure Database (SIPRI 2020). Due to right-skew, I use the natural log.
Alliance Memberships	Version 4.1 of the COW Project Formal Alliances data (Gibler 2009).
Internet Users	Share of a country's total population that uses the internet (World Bank Group 2019). Due to strong right-skew, I use the natural log.
Tertiary Education	The overall number of people who are enrolled in a tertiary education program (both public and private). Data is taken from the UNESCO Institute for Statistics (2020).
GDP per Capita	Gross domestic product per capita in current $US, as reported by the World Bank Group (2019). Following common procedure and due to strong right-skew, I use the natural log.
Polity V	Polity V scores from the Polity Project. Scores measure how democratic/autocratic a country is (Marshall and Gurr 2020). Values range between -10 for autocracies and +10 for democracies.
Press Freedom	Freedom of the Press indicator taken from Freedom House (2020). The index combines legal, political, and economic factors that ensure/inhibit press freedom.

Table 5: Descriptive Statistics

Dependent Variables							
Statistic	**N**	**Mean**	**St. Dev.**	**Min**	**Pctl(25)**	**Pctl(75)**	**Max**
Initiations	442	0.600	1.898	0	0	0	21
Victimizations	442	0.602	1.553	0	0	1	17
Total Incidents	442	1.201	2.635	0	0	1	21
Independent Variables							
Milit. Expend.	415	44,950.290	117,376.80	18.800	2,333.200	40,644.000	752,288.00
Allies	325	4.298	4.132	0.000	2.000	5.000	21.000
Internet Users	420	40.027	29.712	0.010	9.803	68.843	94.786

Tert. Education	352	177.500	101.758	2.000	89.750	265.250	353.000
GDP per Cap.	399	16,275.640	16,169.950	390.093	2,361.432	27,980.620	57,904.200
Polity V	437	4.311	7.152	-10.000	2.000	10.000	10.000
Press Freedom	425	46.459	27.523	13.000	21.000	78.000	100.000

Figure 1 a, b & c

1a: Rootogram Zero-Inflated Initiation Model	1b: Rootogram Zero-Inflated Vicitimization Model	1c: Rootogram Zero-Inflated Total Accidents Model

Y-Axis: Sqrt (frequency)

X-axis: Count

Figures (1.a) to (1.c) show rootograms for the zero-inflated negative binomial models presented in table (3). The reason I show graphs for table (3) and not table (1) is that the zero-inflated models outperformed the regular negative binomial models. The red line shows the fit of the model and the bars represent the actual count values from the data. If the bar hangs above the zero-line, this indicates overfitting for that particular count and vice versa. What these rootograms show is that the models do not systematically over/underfit higher- or lower segments of the data. Nonetheless, under/overfitting does occur for individual counts.

Table 6: *Vuong Test-Statistics*

INITIATION MODEL					
	Vuong z-Statistic				*p-Value*
Raw	-2.763	model 1	<	model 2	0.003
AIC-Corrected	-1.908	model 1	<	model 2	0.028
BIC-Corrected	-0.438	model 1	<	model 2	0.331
VICTIMIZATION MODEL					
	Vuong z-Statistic				*p-Value*
Raw	-1.986	model 1	<	model 2	0.024
AIC-Corrected	-0.330	model 1	<	model 2	0.371
BIC-Corrected	2.521	model 1	>	model 2	0.006
VICTIMIZATION MODEL					
	Vuong z-Statistic				*p-Value*

Raw	-2.232	model 1	<	model 2	0.013
AIC-Corrected	-1.340	model 1	<	model 2	0.090
BIC-Corrected	0.196	model 1	>	model 2	0.423

Table (6) shows the Vuong statistics testing the regular negative binomial models from table (1) against the zero-inflated models from table (3). In this table, "model 1" refers to the regular model and "model 2" refers to the zero-inflated model. Across all cases, the zero-inflated negative binomial model performs better, though there is inconsistency in the BIC-corrected version of the vuong statistic.

Appendix 2 - "Horizontal inequality, Resources and Civil war" by Maurice Schumann
Register of all Analyzed Newspaper Articles
Al Jazeera: Search Terms 'Yemen Marginalization' and 'Yemen Inequality'
Al Jazeera, 07.09.2009, online at
      https://www.aljazeera.com/news/middleeast/2009/11/2009117618909512.html
      (last retrieved 06.01.2020).
Al Jazeera, 28.09.2009, online at
      https://www.aljazeera.com/news/middleeast/2009/09/2009927191230452203.html
      (last retrieved 06.01.2020).
Al Jazeera, 01.10.2009, online at
      https://www.aljazeera.com/news/middleeast/2009/10/20091014344536820.html
      (last retrieved 06.01.2020).
Al Jazeera, 08.11.2009, online at
      https://www.aljazeera.com/news/middleeast/2009/11/200911723220363295.html
      (last retrieved 06.01.2020).
Al Jazeera, 16.11.2009, online at
      https://www.aljazeera.com/news/middleeast/2009/11/200911723220363295.html
      (last retrieved 06.01.2020).
Al Jazeera, 23.11.2009, online at
      https://www.aljazeera.com/news/middleeast/2009/11/200911723220363295.html
      (last retrieved 06.01.2020).
Al Jazeera, 10.03.2011, online at
      https://www.aljazeera.com/indepth/spotlight/yemen/2011/02/2011228141453986337.html
      (last retrieved 06.01.2020).
Al Jazeera, 12.01.2012, online at
      https://www.aljazeera.com/news/middleeast/2012/01/2012112131156182136.html
      (last retrieved 06.01.2020).
Al Jazeera, 19.03.2013, online at
      https://www.aljazeera.com/news/middleeast/2013/03/2013318164852751944.html
      (last retrieved 06.01.2020).
Al Jazeera, 22.03.2014, online at
      https://www.aljazeera.com/news/middleeast/2014/03/yemen-armyclashes-with-houthis-turn-deadly-2014322124735330613.html
      (last retrieved 06.01.2020).
Al Jazeera, 04.07.2014, online at
      https://www.aljazeera.com/news/middleeast/2014/06/troops-rebelsagree-ceasefire-yemen-201464133533105886.html
      (last retrieved 06.01.2020).
Al Jazeera, 30.09.2014, online at
      https://www.aljazeera.com/news/middleeast/2014/06/troops-rebels-agree-ceasefireyemen-201464133533105886.html
      (last retrieved 06.01.2020).
Al Jazeera, 10.02.2015, online at
      https://www.aljazeera.com/indepth/opinion/2015/02/houthi-challenge-yemeniran-saudi-150210060324805.html
      (last retrieved 06.01.2020).

Al Jazeera, 07.03.2015, online at
https://www.aljazeera.com/news/2015/03/yemen-president considersaden-country-capital-
150307161253345.html
(last retrieved 06.01.2020).

Al Jazeera, 27.03.2015, online at
https://www.aljazeera.com/news/2015/03/yemen-hadi-leaves-yemenair-
strikes-houthis-150326164017866.html
(last retrieved 06.01.2020).

Al Jazeera, 17.05.2015, online at
https://www.aljazeera.com/news/2015/05/yemen-rebels-boycottsaudi-brokered-talks-
150517073002128.html
(last retrieved 06.01.2020).

Al Jazeera, 31.07.2016, online at
https://www.aljazeera.com/news/2016/07/yemen-exiled-governmentaccepts-peace-proposal-
160731115439857.html
(last retrieved 06.01.2020).

POLITICO: Search Term 'Yemen Conflict'

POLITICO, 15.03.2012, online at
https://www.politico.com/tipsheets/morning-defense/2012/03/afghanwho-crashed-truck-near-
panettas-plane-has-died-mckeon-vows-to-fight-cuts-john-allen-to-face-congressfor-first-time-as-
isaf-commander-008189
(last retrieved 06.01.2020).

POLITICO, 10.10.2014, online at
https://www.politico.com/tipsheets/morning-defense/2014/10/ebolafunding-still-held-up-on-
the-hill-panetta-regrets-2012-ignatius-interview-take-our-defense-survey-212543
(last retrieved 06.01.2020).

POLITICO, 30.03.2015, online at
https://www.politico.com/tipsheets/morning-defense/2015/03/drivingthe-week-iran-and-
yemen-mccaskill-questions-need-for-new-ig-for-afghanistan-212543
(last retrieved 06.01.2020).

POLITICO, 01.04.2015, online at
https://www.politico.com/tipsheets/morning-defense/2015/04/commissionheavy-on-army-
light-on-guard-cruz-offers-an-excuse-for-his-poor-sasc-attendance-us-releases-batchof-weapons-
to-egypt-212543
(last retrieved 06.01.2020).

POLITICO, 06.04.2015, online at
https://www.politico.com/story/2015/04/saudi-arabia-iran-nucleardeal-116694
(last retrieved 06.01.2020).

POLITICO, 07.04.2015, online at
https://www.politico.com/tipsheets/morning-defense/2015/04/mccainrunning-for-sixth-term-
israel-proposes-iran-deal-changes-dicks-to-lobby-for-boeing-212543
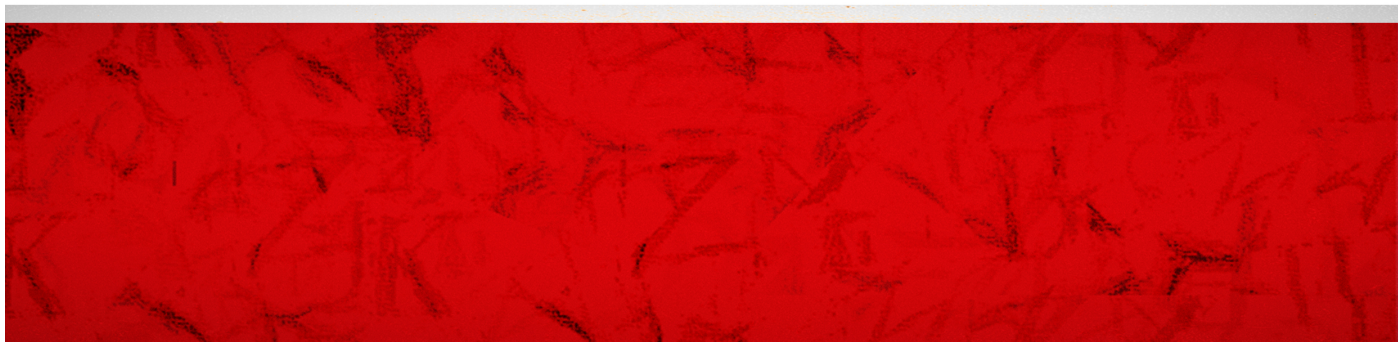(last retrieved 06.01.2020).

POLITICO, 10.04.2015, online at
https://www.politico.com/tipsheets/morning-defense/2015/04/khameneiweighs-in-on-iran-
deal-biden-warns-iran-over-iraq-fort-hood-purple-heart-ceremony-today-212543
(last retrieved 06.01.2020).

POLITICO, 17.04.2015, online at
        https://www.politico.com/story/2015/04/white-house-to-host-arableaders-117073
        (last retrieved 06.01.2020).
POLITICO, 12.05.2015, online at
        https://www.politico.com/tipsheets/morning-defense/2015/05/hershbin-laden-article-sparks-
        major-blowback-arms-makers-wrote-own-rules-in-house-bill-sasc-ndaa-underway-212543
        (last retrieved 06.01.2020).
POLITICO, 13.05.2015, online at
        https://www.politico.com/story/2015/05/iran-warns-us-aid-shipyemen-117889
        (last retrieved 06.01.2020).
POLITICO, 14.05.2015, online at
        https://www.politico.com/story/2015/07/obama-team-split-overnext-steps-with-iran-120130
        (last retrieved 06.01.2020).
POLITICO, 03.08.2015, online at
        https://www.politico.com/tipsheets/morning-defense/2015/08/kerryin-cairo-for-security-talks-
        military-obama-team-at-odds-over-south-china-sea-marines-f-35-reachesinitial-operational-
        capability-212543
        (last retrieved 06.01.2020).
POLITICO, 03.01.2016, online at
        https://www.politico.com/story/2016/01/saudi-arabia-iran-foreignpolicy-217309
        (last retrieved 06.01.2020).
POLITICO, 05.04.2016, online at
        https://www.politico.com/tipsheets/morning-defense/2016/04/globalmilitary-spending-sees-
        uptick-iraqi-forces-enter-hit-ash-carter-speaks-at-csis-today-213581
        (last retrieved 06.01.2020).
POLITICO, 05.05.2017, online at
        https://www.politico.com/tipsheets/morning-defense/2017/05/trumpwins-defense-boost-as-
        senate-passes-omnibus-220161
        (last retrieved 06.01.2020).
POLITICO, 02.08.2017, online at
        https://www.politico.com/tipsheets/morning-defense/2017/08/02/mattis-and-tillerson-set-to-
        testify-on-aumf-in-the-senate-221654
        (last retrieved 06.01.2020).
POLITICO, 07.08.2017, online at
        https://www.politico.com/tipsheets/morning-defense/2017/08/07/trumps-north-korea-policy-
        resembles-obamas-221727
        (last retrieved 06.01.2020).
POLITICO, 19.09.2017, online at
        https://www.politico.com/tipsheets/morning-defense/2017/09/19/mattis-says-us-hasnt-yet-
        needed-to-shoot-down-north-korean-missiles-222363
        (last retrieved 06.01.2020).
POLITICO, 06.11.2017, online at
        https://www.politico.com/tipsheets/morning-defense/2017/11/06/pentagon-ground-invasion-
        needed-to-secure-north-korean-nuclear-sites-223196
        (last retrieved 06.01.2020).
POLITICO, 07.06.2018, online at
        https://www.politico.com/newsletters/morning-defense/2018/04/02/new-korea-military-
        exercises-test-diplomatic-opening-156295
        (last retrieved 06.01.2020).

POLITICO, 04.12.2018, online at
https://www.politico.com/newsletters/morning-defense/2017/12/04/trumps-military-buildup-still-a-mirage-039620
(last retrieved 06.01.2020).